

NMC MARB Information

Installation of close circuit television system in Bharatratna Atal Bihari Vajpayee Medical College and Hospital, Pune

Sr. No.	Prescribed Places for Camera Installation	Prescribed Numbers of Cameras to be Installed
1	Main Entrance of the Hospital & College	3
2	Patient Registration Counter	1
3	OPDs (depending upon number of OPDS in the college); It should cover the Medicine OPD Surgical OPD, Gynecological PD, Paediatric OPD, Ortho OPD etc.	5
4	Pre anesthesia area and recovery area in the operation theatre complex	3
5	Faculty Lounge and Attendance marking area	1
6	All 5 Lecture Theatres	6
7	Anatomy Dissection Hall	1
8	Physiology Lab/ Bio-Chemistry UG Labs	2
9	Patho and Micro Biology Labs	2
10	Pharmacology Lab	1
11	Patient Attendant waiting area	2
12	Emergency and Casualty ward	2
Total		29

S No.	Information of the medical college/ institution Year of Inception: Government/private:	2022 Government- Corporation Trust
1	Name	PMC-MET Bharatratna Atal Bihari Vajpayee Medical College and Hospital, Pune
2	Address with pin code	Thakre Chowk, Mangalwar Peth, Pune - 411011
3	University address with pin code	Maharashtra University of Health Sciences (MUHS), Dindori Road, Mhasraul, Nashik 422004.
4	Official website	www.bavmcpune.edu.in
5	Dean/ Principal/ Director	Dr Shilpa A Pratinidhi
6	Mobile Number	9822879665
7	Email ID of Dean	bavmc@punecorporation.org
8	Hospital	Kamla Nehru Hospital
9	Date and Year of Registration of the Hospital (DD/MM/YYYY)	01/09/1966
10	Number of Beds	420
11	Number of Beds for emergency	10
12	Date of the First Letter of Permission (LoP) of MBBS	09/03/2022
13	Status of Recognition	Applied for Fourth Renewal
14	Number of MBBS and PG broad specialty and super specialty students admitted in this session*	MBBS: 100 MD/MS: NA DM/MCH: NA
15	Inpatients registered and admitted (Previous month record)	1304
16	Outpatients registered (Previous month record)	19902
17	Number of Deaths reported to the Municipality/	00
18	Address and pin code of the Corporation/ Village	Pune Municipal Corporation, Shivaji Nagar, Pune 411005
19	Website link/email ID/ hyperlink of the corporation	https://www.pmc.gov.in/en
20	Number of Births reported (Month-wise)	263
21	Address and pin code of the Corporation/village	Pune Municipal Corporation, Shivaji Nagar, Pune 411005
22	Website link/ email ID/ hyperlink of the corporation	https://www.pmc.gov.in/en
23	Number of Rooms in Men's Hostel and students	No. Rooms: 36 Occupancy: 108
24	Total Number of Rooms in Women's Hostel and	No. Rooms: 70 Occupancy: 210
25	Name of the Grievance Redressal Officer (PIO & CPIO):	Dr Arti Shirsath Dr Rupli Muthal

26	Address with Pin code	Bharatratna Atal Bihari Vajpayee Medical College and Hospital, Mangalwar Peth, Pune - 411011
27	Telephone Number Email Id	020-29980800 bavmc.vishakhagh@gmail.com
28	Grievances reported Previous month record	NIL

29 Details of Post-Graduation Courses offered: **Not Applicable**

Post Graduate Course	Year of Commencement of the Course	Number of Students Currently pursuing the Course	Number of Students admitted in the current session
-	-	-	-

Department	Name of the faculty Qualification IMR Number	Current Designation & Date of promotion	Nature of employment Reguler / permanent or	Details of Service in the Last 5 years					Number of lectures taken / year small teaching group with Topics covered
				1	2	3	4	5	
Anatomy	Dr. Sunita Uttamrao Sawant, Qualification: M.S. Anatomy, Registration No.- 2001093229	Professor	Regular	2020-21 Professor, MNR Medical College, Sangareddy	2021-22 Professor SSPMMC Padve, BAVMC Pune	2022-23 Professor, BAVMC Pune	2023-24 Professor, BAVMC Pune	2024-25 Professor, BAVMC Pune	Total hours - 142 Gross Anatomy - Cubital fossa, Back of arm & anastomosis around elbow joint, Shoulder joint, Front of thigh - Femoral sheath, femoral vessels & nerve Histology - Muscles Tissue Embryology – Introduction: Male reproductive system, Female reproductive system, Gametogenesis, Spermatogenesis, Oogenesis, Ovarian cycle, Menstrual cycle, First week of development, Fertilization, Implantation, Second week of development, Third week of development, Formation of primitive streak, Notochord, Neural tube & Intraembryonic mesoderm, Placenta, Fetal membranes & twinning, Pharyngeal arches, ectodermal clefts, endodermal pouches Development of Palatine tonsil, Thymus, Parathyroid & Thyroid gland, Development of Axial skeleton, Limbs, Muscular system, Development of Face, Nasal cavities, Palate, Development of Mouth, Pharynx, Tongue, Salivary glands, Development of GIT, Rotation of Gut, Development of Liver & Biliary apparatus, Pancreas & Spleen, Development of Body cavities, Diaphragm, Development of Respiratory System, Development of Cardiovascular System, Development of Heart, Pharyngeal Arch Arteries & their Fate, Visceral Veins, Somatic Veins, Veins of Abdomen, Azygos System of Veins, Fetal circulation, Development of Urogenital System- Kidneys, Ureter, Urinary Bladder, Urethra, Prostate, Development of Uterus, Uterine Tube & External Genitalia, Development of Testes, Mesonephric duct & Paramesonephric duct, Development of Nervous System – Neural Tube, Neural Crest Cells, Spinal Cord, Brainstem, Cerebellum, Cerebrum, Development of Endocrine Glands- Pituitary, Pineal & Suprarenal Gland, Development of Eye, Development of Ear Exam: 80 Hours
Anatomy	Dr. Rupali A. Muthal Qualification: M.D. Anatomy, Registration No.- 2004/09/3330	Assoc. Prof.	Regular	2020-21 Assistant Professor, GMC Chandrapur.	2021-22 Assistant GMC Chandrapur. Associate Professor, BAVMC Pune.	2022-23 Associate Professor, BAVMC Pune.	2023-24 Associate Professor, BAVMC Pune.	2024-25 Associate Professor, BAVMC Pune.	Total hours - 112 Gross Anatomy - Front of thigh - Fascia lata, femoral triangle, Popliteal fossa, Front of leg & dorsum of foot, Back of Leg, Ankle joint, Joints of foot, Aorta, Azygos system of vein, Lungs, Bronchopulmonary Segments, Rectus sheath, Heart - Left chambers, Thoracolumbar fascia, Ischiorectal fossa, pudendal canal, Portal vein, Portacaval anastomoses, Popliteal fossa, Thyroid & parathyroid glands, Back of thigh, sciatic nerve,, Functional areas, 7th & 9th Cranial nerves, Ulnar nerve, median nerve, Front of thigh - Femoral sheath, femoral vessels & nerve Nasal septum, lateral wall of nose, Midbrain, Thalamus, Metathalamus, 10th, 11th, 12th Cranial nerves, Osteology - Tibia, Patella, Fibula, Histology- Bone, Lymphatic system, Respiratory system, Lip, Tooth, Tongue (GIT-1) Urinary System II Salivary glands, Oesophagus, Stomach, Duodenum (GIT-3), Small & Large Intestine (GIT-4), Liver, Gall Bladder, Pancreas (GIT-5) Male reproductive system, Female Reproductive System, Female Reproductive System II Special senses, Endocrine system, CNS, Histology Revision Histology – Revision2 Histology – Revision3, Connective tissue, Lymphatic system, Trachea, Lungs, skin, Bone Exam : 45 Hours

Anatomy	DR.Suhasini Tayde Qualification: M.S. Anatomy, Registration No.- 2004/02/0690	Assit. Professor	Contractual	2020-21	2021-22 Associate Professor BMC Sagar M.P., Assistant Professor, BAVMC, Pune.	2022-23 Assistant Professor, BAVMC, Pune.	2023-24 Assistant Professor, BAVMC, Pune.	2024-25 Assistant Professor, BAVMC, Pune.	Total hours - 139 Gross Anatomy- Joints, Axillary artery & axillary lymph nodes, Front of arm, Front of forearm, intrinsic muscles, Knee joint, Intrinsic muscles & nerves of hand, Lateral side of leg, venous drainage of lower limb, Hip joint, Pancreas, Pericardium, Nerve supply of heart, Sympathatic chain (Thoracic part), Peritoneal cavity, Spleen, Coeliac trunk, Suprarenal gland, mesenteric vessels Perineal pouches Orbit - Muscles, Nerves, Cranial cavity - Interior, Submandibular gland & ganglion, Muscles of Larynx, Middle ear, Joints, CVS & lymphatic system, Shoulder girdle, Cubital fossa, Shoulder joint, Front of forearm, Intrinsic muscles & nerves of hand, Back of forearm, radial nerve, Front of thigh - Fascia lata, femoral triangle, Gluteal region, Front of leg, dorsum of foot, Back of Leg, Ankle joint, Joints of foot, The Pleurae, Pericardium, Mediastinum divisions - Superior Mediastinum, Uterus, Embalming techniques, Communication skills, Cadaver as first teacher Genetics – 1) Genetics - Chromosomes, Karyotyping, Barr body, Lyon's hypothesis, 2) Genetics-Structural chromosomal aberrations, Down's syndrome, Edward's syndrome, Patau's Syndrome 3) Genetics: Turner's syndrome, Klinefelter's Syndrome, Mosaics, Chimeras, 4) Genetics: Modes of inheritance 5) Genetics :- Achondroplasia, Cystic fibrosis, Vitamin I resistant rickets, haemophilia, Duchennes muscular dystrophy, sickle cell anaemia 6) Genetics: Polymorphism, mutation, genetic counselling, Prenatal diagnosis. Exam: 75 Hours
Anatomy	Mr. Karthik K A Qualification: MSc. (Medical Anatomy)	Tutor	Contractual	NA	NA	2022-23 --	2023-24 Tutor BAVMC Pune	2024-25 Tutor BAVMC Pune	Total hours - 152 Gross Anatomy – Anatomical terms, Muscles, Wrist joint, Flexor retinaculum & palmar aponeurosis, 1st carpo - metacarpal joint, Arches of foot, Intercostal spaces, Heart- Right chambers Heart- Right chambers, SVC Blood supply of heart, Thoracic Azygos system of veins, duct, Inguinal canal, Muscles of anterior abdominal wall, Posterior abdominal wall muscles, Suprarenal gland, mesenteric vessels Perineal pouches, Aorta, IVC, Arch of Aorta, Kidneys, Urethra, Prostate, Vas deferens, Cranial cavity, Dural venous sinuses, Medulla Oblongata, Cerebellum, Splanchnic nerves, Hip joint, Intercostal spaces, Parotid gland, Mandibular nerve & Otic ganglion, pharynx, Cerebrum-Sulci, Gyri, Tongue, Mastoid antrum, Internal ear Embryology- Pharyngeal arches Histology- Nervous tissue, Mammary gland, Cell & Intracellular junctions, Epithelium of Connective tissue cartilage CVS, blood vessel, Skin Salivary glands (GIT-2) Osteology - Radius, Front of forearm, Hip bone, Femur, Tibia, Fibula, Skeleton of foot, X-ray of Lower limb, Bones of hand, X-ray of Upper limb, Surface anatomy of upper limb & Lower limb, Sternum, Ribs, Thoracic vertebrae X-rays & surface Anatomy of Thorax Mandible, Hyoid bone, Norma basalis - I Norma basalis – II, Cervical vertebrae, Bony orbit, Foetal skull, Humerus, Ulna, Hip bone, Femur, Fibula, Skeleton of foot, Ribs, Cervical vertebrae Demo - Lumbar Vertebrae, Sacrum, X-rays of Head, Neck, Face Exam : 81Hours

Anatomy	Ms.Anithamol K T Qualification: MSc. (Medical Anatomy)	Tutor	Contractual	NA	NA	2022-23 --	2023-24 Tutor BAVMC Pune	2024-25 Tutor BAVMC Pune	Total hours - 144 Gross Anatomy – Bones, Axilla & brachial plexus,Pectoral region, Skin & fascia,Sole of foot-Deep fascia, muscles Vessels & spaces of hand, Elbow joint & radioulnar joints, Sole of foot- Vessels & nerves, Rectus sheath,Thoracolumbar fascia,Thoracic duct, Peritoneal folds & ligaments, Heart interior - Right chambers, Heart - External features,Inferior Mediastinum, Trachea, Esophagous, Liver, Caecum, Appendix Cranial cavity, Rectum, Internal Iliac artery, Vessels lacrimal apparatus, Submandibular gland & ganglia, Paranasal sinuses pharynxpalatine ganglion, Soft palate, palatine tonsils, Axilla & brachial plexus, Blood vessels of brain, Pons, 4th ventricle, 3rd, 4th & 6th Cranial nerves,auditory tube,Spinal cord,Eyeball Genetics: PCR, DNA sequencing, Cloning Osteology - Radius,Front of forearm,Hip bone, Femur, Tibia, Fibula, Skeleton of foot, X-ray of Lower limb, Bones of hand , X-ray of Upper limb Surface anatomy of upper limb & Lower limb, Sternum, Ribs Thoracic vertebrae Radius, Front of forearm, Tibia, Sternum, Thoracic vertebrae, Cervical vertebrae, X-ray & surface Anatomy of abdomen, Normae - Verticalis, Occipitalis, Occipital bone, Normae - Frontalis,Lateralis (AN26) Mandible, Hyoid bone, Norma basalis - I Norma basalis – II, Cervical vertebrae, Bony orbit, Foetal skull, X-rays & surface Anatomy of Abdomen Humerus, Ulna, Hip bone, Femur, Fibula, Skeleton of foot, Ribs, Demo - Lumbar Vertebrae, Sacrum, X-rays of Head, Neck, Face Exam : 81 Hours
Physiology	Dr. Sunil Murlidhar Kolkar, Qualification- M.D. Physiology, Regn No- 2001010038 (Maharashtra)	Professor & HOD 21.9.2021	Regular/ permanent	Professor MNR MC Sangareddy	Professor SSPMMC Padve BAVMC Pune	Professor, BAVMC Pune	Professor, BAVMC Pune	Professor, BAVMC Pune	Total Lecture -73 WBC, Anaemia's, N M Junction, N M Junction Applied, S K muscle Contraction, Properties of SK muscle-2, S K muscle Applied, Conductive System of heart, Properties of Cardiac Muscles -2, ECG -Leads, waves,axis, ECG - Tracing,HBE, Cardiac Output-Factors, Cardiac output - regulation & measurement, BP -Factors, measurement BP - regulation, BP-Applied, Regulation of B.P. Shock- Types, Pathophyio, Shock- Comp Mechanisms, Gastric Juice, Gastric Juice -regulation, Synapse, Synapse- Properties, Reflex action, Sensory Cortex & Ascending Tracts, Ascending Tracts & applied, Pain Physiology, Pain Analgesic system, R.pain, Basal ganglia, Basal ganglia- Applied, Cerebellum Cerebellum - Connections & Functions, Cerebellum -Applied Exam and SGT- 36 Hrs
Physiology	Dr. Jayashree Sachin Kharche M.D. Physiology, Regn No- 2003082927 (Maharashtra)	Associate Professor 17.9.2021	Regular/ permanent	Associate Professor SMCW, Pune BAVMC Pune	Associate Professor BAVMC Pune	Associate Professor BAVMC Pune	Associate Professor BAVMC Pune	Associate Professor BAVMC Pune	Total Lecture - 65 Erythropoiesis, Humeral Immunity, Immunity, Applied and Platelets, DLC , Properties of SK muscle Blood, Blood Transfusion and applied, Heart-Structure & Innovation, Technics of breathing P-V Changes, CO2 Transport, Cardiac cycle, Nerve & Muscle Physiology, Microcirculation, oedema, lymphatic system, JG Apparatus & renal Circulation, Students Seminar, SDL PY 11.4 Cardio-Resp. Changes during exercise, Gastric motility, Vomiting, CNS -Organization Spinal Cord, Large Intestine movements, Defecation, Small Intestine Juice & Movements, Color Vision Adopations, Physio.Anatomy of ear & Functions, Intro to Endo syssem, Hypothalamus- Functions, tibular appatraturs, A Cortex- 1, A Cortex-2 & Applied, Motor Cortex & Pyra.Tracts, Adrenal medulla, Postural refflexes-1 Post. Reflexes & Decere.rigidity, Exam and SGT- 36 Hrs

Physiology	Dr. Prashila Avinash Dhaware M.D. Physiology, Reg no 2008093320 (Maharashtra)	Assistant Professor 17.9.2021	Regular/ permanent	Assistant Professor, SMCW,PUNE BAVMC, Pune.	Assistant Professor BAVMC, Pune	Assistant Professor BAVMC, Pune	Assistant Professor BAVMC, Pune	Assistant Professor- BAVMC Pune	Total Lecture - 53 Leucopoiesis,RES,Innate Immunity, ESR,PCV, Bl. Indices Os Fragily, Bl Clotting, Pancreatic Secretion, Micturition, Neurotransmitters, Lung Volum and Capacity, High attitude Physiology, Deep sea Physiology, Cerebral Circulation,CSF, J G Apparatus & renal Circulation, Diuretics KFTs Art.Kidney, Visual Pathway, Motor Cortex & Pyra.Tracts, Thyroid H.Synth, Actions, Speech Physiology, Limbic System & Ret.formation, Exam and SGT- 36 Hrs
Physiology	Dr.Anupama Rahul Salunkh M.D. Physiology, Reg No 2008062291 (Maharashtra)	Assistant Professor 23.2.2023	Contractual	Tutor - Bharti Vidyapeeth, Pune	Assistant Professor - Bharti Vidyapeeth, Pune	Assistant Professor - Bharti Vidyapeeth, Pune	Assistant Professor - BAVMC, Pune	Assistant Professor - BAVMC, Pune	Total Lecture - 62 Composition and Functions of blood and Plasma Protiens, cell and organelles, RMP, RBC & Hb,, Neuron, Neuroglia Classification of N.Fibres, Structure and types of S K muscle, Smooth Muscles, Regulation of respiration, Regulation of Respiration, ECE Anemia & Joundice, Intro to Renal system, Anatomy, Tubular Functions-II, Role of Kidney in Acid-base balance,Liver & Bile, Anatomy of Eye Aq.humor SDL, Digestion & Absorption of Carbo, Proteins, Receptors Thermoregulation, Thalamus, Extrapyramidal tracts UNN & LMN Glucagon, GI.Homeostasis & applied,Function of Testis, Menstrual cycle, Menstrual cycle & Pregnancy, Sp.Cord of Transection, Learning & memory, Exam and SGT- 36 Hrs
Physiology	Dr. Gauri Subodh Kulkarni MSC-2014, PHD-2022	Tutor- 2.3.2023	Contractual	NA	NA	Tutor BAVMC, Pune	Tutor BAVMC, Pune	Tutor BAVMC, Pune	Total Lecture - 56 Homeostasi, Cell Junction,Intercellular communication ,CAMs Apoptysis, Jaundice, Blood Group, R.S Physio Anatomy, Surfactant compliance, Airway Resistance,SDL Haemodynamics ,Asphyxia,sleep Aapea,P.Breathing,C.Curse Tubular Functions, AETCOM MODULE 1.3, AETCOM- MODULE 1.2, Saliva, GI Hormones, SDL Digetion & absorption of fat, D.Fibres Int. Bacteria, Prolactin, Post.pituitary Hormones, Bone & PTH, Vit D,Ca Homeostasis & applied, Placenta & Puberty EEG & Sleep, Gen.Physiology -Revision Exam and SGT- 36 Hrs
Physiology	Dr Mansi Chothave MBBS	Tutor-13.1.2025	Contractual	NA	NA	NA	NA	Tutor BAVMC, Pune	Total Lecture - 36 SDL Skin, Yoga meditation, PY - 11.7, Stress, Aging obesity Exam and SGT- 34 Hrs
Biochemistry	Dr. Shilpa Aditya Pratinidhi MBBS MD BIOCHEMISTRY Reg no.83684	Professor & HOD	Regular	Designation: Professor & HOD BAVMC Pune	Designation: Professor & HOD BAVMC Pune	Designation: Professor & HOD BAVMC Pune	Designation: Professor & HOD BAVMC Pune	Designation: Professor & HOD BAVMC Pune	Orientation to Department of Biochemistry 1Biological oxidation 3Inborn Error of Protein Metabolism Case-Studies-1 Biochemistry of Cancer-1Protein Metabolism-5Poster-4 Total -15

Biochemistry	Dr. Sarita Vijay Agrawal MBBS MD BIOCHEMISTRY Reg no. 2003/12/3785	Associate Professor	Regular	Designation: Associate Professor BAVMC Pune	Designation: Associate Professor BAVMC Pune	Designation: Associate Professor BAVMC Pune	Designation: Associate Professor BAVMC Pune	Designation: Associate Professor BAVMC Pune	Orientation to Department of Biochemistry -1 Introduction of Biochemistry 1 Lipid Metabolism -9 Introduction of Biochemistry Lab 2 Pipetting technique 4; Seminar -4 ;Poster 4 Normal urine 4 Abnormal Urine -12 Mentor Mentee 3 Journal completion 6 Case-Studies-1 Biochemistry of Acid Base Balance-3 Qualitative and Quantitative tests -2 ; Practical Exam orientation ; Class tests 3 AETCOM 4 Laboratory diagnosis of Diabetes Mellitus-4 ECE Anaemia -2, Haemoglobin Chemistry-2, (Integration of metabolism-1; Haemoglobin Metabolism-3 Recombinant DNA 3; Total-76
Biochemistry	Dr. Rajashree Gowardhan Patil MBBS MD BIOCHEMISTRY Reg no. 2009/05/2419	Assistant Professor	Contractual	-	Designation: Senior Resident BAVMC Pune	Designation: Assistant Professor BAVMC Pune	Designation: Assistant Professor BAVMC Pune	Designation: Assistant Professor BAVMC Pune	Orientation to Department of Biochemistry-1 Water Soluble Vitamins-3 Normal urine 4 Abnormal Urine -12 Introduction of Biochemistry Lab 2 Pipetting technique 4 Chemistry of Carbohydrate 4 Liver Function Tests 1 ; Adrenal Function Tests 1 ; ELISA -2; Abnormal Urine-2, Urine Creatinine -2; Water soluble vitamins 3, CCL Visit 4 ; Journal and log book completion 5 Hormones-1 Immunochemistry 1; RFT-1 DNA Isolation -1 TOTAL 54
Biochemistry	Dr. Irfan Gous Mulla MSc, Ph.D BIOCHEMISTRY	Tutor	Contractual	-	-	Designation: Tutor BAVMC Pune	Designation: Tutor BAVMC Pune	Designation: Assistant Professor BAVMC Pune	Introduction of Biochemistry Lab 2 ; Fat Soluble Vitamins 3; Journal completion 6 Pipetting technique 2; Normal urine 4 Abnormal Urine -12 Class Test 3; Seminar -4 ; Poster- 4 Mineral Metabolism -3 ; Water Electrolyte -1 Chromatography - 4 ISE 4 ; Eliza-4 ; Clinical Biochemistry 4; Uric acid -2 ; Semiauto- 4; ALP-4 ; Estimation of CSF Protein 4; CSF Glucose -4 Immunodiffusion -4 Al-2 Estimation of serum SGPT -4; Uristix-4 Estimation of Urine Creat -4 Total- 90
Biochemistry	Mrs Sneha Dipak Pawar MSc BIOCHEMISTRY	Tutor	Contractual	-	Tutor in NYTIMS Tasgaokar Medical College	Designation- Tutor since 23/1/2023 BAVMC Pune	Designation- Tutor since 23/1/2023 BAVMC Pune	Designation- Tutor since 23/1/2023 BAVMC Pune	Orientation to Department of Biochemistry -1 Introduction of Biochemistry 1 Introduction of Biochemistry Lab 2 Pipetting technique 4; Seminar -4 ; Poster 4 CCL Visit 4 Cell - 2; Colorimetry -4 Enzymes -5 ; Normal urine 4 Abnormal Urine -12 Spectrophotometer -4 ECE Vitamins-1; Total Protein- 4 BSL-4 ; OGTT/Glucometer -4; Uristix-4 ; Electrophoresis -4; Lab Investigation of DM-2; ECM -2 Nutrition -4 ; CSF Protein /Glucose-4; Starvation -1 Semiauto 4; Estimation of serum SGPT -4 ; Estimation of serum Calcium & Phosphorous -4; Free Radicals -1 Uric Acid -2 Nephrotic Syndrome -4 ; Preparation of Buffer-4; Cardiac Marker 4; Replication & transcription 1 Translation 1 ; LFT 1; Diet Chart 1; Auto analyser 4 Total-120
Biochemistry	Dr. Sayali Deepak Vaidya Aadhaar No: 482229484915 PAN No: ANAPV3643H Reg.No: 2025/01/00430	Tutor	Contractual	-	-			Designation: Tutor BAVMC Pune 3	Renal Failure -4 AIDS 1 Total -5

Biochemistry	Dr. Sanhita Vinayak Phansalkar Aadhaar No: 536691988595 PAN No: FGSP6649R Reg.No: 2025/05/02437	Tutor	Contractual	-	-			Designation: Tutor BAVMC Pune	Case Discussion -4 ; Alcohol Metabolism 1; Apoptosis 1 Total - 6
Pathology	Dr. Smita Charandas Pathade	Professor and Head 09-02-2022	Regular	SKNMC Pune as Prof	SKNMC Pune as Prof BAVMC Pune as Prof and Head	BAVMC Pune as Prof and Head	BAVMC Pune as Prof and Head	BAVMC Pune as Prof and Head	Introduction to Pathology (2), Inflammation (5) , Neoplastic disorders (4), 6 Lymph node and spleen(2), Gastrointestinal tract (06), Female Genital Tract (2), Male Genital Tract (02), Bone and soft tissue (2), Endocrine system (2)-Acute and Chronic leukemia (2)Routine Smear preparation, staining and Smear reporting , AETCOM 2.4,
Pathology	Dr. Priya Sachin Bagale	Associate Professor 15/9/2021	Regular	SKNMC Pune as Asso Prof	SKNMC Pune as Asso Prof	BAVMC Pune as Asso Prof	BAVMC Pune as Asso Prof	BAVMC Pune as Asso Prof	Cell Injury and Adaptation(4), Immunopathology (5), Hemorrhagic disorders-(2), Blood banking and transfusion(1), Respiratory system (4), Hepatobiliary system(4), Breast(2), Skin (1), Introduction of Pathology Department
Pathology	Dr. Pradnya Bhimrao Saragade	Associate Professor 06-10-2021	Contractual	SKNMC Pune as Asst Prof	SKNMC Pune as Asst Prof	BAVMC Pune as Asst Prof	BAVMC Pune as Asso Prof	BAVMC Pune as Asso Prof	Hemodynamic disorders(5), Hemolytic anemia-2, Genetic and paediatric diseases (3), Cardiovascular system(5), Urinary Tract (5), Endocrine system(1), Central Nervous System-(2), Introduction of Pathology Department
Pathology	Dr. Komal Prakash Khobragade	Assistant Professor 08-08-2022	Contractual	JR3 in Pathology Dept SRTRMC Ambajogai	Assistant Prof GMC Miraj	SR Pathology BAVMC Pune	Assistant Professor BAVMC Pune	Assistant Professor BAVMC Pune	Basic diagnostic cytology(1), Introduction to Haematology-1, Microcytic anemia-1 , Environmental and nutritional diseases (2), Eye (1), PA2.8 Classification of cell injury, Reversible cell injury, Intracellular accumulation (P3/40), Introduction of Pathology Department, Pigments (P10/40) SVL, Case based learning (Hematology cases), PA 24.7 GIT –III (Ca Esophagus & Colon & Autopsy (Ca colon) (P25/40), PA 27.1 Cardiovascular System – I & Autopsy (Atherosclerosis) (P26/40) PA 27.2 Cardiovascular System – II (P27/40), PA 31.3 Diseases of Breast(P34/40) Virtual Autopsy SVL activity
Pathology	Dr. Poonam Joshi	Assistant Professor 19-08-2024	Contractual	JR3 in Pathology Dept BJGMC Pune	SR Pathology BJGMC Pune	Assistant Prof BJGMC Pune	Assistant Prof BJGMC Pune	Assistant Professor BAVMC Pune	Healing and repair(1), Neoplastic disorders(2), Introduction to Haematology-2, Macrocytic anemia-1 , Infections and Infestations (2), AETCOM2.6 + 2.7, PA 34.4 Skin, Introduction of Pathology Department, PA4.4 Acute inflammation (P6/40), Case based learning (Hematology cases), PA 29.1 29.4 Male Genital System (P35/40) PA 30.1 30.3 30.4 Female Genital System(P36/40) Pregnancy Test(P37/40)
Microbiology	Dr Vishal Laxmikant Kulkarni MBBS MD (Microbiology) 2011062215	Professor & Head (I)/ 09/07/2024	Regular	Associate Prof in RMC, Loni (1.1.20-30.4.21), Asst Prof (27.4.21-25-8.21), Associate Prof in BAVMC, Pune (since 9.9.21)	Associate Professor in BAVMC, Pune	Associate Professor in BAVMC, Pune	Associate Professor in BAVMC, Pune	Professor & Head (I) since 9.7.24 till date	Academic batch 2021-22: (L-25, SGT-5) Academic Batch 2022-23: (L-16, SGT-2) Academic Batch 2023-24: (L-19, SGT-2) Details are in ANNEXURE I

Microbiology	Dr Salma Patwagar MBBS MD (Microbiology) 2012040950	Assistant Professor	Contract	Consultant, P.H. Diagnostic Centre, Pune	Jr. Consultant, Ruby Hall, Pune	Assistant Professor in BAVMC, Pune	Assistant Professor in BAVMC, Pune	Assistant Professor in BAVMC, Pune	Academic batch 2021-22: (L-22, SGT-14) Academic Batch 2022-23: (L-18, SGT-1) Academic Batch 2023-24: (L-19, SGT-4) Details are in ANNEXURE I
Microbiology	Dr Rohini Gaikwad MBBS MD (Microbiology) 2017062385	Assistant Professor	Contract	3 rd yr resident in LTMC, Sion	SR in LTMC, Sion	Assistant Professor in BAVMC, Pune	Assistant Professor in BAVMC, Pune	Assistant Professor in BAVMC, Pune	<u>ACADEMIC YEAR: 2021-22 & 2022-23 (Lectures – 43; SGT – 15) ACADEMIC YEAR: 2023 – 2024 (Lectures – 10; SGT – 01) Details are in ANNEXURE I</u>
Microbiology	Dr Arundhati Nimale MBBS MD (Microbiology) 2008040794	Assistant Professor	Contract	Senior Resident Great eastern Medical school Srikakulam, Andhra Pradesh	Senior Resident Great eastern Medical school Srikakulam	Senior resident MGM Medical College , Aurangabad Maharashtra	Assistant Professor Great eastern Medical school Srikakulam Andhra Pradesh	Assistant Professor BAVMC, Pune	Academic Batch 2022-23 (L-2) Academic Batch 2022-23 (L-18,SGD-4) Details are in ANNEXURE I
Microbiology	Dr Ankita Singh MBBS MD (Microbiology) MCI- 12/44178	Senior Resident	Contractual	Medical Officer, Civil Hospital Satara	Medical Officer, Civil Hospital Satara	-	Senior Resident BAVMC, Pune	Senior Resident BAVMC, Pune	Academic batch 2021-22: (L-2, SGT-7)Academic Batch 2022-23: (L-14, SGT-16) Academic Batch 2023-24: (L-15, SGT-16) Details are in ANNEXURE I
Microbiology	Dr Bhagyashree Karekar MBBS MD (Microbiology) 2019106493	Senior Resident	Contractual	1 st yr Resident in BJMC, Pune	2 nd yr Resident in BJMC, Pune	3 rd yr Resident in BJMC, Pune	SR in Tata Memorial Hospital, Mumbai	SR in Bavmc, Pune	Batch 2023-24 (L1, SGT-3) Details are in ANNEXURE I
Microbiology	Dr Bhagyashri Patil MBBS 2021042954	Tutor	Contractual	Internship		MO in GMC, Jalgaon	MO at SDH Chopda	TUTOR in BAVMC, Pune	Batch 2023-24 (SGT-10) Details are in ANNEXURE I
Forensic Medicine & Toxicology	Dr. Pravin J Tayde MD Forensic Medicine MMC-2002083234	Professor & HOD 23/09/2022	Contract	Professor BKLWRMC Chiplun	Professor BMC Sagar	Professor BMC Sagar &BAVMC Pune	Prof & HOD BAVMC Pune	Prof & HOD BAVMC Pune	Legal procedure, examination of sexual offences, Mechanical Injury Report, forensic pathology, general toxicology, History of forensic medicine, types of courts, Weapon, fire arm, regional injury,
Forensic Medicine & Toxicology	Dr Hemant V Vaidya MD Forensic Mrdicine MMC-2011/05/1631	Associate Professor 25/03/2025	Contract	Assistant Professor BJGMC, Pune	Assistant Professor GMC, Baramati	Assistant Professor BJGMC, Pune	Assistant Professor BJGMC, Pune	Assistant Professor BJGMC, Pune	identification part 1, part 2, part 3, Courses of death Changes after death, examination of sexual offences age and bones, fitness, sickness, virginity pregnancy and delivery,
Forensic Medicine & Toxicology	Dr Vaishnavi A. Jawanjal MBBS MMC- 2022/04/0629	Tutor 18/01/2025	Contract	–	–	MO PHC Tulas, tal. vengurla, dist. Sindhudurg	DMO SDH Selu dist. Parbhani	K N Hospital, Pune.	medical fitness and sickness certificate, op poisons and asphyxiants, weapon report, examination of sexual offences, foetus age estimation by pm examination

Forensic Medicine & Toxicology	Dr Bhavesh K. Patil MBBS MMC- 2024/03/1063	Tutor 12/03/2025	Contract	–	–	–	–	AMO BACG Hospital Khadki, PUNE	Examination of skeleton remains, Injury Report, Fire arm
Community Medicine	Dr. Jyoti Ashok Landge Qualification- MBBS, MD-Community Medicine. Reg. No. 2009/02/0309	Professor & HOD, 21/09/2020	Contractual	NMCRC, Visnagar, Gujrat- as Associate Professor till 20/09/2020. NMCRC, Visnagar, Gujrat- as Professor since 21/09/2020	NMCRC, Visnagar, Gujrat- as Professor	NMCRC, Visnagar, Gujrat- as Professor till 15/07/2022. Dr. NYTIMS, Diksal, Karjat- as Professor since 26/9/2022	Dr. NYTIMS, Diksal- as Professor, Karjat till 07/11/2023. BAVMC, Pune- as Professor since 05/01/2024 till date	BAVMC, Pune- as Professor since 05/01/2024 till date	45 per year, Epidemiology, Health care to community, National Health policy, concept of health & disease, Epidemiology of Communicable diseases, principles of Health promotion and Education, Epidemiology of Non-Communicable diseases, Occupational Health, Adolescent Health, Maternal and Child Health, Universal Immunization Program, Geriatric health, Demography,
Community Medicine	Dr. Shraddha Shripad Kulkarni Qualification-MBBS, MD-Community Medicine. Reg. No. 2008/06/2553	Associate Professor, 04/03/2023	Contractual	SKNMCGH Pune- as Assistant Professor	SKNMCGH Pune- as Assistant Professor till 28/8/2021, BAVMC Pune- as Assistant Professor since 9/9/2021	BAVMC Pune- as Assistant Professor till 03/03/2023, BAVMC Pune- as Associate Professor since 04/03/2023	BAVMC Pune- as Associate Professor till date	BAVMC Pune- as Associate Professor till date	45 per year, Health care to community, Role of physician in health care delivery, National Health Policies, MDGs, Nutrition, Methods of health education, National Health policy, concept of health & disease, Demonstration: food we eat & their nutritive value, Food hygiene, food adulteration, Epidemiology of Communicable diseases, principles of Health promotion and Education, IEC and Behavioral change communication (BCC), Epidemiology of Non-Communicable diseases, Occupational Health, Adolescent Health, Maternal and Child Health, Universal Immunization Program, Geriatric health, Demography,
Community Medicine	Dr. Vaishali Praful Bansod Qualification-MBBS, MD-Community Medicine Reg No.- 2006/02/0513	Associate Professor, 13/03/2025	Contractual	SKNMCGH Pune as Assistant Professor	SKNMCGH Pune as Assistant Professor	SKNMCGH Pune as Assistant Professor till 08/08/2022 BAVMC, Pune as Assistant Professor form 10/08/2022	BAVMC, Pune as Assistant Professor till date	BAVMC, Pune as Associate Professor since 13 March 2025 to till date	47 per year, Community diagnosis, Health Care delivery in India, Nutritional assessment at individual level, Diet planning, Epidemiological triad, Doctor patient relationship, Safe and wholesome water, sanitary sources of water, Socio-cultural factors, family (types), its role in health and disease & assessment of socio-economic status, Methods of health education, Demonstration: Foods we eat & their nutritive values, Communication skills in Health AETCOM module, natural history of disease, Epidemiology of Non-Communicable diseases, Occupational Health, Adolescent Health, Maternal and Child Health, Universal Immunization Program, Geriatric health, Demography,

Community Medicine	Dr. Rajeshree Dhok Qualification-MBBS, MD-Community Medicine Reg No.- 2015/11/5097	Assistant Professor	Contractual	As Assistant Professor at BKL Walavalkar Medical College Since 1st Aug 2021	As Assistant Professor at BKL Walavalkar Medical College Since 1st Aug 2021	As Assistant Professor at BKL Walavalkar Medical College Since 1st Aug 2021	As Assistant Professor at BKL Walavalkar Medical College till 06/03/2024,BAVM C Pune- as Assistant Professor since 13/03/2024 to till date	BAVMC Pune- as Assistant Professor since 13/03/2024 to till date	45 per year,epidemiological and control measures including the use of essential laboratory tests at the primary care level for communicable diseases,principles of planning, implementing and evaluating control measures,modes of transmission and measures for prevention and control of communicable and non- communicable diseases,principles of ergonomics in health preservation
Community Medicine	Dr. Dipti Shivankar Qualification-MBBS, MD-Community Medicine Reg No. 2018/05/1729	Assistant Professor	Contractual	TNMC Mumbai as a JR	TNMC Mumbai as a JR	RCSM GMC Kolhapur as a SR	MO at ICMR NARI, BAVMC Pune- as Assistant Professor since 20/03/2024 to till date	BAVMC Pune- as Assistant Professor till date	45 per year,epidemiological and control measures,principles and enumerate the measures to control a disease epidemic,National Health Programs including their prevention and treatment of a case NLEP,Pandemic module 3.1 Outbreak Management including,enumerate and describe various family planning methods,Describe the physiology, clinical management and principles of adolescent health including ARSH,Emerging and Re-emerging infections
Community Medicine	Name :Mr Kishor Narayan Raut Qualification- Msc Statistics Regn No- NA	Statistician cum Asst. Professor	Contractual	MGM Medical College, Kamothe Navi-Mumbai- as Statistician cum Tutor	MGM Medical College, Kamothe Navi-Mumbai- as Statistician cum Asst. Professor (10/03/2022) BAVMC, Pune- as Statistician cum Asst. Professor since 11/03/2022	BAVMC, Pune- as Statistician cum Asst. Professor	BAVMC, Pune- as Statistician cum Asst. Professor till date	BAVMC, Pune- as Statistician cum Tutor till date	12 per year, Introduction to Biostatistics,research question,methods of collection and classification of statistical data,interpretation and presentation of statistical data,measures of central tendency,elementary statistical methods,Common sampling, application of computers in epidemiology. Demonstration and hands on exercises of application of MS- Excel , Epi Info etc.techniques, simple statistical methods, frequency distribution, measures of central tendency and dispersion
Community Medicine	Dr. Amey Chakranarayan	Tutor	Contractual					BAVMC, Pune- as Tutor Since 10-01-2025 Till date	
Community Medicine	Dr. Aradhana Thakur	Tutor	Contractual					BAVMC, Pune- as Tutor Since 11/04/2025 till date	

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Emergency Medicine	Dr. Samruddhi Vaidya	Professor	Contractual	GMCH/SKNMC	SKNMC	SKNMC	BAVMC	BAVMC	4
Emergency Medicine	Dr. Yash Shah	Associate Professor	Contractual	-	BAVMC	BAVMC	BAVMC	BAVMC	4
Emergency Medicine	Dr. Digvijay Adake	Assistant Professor	Contractual	-	-	-	-	BAVMC	0
PAEDIATRICS	AMBRISHKUMAR D MISHRA MD (PAEDIATRICS) NO - 57256	PROFESSOR PAEDIATRICS 19-05-2025	CONTRACT	BAVMC PUNE 01-08-2024					36 LECTURE 60 SMG TEACHING
PAEDIATRICS	AMITA V SALE MD PAEDIATRICS 2008/04/1767	ASSISTANT PROFESSOR 17-03-2025	CONTRACT	K.J . SOMAIYA, SION . MUMBAI 3.7.21-19.3.22	PGI YCMH PIMPRI,PUNE 29.3.22-23.2.25				12 LECTURE 30 SMG TEACHING
PAEDIATRICS	RASHIDA ARSIWALAMD PAEDIATRIC 2019/04/2243	ASSISTANT PROFESSOR	CONTRACT	JUNIOR RESIDENT, BJMC, PUNE 24/07/2020-24/07/2023	SENIOR RESIDENT, GGMC, MUMBAI 03/10/2023-02/10/2024, 18/10/2024-18/12/2024	ASSISTANT PROFESSOR, GGMC, MUMBAI 19/12/2024-07/04/2025			8 LECTURES 20 SMG TEACHING
PAEDIATRICS	NISHA YADAV	SENIOR RESIDENT	CONTRACT	JUNIOR RESIDENT, GGMC MUMBAI 2020-2023	SENIOR RESIDENT, BABVMC PUNE 2023-2025				
PAEDIATRICS	Dr Ambrishkumar D Mishra	BCBR BCME	Mar-jun 202123/04/25-25/04/25	Roll no. NPTEL21MD04S24 120522 005/BCME-2025/889	M 85%				
PAEDIATRICS	Dr Amita V Sale	BCBR Registered BCME	NA 23/04/25-25/04/25	NA 005/BCME-2025/912					
PAEDIATRICS	Dr Rashida Arshiwala	BCBR	Dec-22	DEC22BCBR51005 063690	77%				
PSYCHIATRY	1. Dr. Hemant J. Baxi	HOD & Asso. Prof.	Contract	Asso. Prof. BAVMC Joining 29/11/21	Asso. Prof. BAVMC BCBR- April 2022	Asso. Prof. BAVMC BCME-05/06/23	Asso. Prof. BAVMC	Asso. Prof. BAVMC till date	2 Lect. 2023Stress Management2 Lect. 2024 21/10/24 skills module documentation24/10/24 Professional behaviour & altruistic Behaviour2 Small group teaching clinical posting 2023On Orientation to Psychiatry 1 Elective posting teaching on Introduction to General Psychiatry
PSYCHIATRY	2. Dr. Nikhil Mankar	Asst. Prof.	Contract	Senior Resident ,SKNMC	Asst. Prof. BCBR	Asst. Prof. BCME- 25/09/23 to 27/09/23	Asst. Prof.	Asst. Prof. Till date	1Small Teaching on Alcohol Dependence 8 Elective Posting Teaching on Discussion on History Taking in Psychiatry, MSE, Schizophrenia, Diagnosis in Psychiatry, DSM-4, Anxiety, Depression

PSYCHIATRY	3. Dr. Geetanjali Ghorpade	Asst. Prof.	Contract	--	--	Senior Resident joining-22/12/23	Senior Resident BCBR – July 2024	Asst. Prof. Joining- 09/01/25	2 small group clonical posting teaching on history taking and alcohol use disorder 2024
General surgery	ANANTA ACHYUT KULKARNI (REG. NO 62700)	Professor and head of department	Contractual	---	-----	Professor and head of department General surgery (BAVMC , PUNE)	Professor and head of department General surgery (BAVMC , PUNE)	Professor and head of department General surgery (BAVMC , PUNE)	Phase 2 (lect)1. Burns (3)Phase 3 part 1 (lect + sgd) 1. Basic surgical skills(2)2. Burns –(2)Phase 3 part 2 (lect + sgd) 1.Communication and counselling –(3)
General surgery	TUSHAR JADHAV (REG NO. 85380)	Associate Professor	Contractual	ASSISTANT PROFESSOR(YCM , PIMPRI)	ASSISTANT PROFESSOR(YCM , PIMPRI)	ASSOCIATE PROFESSOR(BAVMC , PUNE)	ASSOCIATE PROFESSOR(BAVMC , PUNE)	ASSOCIATE PROFESSOR(BAVMC , PUNE)	Phase 2 (lect)1.Shock (2) 2. Blood ad blood componentsPhase 3 part 1(lect + sgd)1.ethics 2. transplantationPhase 3 part 2 (lect + sgd)1. hernia(3)
General surgery	ATUL KAWADUJI GOWARDHAN (REG NO.2002/04/1897)	Associate Professor	Permanent	ASSISTANT PROFESSOR (MIMER , TALEGAON)	ASSOCIATE PROFESSOR(BAVMC , PUNE)	ASSOCIATE PROFESSOR (BAVMC , PUNE)	ASSOCIATE PROFESSOR (BAVMC , PUNE)	ASSOCIATE PROFESSOR (BAVMC , PUNE)	Phase 2 (lect)1. wound healing and wound care (2)Phase 3 part 1(lect + sgd)1.surgical audit2. developmental anamolies of jaw and face3.wound healing
General surgery	ADITI ANIKET DESHPANDE REG NO. 2008/05/1851	Assistant Professor	Permanent	---	ASSISSTANT PROFESSOR (BAVMC PUNE)	ASSISSTANT PROFESSOR (BAVMC PUNE)	ASSISSTANT PROFESSOR (BAVMC PUNE)	ASSISSTANT PROFESSOR (BAVMC PUNE)	Phase 2 (lect)1.trauma (2)Phase 3 part 1(lect + sgd)1.trauma -22.blood and blood componentsPhase 3 part 2 (lect + sgd)1.Congenital Disorders Gastrointestinal Tract –(3)
General surgery	SATSHIL CHANDRAKANT ABHANG REG NO. 2012/06/1764	Assistant Professor	Permanent	ASSISSTANT PROFESSOR (BJGMC PUNE)	ASSISTANT PROFESSOR (BAVMC PUNE)	ASSISTANT PROFESSOR (BAVMC PUNE)	ASSISTANT PROFESSOR (BAVMC PUNE)	ASSISTANT PROFESSOR (BAVMC PUNE)	Phase 2 (lect)1.Biohazard waste disposal2.Vascular disordersPhase 3 part 1 (lect + sgd)1.preop , post op , intraoperative management of surgical patients2. parathyroid gland3.shock_Phase 3 part 2 (lect + sgd) 1. omental and mesenteric pathologies (3)
General surgery	ASHISH RAJENDRA MANDOT (reg no - 2015/05/2466)	Assistant Professor	Contractual	Jr (GMC AURANGABAD)	SR (GMC AURANGABAD)	ASSISTANT PROFESSOR (BAVMC PUNE)	ASSISTANT PROFESSOR(BAVMC PUNE)	ASSISTANT PROFESSOR(BAVMC PUNE)	Phase 2 (lect)1. metabolic response to injury2.shock3.organ transplantPhase 3 part 1 (lect + sgd)1.adrenal glands2. nutrition and fluid therapy (2)3.vascular disorders (2)Phase 3 part 2 (lect + sgd) 1.disorders of pancreas (2)2. surgical disorders of stomach (3)3. AETCOM (1) 4. Disorders of appendix 5.Testicular malignancies
General surgery	DHANASHREE DILIP KAMBLE (reg no 2017/10/4818)	Assistant Professor	Contractual	Jr (GMC MIRAJ)	SR (GMC AURANGABAD AND BARAMATI)	ASSISTANT PROFESSOR(BAVMC PUNE)	ASSISTANT PROFESSOR(BAVMC PUNE)	ASSISTANT PROFESSOR(BAVMC PUNE)	Phase 2 (lect) 1.Basic surgical skills 2. Surgical infectionsPhase 3 part 1 (lect + sgd)1. investigations n surgical patients2.disorders of salivary gland3. Disorders of breastPhase 3 part 2 (lect + sgd)1. Cardiovasculothoracic surgery –(3)2.Surgical management of hepatic disorders (3)3.DiscussMedico-legal issues in surgical practice 4.Management of renal calculi and hydronephrosis(3)
General surgery	Shubham Sunil Kalbande reg no - 2017/07/3236	Assistant Professor	Contractual	JUNIOR RESIDENT (DNB)	JUNIOR RESIDENT (DNB)	JUNIOR RESIDENT (DNB)	SENIOR RESIDENT (DATTA MEGHE)	SENIOR RESIDENT (DATTA MEGHE)	Phase 3 part 1 (lect + sgd) 1. Investigations in surgical patients_Phase 3 part 2 (lect + sgd)1. Preop , intra op , post operative management (2)2. Anaesthesia and pain management (2)
				Ass Prof 21	Ass Prof 22	Ass Prof 23	Prof 24	Prof 25	
ENT	Dr. Meena Ohal	Professor	Contract	20	30	30	30	26	26 2025
ENT	Dr. Supriya Gaware	Assistant Professor	Regular	0	0	0	10	14	14 2025

OPHTHALMOLOGY	Dr HEMANT S TODKAR MBBS MS FCPS OPHTHALMOLOGY 91293	PROFESSOR and HOD	CONTRACT						10 HOURS LECTURES COVERING EYE ANATOMY NPCB AND EYE DONATION,LID LACRIMAL APPARATUS DISORDERSOCULAR SURFACE DISEASESCOMMON RETINA DISEASES 26 HOURS OF SMALL GROUP TEACHING INCLUDES CLINICS FOR CATARACT DIAGNOSIS AND MANAGEMENT COMMON EYE CONDITIONS AND MANAGEMENT REFRACTION
OPHTHALMOLOGY	Dr SAILESH S KATARE MBBS MS OPHTHALMOLOGY 2014041422	ASSISTANT PROFESSOR	CONTRACT						20 HOURS LECTURES COVERING EYE ANATOMY, ORBIT, GLAUCOMA, CORNEA_ 34 HOURS OF SMALL GROUP TEACHING INCLUDES CLINICS FOR CATARACT DIAGNOSIS AND MANAGEMENT, COMMON EYE CONDITIONS AND MANAGEMENT,OPTICS REFRACTION
Anaesthesiology	Dr Vinaya Kulkarni 81818	Professor	Contractual	Associate Professor (BJGMC, Pune)	Associate Professor (BJGMC, Pune)	Professor (BJGMC,Pune)	-	Professor (BAVMC, Pune)	Phase 2 (lect) -General Anaesthesia-SGT –BLS ,Airway Management
Anaesthesiology	Dr Ashwini Sonsale 2008041558	Associate Professor	Regular	Assistant professor (SKNMC ,Pune)	Associate Professor (BAVMC, Pune)	Associate Professor (BAVMC, Pune)	Associate Professor (BAVMC, Pune)	Associate Professor (BAVMC, Pune)	Phase2 (lect) -Skeletal Muscle Relaxant -Local Anaesthetic drugs SGT – BLS Airway Management
Anaesthesiology	Dr Shital Kuttarmare 2019020330	Associate Professor	Regular	Assistant Professor (BJGMC, Pune)	Associate Professor (BAVMC, Pune)	Associate Professor (BAVMC, Pune)	Associate Professor (BAVMC, Pune)	Associate Professor (BAVMC, Pune)	Phase 2 (lect)- General Anaesthesia premedication_ SGT– BLS Airway Management
Anaesthesiology	Dr Usha Giri 2015052776	Assistant Professor	Contractual	-	Senior Resident (SRTRGMC ,Ambejogai)	Assistant Professor (BAVMC, Pune)	Assistant Professor (BAVMC, Pune)	Assistant Professor (BAVMC, Pune)	SGT – BLS Airway Management
Anaesthesiology	Dr Jasmine Kaur 2024010201	Assistant Professor	Contractual	-	-	Senior Resident (GMC ,Amritsar)	Assistant Professor (BAVMC, Pune)	Assistant Professor (BAVMC, Pune)	SGT – BLS Airway Management
Anaesthesiology	Dr Ushadevi Bharmal 80193	Assistant Professor	Contractual	-	-	Assistant Professor (BAVMC, Pune)	Professor (BAVMC, Pune)	Assistant Professor (BAVMC, Pune)	-
Anaesthesiology	Dr Mubina Sayed 2020031610	Senior Resident	Contractual	-	-	-	-	-	-
Dentistry Department	Dr Dhanashree Jadhav A-19822	Assistant Professor 09-08-2023	Regular Appointment	2020-Sept 2021	Sept 2021-2022	2022-2023	2023-2024	2024-2025	24 lectures /year TopicsCase History takingDental CariesPeriodontitisProsthodontic RehabilitationMalocclusion and orthodontic treatmentOral Cancer etiopathogenesis Oral Cancer Diagnosis and Management
					Assistant Professor in Dental Dept BAVMC Pune	Assistant Professor in Dental Dept BAVMC Pune	Assistant Professor in Dental Dept BAVMC Pune	Assistant Professor in Dental Dept BAVMC Pune	

Sr No	Faculty Name	Publication in Vancouver referencing style	Indexing System
1	Dr Jayshree Kharche	Dr Mandar Ambike, Dr Jayshree Kharche, Lt Col Dr T Vijaya Sagar, Dr Shraddha Kulkarni Vijayakumar K. Implementation of Case Based Learning in I MBBS students -Future of Medical professionals learning methods in Indian Medical Colleges? Journal of pharmacy and bio allied sciences. December 2024: Volume 16 (4); S3449-S3451.	Scopus
2	Dr Anupama Salunkhe	Dr Anupama Salunkhe, Dr Raksha Hebbar K, Dr Kawalinder Kaur Girgla :Astudy of effect of Yoga and Meditation on lipid profile. "The Journal of Heart valve disease"April 2025, Volume 30:Issue:4 40 -43	Embase
3	Dr. Shilpa Aditya Pratinidhi	Sayyed AK, Pratinidhi SA. High sensitive C reactive protein as an inflammatory indicator in preeclampsia. International Journal of Research in Medical Sciences 2020 Aug; 8(8):3002-3006	Pubmed
4	Dr. Shilpa Aditya Pratinidhi	Mathew MS, Baravkar PN, Pratinidhi. Study of serum ferritin as a potential risk factor in acute myocardial infarction. Int J Biol Med Res.2020;11(4):7167-7172.	Copernicus
5	Dr. Shilpa Aditya Pratinidhi	Kataria RR, Hullur HM, Sayyed A, Pratinidhi SA. Knowledge, awareness and attitude on infant organ donation among medical students. International Journal of Community Medicine and Public Health. 2021 Jan;8(1):286.	Pubmed
6	Dr. Shilpa Aditya Pratinidhi	Baravkar PN, Sayyed AA, Rahane CS, Chate GP, Wavhale RD, Pratinidhi SA, Banerjee SS. Nanoparticle Properties Modulate Their Effect on the Human Blood Functions. BioNanoScience. 2021 Sep;11(3):816-24.	Copernicus
7	Dr. Shilpa Aditya Pratinidhi	Sayyed AK, Pratinidhi SA, D'Souza DSJ, Dhanmane ST. A study of religious beliefs affecting organ donation & influence of educational intervention in western Maharashtra. Int J Clin Biochem Res. 2021;8(2):109-114	Pubmed
8	Dr. Shilpa Aditya Pratinidhi	Mulla IG, Anjankar A, Lambe S et al., prediabetes deserves more attention: a review; International Journal of pure medical research 2023;Volume 8;Issue 10; Page no.-1-3.	Pubmed
9	Dr. Shilpa Aditya Pratinidhi	Mulla IG, Anjankar A, Pratinidhi S, Agrawal SV, Gundpatil D, Lambe SD. Prediabetes: A Benign Intermediate Stage or a Risk Factor in Itself? Cureus. 2024 Jun 26;16(6):e63186. doi: 10.7759/cureus.63186. PMID: 39070421; PMCID: PMC11273947.	Pubmed
10	Dr. Shilpa Aditya Pratinidhi	Mulla IG, Anjankar A, Pratinidhi SA, Lambe SD, Agrawal SV. Oxidative Stress in Prediabetic Young Adults. Cureus. 2024 Jun 17;16(6):e62504. doi: 10.7759/cureus.62504. PMID: 39022458; PMCID: PMC11252622.	Pubmed
11	Dr. Shilpa Aditya Pratinidhi	Pratinidhi SA, Agrawal SV, Gundpatil D et al. Podcast as an emerging tool for learning in biochemistry; International Journal of Medical Science and Current Research (IJMSCR) 2025; Volume 8; Issue 1; Page no.203-206.	Pubmed
12	Dr.Sarita Agrawal	Mulla IG, Anjankar A, Lambe S et al. prediabetes deserves more attention: a review; International Journal of pure medical research 2023;Volume 8;Issue 10; Page no.-1-3.	Pubmed
13	Dr.Sarita Agrawal	Mulla IG, Anjankar A, Pratinidhi S, Agrawal SV, Gundpatil D, Lambe SD. Prediabetes: A Benign Intermediate Stage or a Risk Factor in Itself? Cureus. 2024 Jun 26;16(6):e63186. doi: 10.7759/cureus.63186. PMID: 39070421; PMCID: PMC11273947.	Pubmed
14	Dr.Sarita Agrawal	Mulla IG, Anjankar A, Pratinidhi SA, Lambe SD, Agrawal SV. Oxidative Stress in Prediabetic Young Adults. Cureus. 2024 Jun 17;16(6):e62504. doi: 10.7759/cureus.62504. PMID: 39022458; PMCID: PMC11252622.	Pubmed
15	Dr.Sarita Agrawal	Pratinidhi SA, Agrawal SV, Gundpatil D et al. Podcast as an emerging tool for learning in biochemistry; International Journal of Medical Science and Current Research (IJMSCR) 2025; Volume 8; Issue 1; Page no.203-206.	Pubmed
16	Dr.Sarita Agrawal	Mulla I G, Anjankar A, Shinde A, et al. (July 24, 2024) Comparison of Lipid Profiles Between Prediabetic and Non-prediabetic Young Adults. Cureus 16(7): e65251. doi:10.7759/cureus.65251	Pubmed
17	Dr Rajashree Patil	Dr Rajashree Gowardhan Patil , Dr Amol Balwant Shinde. Study of demographic profile of Chronic Kidney Disease at tertiary care hospital.Indian Journal of Basic and Applied Medical Research; September 2020: Vol.-9, Issue- 4, P. 398 - 404 DOI: 10.36848/IJBAMR/2020/18215.56160	Copernicus

18	Dr Rajashree Patil	Dr Rajashree Gowardhan Patil , Dr Amol Balwant Shinde. Study of lipid profile parameters in Chronic Kidney Disease at tertiary care hospital.Indian Journal of Basic and Applied Medical Research; September 2020: Vol.-9, Issue- 4,P.391-397DOI:10.36848/IJBAMR/2020/18215.56147	Copernicus
19	Dr.Irfan Gous Mulla	Mulla IG, Basu SA, Salve AK, Kole SB et al. "Prognostic value of elevated Lactate Dehydrogenase and C-Reactive protein in covid-19 patients: A case-control study. Quest Journals Journal of Medical and Dental science Research 2021 ;Volume 8 ;Issue 8 ;PP 06-09.	DOAJ
20	Dr.Irfan Gous Mulla	Salve AK, Basu SA, Mulla IG, Kole SB et al. "Elevated levels of serum MDA and Nitric Oxide in covid-19 patients: A case-control study. Quest Journals Journal of Medical and Dental science Research 2021 ;Volume 8 ;Issue 8 ;PP 35-38	DOAJ
21	Dr.Irfan Gous Mulla	Mulla IG,Kole SB,Kharge SK, Salve AK et al. "Assessment of Serum Urea and Serum Creatinine Level in Covid-19 Patients. International Journal of Medical Science and Current Research (IJMSCR) 2021;Volume 4 ;Issue 6; Page no. 841 – 845.	Pubmed
22	Dr.Irfan Gous Mulla	Mulla IG,Kharge S,Kole SB,Salve AK et al. Deficiency of antioxidant vitamin C and Increase Superoxide dismutase (SOD) level in Covid-19 patients. International Journal of Medical Science and Current Research (IJMSCR) 2021;Volume 4 ;Issue 6; Page no. 1466-1469.	Pubmed
23	Dr.Irfan Gous Mulla	Kole SB, Mulla IG et al. Study of serum malondialdehyde and uric acid levels in patients with malaria: case-control study. International Journal of Medical Science and Current Research (IJMSCR) 2022; Volume 5; Issue 1; Page no. 590-594	Pubmed
24	Dr.Irfan Gous Mulla	Mulla IG, Mane AY,Kole SB et al. Elevated levels of D-Dimer, ferritin and CRP in covid-19 patients. . International Journal of Medical Science and Current Research (IJMSCR) 2022; Volume 5; Issue 1; Page no. 584-589.	Pubmed
25	Dr.Irfan Gous Mulla	More AA, Pawar SM, Shinde A, Mulla IG et al. Alteration of serum electrolytes In burn patients; . International Journal of Medical Science and Current Research (IJMSCR) 2022; Volume 5; Issue 3; Page no. 472-476.	Pubmed
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221	Dr Hemant Vaidya	8. Taware AA, Tatiya HS, Jadhav VT, Bandgar AL, Vaidya HV, Punpale SB. SUICIDAL DEATHS IN CUSTODY: 13 YEAR RETROSPECTIVE STUDY, INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH. August 2019, Volume 8, Issue 8, Pg 8-10	PubMed, Pubmed Central, Research gate,NCBI NLM Catlog, Crossref, Google Scholar, Cite Factor
222	Dr Hemant Vaidya	9. Tatiya HS, Taware AA, Jadhao VT, Zanjad NP, Punpale SB, Vaidya HV. Long styloid process–Eagle syndrome; unusual cause of sudden natural death–A case report. Journal of Forensic Medicine and Toxicology. 2016 Jul;33(2):95-7.	Scopus, Embase, Embase Excerpta, CNKI scholar, Google Scholar, EBSCO discovery and Indian citation index.
223	Dr Hemant Vaidya	10. Taware AA, Jadhav VT, Tatiya HS, Bandgar AL, Vaidya HV, Punpale SB, Gavale PS. Utility of Spacing for Third Molar Teeth Along with its Eruption, for Determination of Age of an Individual: A Pilot Study. Medico-Legal Update. 2021 Apr 1;21(2).	Embase, Science Citation Index Expanded (SCIE), Social Sciences Citation Index (SSCI)
224	Dr Hemant Vaidya	11. Tatiya HS, Taware AA, Vaidya HV, Jadhav VT, Bandgar AL, Punpale SB. Consensual Sexual Intercourse among children Vs Current Legal Provisions under POCSO: A Scientific Review with Prospective Quantitative Analytical Study. Medico-legal Update. 2020 Jul 1;20(3).	Embase, Science Citation Index Expanded (SCIE), Social Sciences Citation Index (SSCI)
225	Dr Hemant Vaidya	12. Vaidya HV, Taware AA, Tatiya HS, Jadhav VT, Bandgar AL. Profile of child sexual assault cases reported within 24 hours of incidence: Prospective observational study at a tertiary care center in Western Maharashtra, with special observations related to age groups. Indian Journal of Forensic Medicine and Pathology. 2021 Oct;14(4).	Research Gate, Copernicus, Scopus, NLM Catlog,Ebsco
226	Dr Hemant Vaidya	13. Vaidya HV, Taware AA, Tatiya HS, Jadhav VT, Bandgar AL. Effect of alcohol swabbing of venepuncture site on blood alcohol estimation: A literature review. IP Int J Forensic Med Toxicol Sci 2021;6(2):36-39.	Index Copernicus, Google Scholar, J- gate, ROAD, CrossRef, Microsoft Academic, Indian Citation Index (ICI), Scilit.

Sr. No.	Faulty Name	MET Course	Dates
1	Dr. Jyoti Landge	CISP II	27/08/2020 to 28/08/2020
		CISP III	11/07/2023 to 12/07/2023
		ACME	14-01-2022
		RBCW	22/07/2021 to 24/07/2021
		BCBR Date	March-June 2021
2	Dr. Shraddha Kulkarni	RBCW	14/03/2016 to 17/03/2016
		CISP II	19/08/2020 to 20/08/2020
		CISP III	24/09/2024 to 25/09/2024
		ACME	27/05/2019 to 31/05/2019
		ACME	29/11/2029 to 21/12/2019
		BCBR	Sep-Dec 2019
3	Dr. Vaishali Bansod	CISP II	23/09/2020 to 24/09/2020
		BCME	23/04/2025 to 25/04/2025
		BCBR	Aug-Dec 2020
4	Dr. Rajeshree Dhok	BCME	23/04/2025 to 25/04/2025
		BCBR	Feb-23
5	Dr. Dipti Shivankar	BCME	23/04/2025 to 25/04/2025
		BCBR	March-June 2021
6	Mr. Kishor Raut	BCBR	Mar-25
7	Dr Vinaya Kulkarni	BCME	YES 23/4/2025 – 25/4/2025
8	Dr Ashwini Sonsale	BCME	YES 25/9/2023 – 27/9/2023
9	Dr Shital Kuttarmare	BCME	YES 3/12/2024 – 5/12/2024
		CISP	YES 10/12/2024-11/12/2024
10	Dr Usha Giri	BCME	YES 23/4/2025 – 25/4/2025
11	Dr Jasmine Kaur	BCME	YES 23/4/2025 – 25/4/2025
12	Dr Ushadevi Bharmal	BCME	YES 23/4/2025 – 25/4/2025
13	Dr Vishal Kulkarni	RBCW	2nd to 4 th Feb 2021,
		ACME	batch 2023 B
		BCBR	Aug-Dec 2020
14	Dr. Salma Patwegar	BCME	25 to 27 Sept. 2023
		BCBR	03-09-2023
15	Dr Rohini Gaikwad	BCME	25 to 27 Sept. 2023
		BCBR	03-09-2023
16	Dr. Arundhati Nimale	BCME	25th to 27th April 2025
		BCBR	09-07-2024
17	Dr. Ankita Singh	BCME	25th to 27th April 2025
		BCBR	04-12-2023
18	Dr Bhagyashree Karekar	-	March- June 2021
19	Dr. Shilpa Aditya Pratinidhi	RBCW	12-14 Feb 2020
		BCBR	Mar-22
		MedEduIndia@2047	22-Oct-23
		ACME	10th to 13th January 2025
20	Dr. Sarita Vijay Agrawal	BCBR	Mar-22
		BCME	25-27 Sep 2023
		CISP	24-25 Sep 2024
		BCME	3-5 December 2024
		ACME	06-10 January 2025
		BCME (Resource person)	23-25 April 2025.
21	Dr Rajashree Patil	BCBR	Apr-22
		BCME	23,24,25,April 2025
22	Dr. Irfan Mulla	BCBR	Feb-24
23	DR.ANANTA ACHYUT KULKARNI	CISP III	11/07/2023 TILL 12/07/2023
		BCME	25/09/2023 TILL 27/09/2023
		BCME	19/03/2024 TILL 21/03/2024
24	DR. ATUL KAWADUJI GOWARDHAN	BCME	23/09/2019 TILL 25/09/2019
25	DR, TUSHAR JADHAV	BCME	25/09/2023 TILL 27/09/2023

26	DR. ADITI ANIKET DESHPANDE	BCME	25/09/2023 TILL 27/09/2023
27	DR. ABHANG SATSHIL CHANDRAKANT	BCME	24/04/2025 TILL 26/04/2025
28	DR. ASHISH RAJENDRA MANDOT	BCME	24/04/2025 TILL 26/04/2025
29	DR. DHANASHREE KAMBLE	BCME	24/04/2025 TILL 26/04/2025
30	Dr. Pradnya Bhimrao Saragade	Advanced Course in Medical Education (ACME)	6/01/2025 to 10/01/2025
		Resource Faculty in BCME workshop	23/04/2025 to 25/04/2025
		BCME Observership	02-04-2025
31	Dr. Komal Prakash Khobragade	Basic Course in Medical Education (BCME)	23/04/2025 to 25/04/2025
32	Dr. Poonam Joshi	Basic Course in Medical Education (BCME)	23/04/2025 to 25/04/2025

Annexure I

(Lectures/ SGT conducted by each faculty of Dept of Microbiology)

DR VISHAL KULKARNI (PROF. & HOD)

Academic batch 2021-22: (L-25, SGT-5)

1. Introduction and History
2. Pathogenesis of bacteria and overview of bacterial infections
3. General parasitology and overview of parasitic infections
4. Antibody
5. Immune responses
6. Health care associated infections & types
7. Immunodeficiency disorders (SDL)
8. Transplant and Cancer immunology (SDL)
9. Practice exam
10. Enteric fever
11. AETCOM II (SGT)
12. AETCOM III (SGT)
13. Viral hemorrhagic fever
14. Malaria & Babesiosis
15. Food poisoning
16. Vibrio & Aeromonas infections
17. Intestinal Nematodes infections
18. Viruses causing Hepatitis
19. Gas gangrene & nonsporing anaerobes
20. Revision (SGT)
21. Revision (SGT)
22. Fungal infections of Skin, Soft tissue & Musculoskeletal System
23. Infective Syndromes of Respiratory Tract
24. Tuberculosis & Nontuberculous Mycobacteria infections
25. Coronavirus Infections including COVID 19
26. Theory Practise Exam
27. Tetanus I
28. Tetanus II
29. Small Group Teaching (Revision)
30. Parasitic and Fungal Infections of CNS

Academic Batch 2022-23: (L-16, SGT-2)

1. Introduction and History
2. General Virology and Overview of viral infections
3. General virology & overview of viral infections II
4. Antigen
5. Immune responses
6. SDL (SGT) :Immunodeficiency disorders
7. SDL (SGT) Transplant and Cancer immunology

8. Infective endocarditis & Acute Rheumatic Fever
9. HIV/AIDS
10. AETCOM 3
11. Lymphatic Filariasis
12. Vibrio & Aeromonas infections
13. Leprosy
14. Parasitic infections of Skin, Soft tissue & Musculoskeletal System
15. Bacterial Lobar Pneumonia
16. Parasitic & Fungal infections of Respiratory Tract
17. Ulcerative genital diseases
18. Sterilization

Academic Batch 2023-24: (L-19, SGT-2)

1. Introduction and History
2. AETCOM (Introduction and Module 2.2A,2.2B) (SGT)
3. Immunodeficiency disorders, Transplant & cancer immunology (SDL/SGT)
4. Disinfection
5. Enteric fever
6. Rickettsial infections
7. Brucellosis, Leptospirosis and Borreliosis
8. Syst. Candidiasis and Mycosis
9. Gastrointestinal infective syndromes
10. Viral Gastrointestinal infections
11. Intestinal Protozoan infections – I
12. Viruses causing Hepatitis
13. Leprosy
14. Bacterial Pharyngitis
15. Nontuberculous Mycobacteria infections AND Respiratory Infections due to non-fermenter GNB
16. Parasitic & Fungal infections of Respiratory Tract
17. Viral meningitis (Polio)
18. Parasitic & Fungal infections of CNS (Part -II)
19. Theory Test -I Hepatobiliary system infections
20. Ocular Bacterial Infection
21. Ocular Viral Infection

DR. SALMA PATWEGAR

(ASSISTANT PROF.)

Academic batch 2021-22: (L-22, SGT-14)

1. Bacterial Genetics
2. **1. General principles of laboratory diagnosis of : Bacterial diseases (Sample collection transportation; bacterial identification methods in general)2. Demonstration of respect for patient samples sent for laboratory Investigations****
3. **3. Hand hygiene, PPE- Donning & Doffing of hand gloves.(1)**
3. General mycolgy and overview of fungal infections
4. Indirect methods of infectious disease diagnosis (Immunological Diagnostic Tests)
5. **Antibiotic sensitivity testing**
6. Autoimmunity
7. Immunoprophylaxis
8. **General principles of laboratory diagnosis of parasitic diseases and Stool examination**
9. Infective endocarditis & acute rheumatic fever
10. **Indirect methods of Infectious Disease Diagnosis (Immunological Diagnostic Tests)**
11. Rickettsial infections
12. **AETCOM 3**
13. **Laboratory diagnosis of Brucellosis, Leptospirosis, Dengue fever, Scrub typhus, Candidemia AND Gram stain**
14. Lymphatic Filariasis
15. Gastrointestinal infective syndromes
16. **Laboratory diagnosis of Enteric fever**
17. Gastrointestinal infections due to Enterobacteriaceae
18. Viral Gastrointestinal infections
19. **Laboratory diagnosis of Malaria**
20. Intestinal Cestode infections
21. Infective syndromes of Skin, Soft tissue & Musculoskeletal System
22. Miscellaneous Bacterial infections of Skin, Soft tissue
23. **Laboratory diagnosis of Diarrhea, Ziehl-Neelsen staining, Stool Examination**
24. Revision
25. Viral Exanthems & other Cutaneous infections (Part - 1)
26. Parasitic infections of Skin, Soft tissue & Musculoskeletal System
27. **Laboratory Diagnosis of Intestinal helminthic infections**
28. Respiratory Infections due to non-fermenter GNB
29. **Laboratory diagnosis of skin infections-I**
30. Miscellaneous Viral infections of Respiratory Tract
31. Infective Syndromes of Central Nervous System
32. **Laboratory diagnosis of Lower respiratory tract infections**

33. Revision Practical

34. Viral meningitis (Polio)

35. Parasitic Infections of CNS

36. Laboratory diagnosis of Encephalitis

Academic batch 2022-23: (L-18, SGT-1)

1. Morphology and Physiology of Bacteria
2. General parasitology & overview of parasitic infections
3. Antibody
4. Hypersensitivity
5. Immunoprophylaxis
6. Enteric fever
7. Viral hemorrhagic fever
- 8. AETCOM 1**
9. Systemic candidiasis & Systemic mycosis
10. Miscellaneous bacterial Gastrointestinal infections
11. Intestinal Nematodes infections
12. Infective syndromes of Skin, Soft tissue & Musculoskeletal System
13. Bacterial Pharyngitis
14. Miscellaneous Viral infections of Respiratory Tract including COVID 19
15. Bacterial Meningitis
16. Viral meningitis (Polio)
17. Infective Syndromes of Urinary Tract Infection
18. Gonorrhea & Non-gonococcal urethritis
19. Disinfection

Academic batch 2023-24: (L-19, SGT-4)

1. Morphology and Physiology of Bacteria
2. General parasitology & overview of parasitic infections
3. Immunity (Innate & Acquired)
4. Immune responses
5. Autoimmunity
6. Infective endocarditis & acute rheumatic fever
7. Malaria & Babesiosis
- 8. Laboratory diagnosis of Malaria**
9. Gastrointestinal infections due to Enterobacteriaceae
10. Vibrio & Aeromonas infections
- 11. Laboratory diagnosis of Diarrhea**
12. Intestinal Cestode infections
13. Parasitic infections of Hepatobiliary system

- 14. Miscellaneous Bacterial infections of Skin, Soft tissue
- 15. Bacterial Lobar Pneumonia
- 16. Myxovirus infections of Respiratory Tract
- 17. Bacterial Meningitis**
- 18. Laboratory diagnosis of Encephalitis**
- 19. Gonorrhea & Non-gonococcal urethritis
- 20. Theory Test -II Skin, Soft tissue & Musculoskeletal System Infections**
- 21. Pandemic Module (Infection control practices)
- 22. Congenital Infection(Part-I)
- 23. Congenital Infection(Part-II)

DR. ROHINI GAIKWAD

ASSISTANT PROFESSOR

ACADEMIC YEAR: 2021-22 & 2022 – 23 (Lectures – 43; SGT – 15)

Lectures

1. Bacterial Meningitis
2. Viral Encephalitis & Encephalopathy
3. Components of immune system
4. Hypersensitivity
5. Biomedical waste management
6. AETCOM 1
7. Brucellosis, Leptospirosis and Borreliosis
8. Visceral Leishmaniasis & Trypanosomiasis
9. Systemic candidiasis & Systemic mycosis
10. Intestinal Protozoan infections
11. Intestinal Trematodes infections
12. Infective syndromes of Hepatobiliary system & abdomen
13. Parasitic infections of Hepatobiliary system
14. Leprosy
15. Revision
16. Viral Exanthems & other Cutaneous infections (Part-2)
17. Staphylococcal infections
18. Bacterial Pharyngitis
19. Bacterial Atypical (Interstitial) Pneumonia
20. Myxovirus infections of Respiratory Tract
21. Parasitic & Fungal infections of Respiratory Tract
22. Bacterial Meningitis
23. Viral Encephalitis & Encephalopathy
24. Pathogenesis of Bacteria and Overview of Bacterial infection
25. General mycology & overview of fungal infections
26. Complement
27. Autoimmunity
28. Health care associated infections & types
29. Rickettsial infections
30. Malaria & Babesiosis
31. AETCOM 2
32. Gastrointestinal infective syndromes
33. Viral Gastrointestinal infections
34. Miscellaneous Bacterial infections of Skin, Soft tissue
35. Infective Syndromes of Respiratory Tract
36. Bacterial Atypical (Interstitial) Pneumonia

37. Infective Syndromes of Central Nervous System
38. Parasitic and Fungal Infections of CNS
39. Parasitic and Fungal Infections of CNS Part – II
40. Vulvovaginitis & Other genital tract infections
41. Antigen-Antibody Reaction (Part-II)
42. Theory Test (Bloodstream and Cardiovascular system infections)
43. Laboratory diagnosis of Bacterial Infection (Seminar)

SGT

1. Laboratory diagnosis of Meningitis: Pyogenic, Tubercular, Cryptococcal & Aseptic
2. Ziehl - Neelsen staining
3. General principles of laboratory diagnosis of Viral diseases
4. General principles of laboratory diagnosis of Fungal diseases
5. Hospital infection control –II : Sterilization & Disinfection, Biomedical waste management, Needle stick injuries
6. Laboratory diagnosis of Rheumatic heart disease, Infective endocarditis and sepsis
7. SGT
8. Laboratory diagnosis of Filariasis and Leishmaniasis
9. Laboratory diagnosis of HIV infection 2, Confidentiality pertaining to patient's identity in laboratory results
10. Revision Practical
11. Laboratory diagnosis of Dysentery & Lab diagnosis of HIV
12. Laboratory diagnosis of Hepatic infections
13. Laboratory diagnosis of skin infections-II
14. Laboratory diagnosis of musculoskeletal infections
15. Laboratory diagnosis of Encephalitis

ACADEMIC YEAR: 2023 – 2024 (Lectures – 10; SGT – 01)

Lectures

1. Bacterial genetics
2. Gas gangrene & nonsporing anaerobes
3. Viral Exanthems & other Cutaneous infections (Part-II)
4. Bacterial Atypical (Interstitial) Pneumonia
5. Tetanus
6. Parasitic & Fungal infections of CNS (Part -I)
7. Infection Syndrome of Urinary Tract Infection
8. Ocular Parasitic Infection and Fungal infection
9. Ear Infection
10. Pandemic Module (Sample collection , Lab diagnosis during pandemic)

SGT

1. Laboratory diagnosis of skin infections-II (Fungal and Viral infections) AND Laboratory diagnosis of musculoskeletal infections (Arthritis, Osteomyelitis) Ziehl-Neelsen staining (4)*

Dr. Arundhati Nimale (ASSISTANT PROF.)

Batch 2022-23 (L-2)		
Sr.No	Lecture/SGD	Topic
1.	Lecture	Ocular Bacterial infections
2.	Lecture	Antigen-Antibody Reaction (Part-I)
Batch 2023-24 (L-18, SGD -4)		
1	Lecture	Antibacterial agents, antibiotic resistance and Pathogenesis of Bacteria
2	Lecture	Antigen- Antibody Reactions (Part -II)
3	Lecture	Hypersensitivity
4	Lecture	Sterilization
5	SGD	AETCOM
6	SGD	Laboratory diagnosis of Enteric fever
7	Lecture	Viral haemorrhagic fever
8	Lecture	Lymphatic Filariasis
9	Lecture	Food poisoning
10	SGD	Laboratory diagnosis of Filariasis and Leishmaniasis (Batch A)
11	Lecture	Intestinal Protozoan infections- II
12	Lecture	Intestinal Trematodes infections + Intestinal Nematodes infections I, Intro & Trichuris trichura
13	Lecture	Staphylococcal infections
14	Lecture	Viral Exanthems & other Cutaneous infections (Part-I)
15	Lecture	Tuberculosis
16	Lecture	COVID And Miscellaneous Viral infections of Respiratory Tract
17	Lecture	Viral Encephalitis & Encephalopathy
18	Lecture	Ulcerative genital diseases
19	Lecture	Theory Test -III Respiratory Tract Infections

DR. ANKITA SINGH (SENIOR RESIDENT)

S.No	Lecture/SGT	Topic
Batch 2021-2022 (L- 2, SGT- 7)		
1.	SGT	Laboratory Diagnosis of Intestinal helminthic infections
2.	Lecture	Beta-hemolytic Streptococcal infections
3.	SGT	Pertussis
4.	SGT	Laboratory diagnosis of Upper respiratory tract infections
5.	SGT	Laboratory diagnosis of skin infections-I
6.	SGT	Laboratory diagnosis of musculoskeletal infections
7.	Lecture	Infective Syndromes of Central Nervous System
8.	SGT	Revision
9.	SGT	Laboratory diagnosis of Meningitis : Pyogenic, Tubercular, Cryptococcal & Aseptic)
Batch 2022-2023		
1.	Lecture	Integrated Lecture - Bio Medical Waste Management
2.	Lecture	Bacterial genetics
3.	SGT	Ziehl - Neelsen staining
4.	SGT	Bacterial culture: Culture media, methods and identification techniques.(conventional and automated)
5.	SGT	General principles of laboratory diagnosis of Viral diseases
6.	SGT	General principles of laboratory diagnosis of Fungal diseases
7.	Lecture	Visceral Leishmaniasis & Trypanosomiasis
8.	SGT	Revision
9.	SGT	Laboratory diagnosis of Enteric fever
10.	SGT	Laboratory diagnosis of Malaria
11.	Lecture	Gastrointestinal infections due to Enterobacteriaceae
12.	SGT	Laboratory diagnosis of HIV infection 2, Confidentiality pertaining to patient's identity in laboratory results
13.	Lecture	Viruses causing Hepatitis
14.	SGT	Laboratory diagnosis of Diarrhea and Stool Examination
15.	Lecture	Beta-hemolytic Streptococcal infections
16.	SGT	Pertussis
17.	Lecture	Viral Exanthems & other Cutaneous infections
18.	SGT	Laboratory diagnosis of skin infections-I
19.	Lecture	Myxovirus infections of Respiratory Tract
20.	SGT	Laboratory diagnosis of Upper respiratory tract infections
21.	SGT	Laboratory diagnosis of Lower respiratory tract infections
22.	SGT	Normal human microbiota
23.	SGT	Epidemiology of Infectious Diseases
24.	SGT	Revision
25.	Lecture	Ocular Viral, Parasitic & fungal infections & Ear infections
26.	Lecture	Zoonotic infections
27.	Lecture	Theory Test: Immunology
28.	Lecture	MCQ Test (Bloodstream and Cardiovascular system infection)
29.	Lecture	MCQ Test (Gastrointestinal infections)

30.	Lecture	MCQ Test (Hepatobiliary system infections)
Batch 2023-2024		
1.	SGT	General principles of laboratory diagnosis of : Bacterial diseases (Sample collection transportation; bacterial identification methods in general) (Part-II)
2.	SGT	Ziehl - Neelsen staining
3.	Lecture	Antigen
4.	SGT	General principles of laboratory diagnosis of parasitic diseases and Stool Examination
5.	Lecture	Complement
6.	Lecture	Components of immune system
7.	Lecture	Immunoprophylaxis
8.	SGT	Hospital infection control – I : Hand hygiene, PPE (Donning & Doffing)
9.	Lecture	AETCOM
10.	SGT	Laboratory diagnosis of Rheumatic heart disease, Infective endocarditis and sepsis
11.	Lecture	HIV/AIDS
12.	SGT	Laboratory diagnosis of Brucellosis, Leptospirosis, Dengue fever, Scrub typhus, Candidemia
13.	Lecture	Leishmania and Trypanosoma
14.	Lecture	Miscellaneous bacterial Gastrointestinal infections
15.	SGT	Laboratory diagnosis of HIV infection 2, Confidentiality pertaining to patient's identity in laboratory results
16.	Lecture	Intestinal Nematodes infections – II
17.	SGT	Laboratory diagnosis of Dysentery
18.	Lecture	Infective syndromes of Hepatobiliary system & abdomen + Hepatitis B
	Lecture	Beta-hemolytic Streptococcal infections
19.	SGT	Revision
20.	SGT	Laboratory diagnosis of Hepatic infections
21.	Lecture	Fungal infections of Skin, Soft tissue & Musculoskeletal System
22.	SGT	Laboratory diagnosis of skin infections-I (Bacterial: Furuncle, cellulitis, Surgical site infection, Burn wound infection, Leprosy)
23.	SGT	Laboratory diagnosis of Upper respiratory tract infections
24.	SGT	Laboratory diagnosis of Lower respiratory tract infections
25.	Lecture	Infective Syndromes of Central Nervous System
26.	SGT	Laboratory diagnosis of Meningitis : Pyogenic, Tubercular, Cryptococcal & Aseptic)
27.	SGT	Revision
28.	Lecture	Other genital tract infections
29.	SGT	Infection Control measures, Hand hygiene, PPE

30.	Lecture	Pandemic Module (Emerging & Re-emerging Infection)
31.	SGT	Revision

DR BHAGYASHREE KAREKAR

SENIOR RESIDENT

Academic year : 2023-2024 (Lecture – 1; SGT – 2)

Lecture:

1. Zoonotic Infection

SGT

1. Laboratory diagnosis of Urinary tract infections
2. Gram Staining and ZN Staining
3. Revision Practical

DR BHAGYASHRI PATIL

TUTOR

Academic year : 2023-2024 (SGT – 10)

SGT:

1. SEMINAR Intestinal helminthic infections
2. Laboratory diagnosis of skin infections-I (Bacterial: Furuncle, cellulitis, Surgical site infection, Burn wound infection, Leprosy) Gram Stain (3)*Ziehl-Neelsen staining (3)
3. Laboratory diagnosis of Upper respiratory tract infections, Gram Stain(5)* AND Laboratory diagnosis of Lower respiratory tract infections, Ziehl-Neelsen stain (5)*, Hand hygiene, PPE (3) And CCT (3) Pertussis
4. Laboratory diagnosis of Meningitis : Pyogenic,Tubercular, Cryptococcal & Aseptic) * Gram Stain (4)*
5. Laboratory diagnosis of Encephalitis
6. Revision Practical
7. Laboratory diagnosis of Urinary tract infections
8. Infection Control measures, Hand hygiene, PPE
9. Gram Staining and ZN Staining
10. Revision Practical

Department of Pathology

Small Group Teaching conducted by all faculties

1. Introduction of Pathology Department (P1/40)
2. Histo techniques, tissue processing, microscopy, Identification of common types of cells (P2/40)
3. PA2.8 Classification of cell injury, Reversible cell injury, Intracellular accumulation (P3/40)
4. PA 2.6 Cellular adaptation (P4/40)
5. PA 2.4 & PA 2.5 Necrosis & Gangrene (P5/40)
6. PA4.4 Acute inflammation (P6/40)
7. PA4.4 Chronic inflammation & repair (P7/40)
8. PA 6.2 Hemodynamic disturbances- I (Hyperaemia & Congestion) (P8/40)
9. PA 6.7 Hemodynamic disturbances- II (Thrombosis, embolism & Infarction) (P9/40)
10. Pigments (P10/40)
11. PA 7.1 Neoplasia -I (P11/40)
12. PA 7.1 Neoplasia -II (P12/40)
13. Integrated Teaching
14. PA8.3 Observe a diagnostic cytology and its staining and interpret the specimen(P13/40)
15. SVL (Sanas Skill Lab)
16. PA3.2 Identify and describe amyloidosis in a pathology specimen (SDL+SEMINAR) (P14/40)
17. PA 13.2 Collection of Blood for Investigation & HB Estimation(P15/40)
18. PA 13.1 Hematopoiesis and TLC, DLC (P16/40)
19. PA 14.3, 15.3, 16.6, 16.7 Anaemia & (P18/40)
20. Routine Smear preparation, staining and Smear reporting
21. PA 18.2 Bone marrow Examination (P18/40)
22. PA 20.1 Leukemia and Plasma cell disorder (P19/40)
23. Case based learning (Hematology cases)
24. AETCOM 2.4 (A+B)
25. PA16.7, PA21.1, PA21.2 Blood banking and bleeding disorder (P20/40)
26. PA 19.5, PA 19.7 Diseases of Spleen & Lymph node (P21/40)
27. Revision Practical
28. 1st Term IA debriefing and discussion
29. PA 26.1, PA 26.3 & PA 26.6 Pneumonia, COPD & Tumors of Lung (P22/40)
30. GIT –III (Ca Esophagus & Colon & Autopsy (Ca colon) (P25/40)
31. Research / Library study
32. Diseases of Musculo skeletal System
33. CSF and Body fluids(P40/40)
34. Skin
35. Integrated teaching on Diabetes Mellitus

Chapter 6

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The Manifesting Menace of Multidrug Resistant *Acinetobacter baumannii*

Kulkarni Vishal L^{a++}, Kinikar A G^{b#}, Bhalerao D S^{b#},
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ABSTRACT

Introduction: Infections due to *Acinetobacter baumannii* have become a global medical challenge. Multidrug-resistant *Acinetobacter baumannii* (MDRAB) isolates are causing catastrophic consequences in healthcare settings, particularly in critical care areas. *Acinetobacter baumannii* is one of the six most cardinal pathogens in the ESKAPE group of organisms, which includes *Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *A. baumannii*, *Pseudomonas aeruginosa* and *Enterobacter* species. The mortality in patients who are suffering from *A. baumannii* infections can be as high as 75%. The most notorious problem encountered is the capacity of these species to acquire the different mechanisms of resistance and the emergence of strains that are resistant to all commonly used antibiotics coupled with the scarcity of development of new antibiotics; this has resulted in a limited choice of antibiotics for treatment of multidrug-resistant *Acinetobacter baumannii*.

Purpose: The purpose of this study was to isolate *A. baumannii* species from different clinical specimens and to determine their antimicrobial resistance pattern.

Methodology: The study was done in the Department of Microbiology, RMC, Loni. The clinical samples were subjected to Gram staining, and aerobic culture using MacConkey and blood agar. *Acinetobacter baumannii* species were identified by standard microbiological identification methods. Antimicrobial susceptibility testing was done by Kirby Bauer's disc diffusion technique.

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A Curious Case of Cryptococcosis: When the Yeast Gets in the Blood and Brain Fluid

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ABSTRACT

The present study highlights a case of disseminated cryptococcosis in an immuno-compromised patient. Cryptococcosis is an infection caused by *Cryptococcus neoformans* in immunosuppressed patients. Oral lesions associated with cryptococcosis can present as purple nodules of granulation tissue, swelling and ulcers. They can appear on the palate, gingiva and in the tooth socket after extraction. Sometimes the ulcerated lesions associated with Cryptococcosis can be indurated. A 50 year old female patient was admitted to Dr. Vitthalrao Vikhe Patil Pravara Rural hospital, Loni, a rural tertiary health care centre in Maharashtra; with complains of on and off fever and weakness since about a month. Cryptococcosis, although considered as an AIDS defining disease, doesn't seem to be reported less from immunocompetent patients. The study would emphasize the importance of early suspicion of cryptococcal infection in AIDS patients; so that early establishment of full laboratory work up and institution of antifungal therapy can be done to improve patient outcomes.

Keywords: Antifungal therapy; cryptococcosis; microorganisms; fungal infections

1. INTRODUCTION

Humans can coexist peacefully with almost all of the microorganisms in their environment. Only when the immune system is weakened or the density of pathogenic microorganisms reaches an exceptionally high level can an infectious condition develop. Prions, viruses, bacteria, and parasites have all been linked to

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Hand Hygiene Auditing: An Effective Tool To Improve The Adherence To Hand Hygiene Practices Among Healthcare Workers.

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ABSTRACT

Hand hygiene (HH) is cornerstone among infection control practices. Hand hygiene is an important and effective measure in the prevention of healthcare-associated infections. Hand hygiene compliance is one of the quality indicators of the hospital infection control department. Aim was to determine the adherence rates of Hand hygiene in different types of healthcare workers & to determine the compliance of hand hygiene among healthcare workers. A prospective observational study was conducted by the Department of Microbiology in Gynecology ward in Bharat Ratna Atal Bihari Vajpayee Medical College & Hospital, Pune. Total 21 patient care activities and 69 HH opportunities were observed. Out of 69 opportunities, 21 opportunities performed by doctor, 31 opportunities performed by Nursing staff and 17 opportunities performed by others. HHTAR for doctors observed was 38.09%. HHTAR for Nursing staff was 48.38%. HHTAR for other HCWs was 47.05%. HHICAR for doctors, Nurses and others were 19%, 12.9%, 17.6% respectively. HHPAR for doctors, Nursing staff and others were 14.2%, 35.48%, 23.52% respectively. Hand Hygiene adherence rates calculated from this HH audit in current study shows that Healthcare workers should emphasize on proper hand hygiene practices among HCWs.

Keywords: Hand Hygiene audit, Infection control practices, Hand hygiene adherence rate.

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Impact of training session on infection control practices among health care workers in tertiary care Centre.

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Introduction- Hospital acquired infections (HAIs) is a major safety concern for both health care providers and the patients. A breach in infection control practices facilitates transmission of infection.

Aim - The aim of this study was to determine impact of training about knowledge of infection control practices among health care workers in tertiary care hospital.

Objectives- The present study was carried out -

- 1) To determine the effectiveness of training session conducted on infection control practices among healthcare workers.
- 2) To assess the knowledge among healthcare workers.

Methodology- The study was conducted at Kamala Nehru Hospital affiliated with Bharatratna Atalbihari Vajpayee Medical College, Pune involved 40 healthcare workers to whom a questionnaire was distributed regarding policies, practices and awareness relating to infection control practices in healthcare setting before and after training. Training session was conducted about infection control practices in healthcare setting. Pre & Post training score was calculated & compared. The data was analysed using appropriate statistical methods.

Results Total 10 questionnaires about infection control practices were distributed among forty healthcare workers before and after training session. The percentage score (i.e., correct answers) of all questions asked was improved after training session and out of that score of seven questions was found to be statistically significant.

Conclusion- Our study concluded that knowledge about infection control practices among health care workers was improved after training. The training session conducted by Department of Microbiology has contributed in improving knowledge of healthcare workers about infection control practices in healthcare setting and it will ultimately help in improving their attitude and day to day practices while giving healthcare to patients. Continuous teaching and monitoring of staff regarding infection control practices will encourage them to follow correct protocols according to standard guidelines.

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I. Introduction

Hospital-acquired infection (HAI) (also known as nosocomial infection) is defined as a localized or systemic condition resulting from an adverse reaction to an infectious agent or its toxin that develops in a patient 48 hours or more after admission to a hospital and was not incubating at the time of admission.^[1] Hospital acquired infections (HAIs) is a major safety concern for both health care providers and the patients. Considering morbidity, mortality, increased length of stay and the cost, efforts should be made to make the hospitals as safe as possible by preventing such infections. This attributes to the importance of hospital infection control practices.

Prevention of hospital acquired infections requires the basic understanding of epidemiology of nosocomial infection which includes host-agent-environment relationship. Since the 1800s, hand hygiene has been recognized as the single best method to prevent the spread of pathogens and nosocomial infections. Hospital infection prevention and control (IPC) is a practical, evidence-based approach preventing patients and health workers from being harmed by avoidable infections.

A breach in infection control practices facilitates transmission of infection which is prevented by proper cleaning and disinfection of hospital environment. Sterilization and disinfection are the basic components of hospital infection control activities. Every day, a number of hospitals are performing various surgical procedures.



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Molecular Diagnosis of Multidrug Resistant Extrapulmonary Tuberculosis Using CBNAAT Technique

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ABSTRACT

The laboratory diagnosis of Extra pulmonary tuberculosis (EPTB) is challenging due to the paucibacillary nature of clinical specimens, difficulty in obtaining sample from deep seated lesions. Xpert MTB/RIF (CBNAAT) was specifically developed, optimized and evaluated for testing pulmonary samples. Recently, assessment of this method is extended to a variety of nonrespiratory specimens. The objective of this study was to analyse positivity of *Mycobacterium tuberculosis* complex in extrapulmonary specimens and know their susceptibility to the drug Rifampicin.

Methodology-

Clinical Extrapulmonary Samples from suspected EPTB cases were treated & tested according to Manufacturer's Instructions & Standard operating procedure.

Result-

Out of 224 Extrapulmonary specimens, MTBC were detected in 15 cases, of which only 2 showed rifampicin resistance. Age wise, maximum positivity was noted in 31- 50 years old age group. Maximum positivity was found in Pus sample (4) followed by Pleural fluid (3) & CSF (3). Rifampicin resistance was observed in 2 specimens, (synovial fluid & CSF). Out of PLHIV cases, 20% samples showed presence of *Mycobacterium tuberculosis* complex infection. Out of specimens received from Private sector, 5 (25%) showed presence of MTBC infection.

Conclusion-

MTB/RIF is a useful tool in the laboratory diagnosis of Extrapulmonary TB, because of its simplicity and rapid turnaround time. Our study is an addition to the in the literature of EPTB demonstrating the utility of Xpert MTB/RIF for lab diagnosis by testing on diverse types of clinical specimens.

Keywords: CBNAAT, EPTB, MDRTB

INTRODUCTION

Mycobacterium tuberculosis (MTB), the causative agent of tuberculosis (TB), remains the second leading cause of mortality due to single infectious pathogen globally after human immunodeficiency virus (HIV).^[1] The common perception of epidemiology of tuberculosis and effectiveness of control activities have been complicated by rise in

drug resistance and TB-HIV synergism. Although the bacteria commonly affect lung, it can invade extrapulmonary organs like lymph node, meninges, bone, spinal tissues, genitals organs.^[1] HIV co-infected TB patients often develop extra pulmonary tuberculosis and may progress fast unless its timely diagnosed managed appropriately.^[2]

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Extrapulmonary Tuberculosis: A Sleeping Giant !! A Case Series of EPTB Diagnosed Microbiologically by CBNAAT Technique.

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Abstract

TB manifests clinically as pulmonary or extrapulmonary tuberculosis (EPTB), with the former being more common. In India, 10 to 15% of TB cases are estimated to be cases of EPTB. Here we report the analysis of four EPTB cases which had been diagnosed on the basis of CBNAAT and other diagnostic evidences. **Methodology:** The collected specimens received at Pravara Rural Hospital, Loni were subjected to CBNAAT (GeneXpert) testing. The case information (history, records and investigations) was accessed through the 'Medical record department'. **Case series:** Case 1 was a case of Pulmonary Tuberculosis with mediastinal lymph node enlargement with MTBC found in a pus sample. Case 2 was a case of TB meningitis with metabolic encephalopathy diagnosed microbiologically by CBNAAT technique. Case 3 was a case of Multidrug resistant TB meningitis and case 4 was a case of abdominal TB with pulmonary focus positive. **Conclusion:** CBNAAT testing is proving to be a game changer for making a rapid diagnosis of Multidrug Resistant Extrapulmonary tuberculosis.

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I. Introduction

In an ancient texts from India, tuberculosis (TB) is referred to as 'Rogaraj- the king of disease and 'Rajayakshma- the disease of kings'. John Bunyan's 'Captain of all of these men of Death' emphasizes that this disease was and in many countries still is, foremost among the cause of morbidity and mortality.^[1] TB manifests clinically as pulmonary or extrapulmonary tuberculosis (EPTB), with the former being more common. In India, 10 to 15% of TB cases are estimated to be cases of EPTB.^[2]

Extra pulmonary tuberculosis (EPTB) comprises a wide disease spectrum affecting most of the organs of the body except lungs. It commonly affects the sites which are lymph nodes, pleura, urogenital tract, bones and joints, meninges, intestines, peritoneum, pericardium and skin. Although morbidity, mortality and complications due to EPTB are common, it is generally underestimated as contagious potential of this form is negligible.^[3] In this scenario, not only rapid detection of tuberculosis, but also the early determination of MDR status is important. Diagnosis of EPTB is challenging due to its myriad clinical presentation, difficulty in collection of the specimen from deep-seated tissue, paucibacillary nature of the disease.^[4]

Various techniques are employed for the laboratory diagnosis of EPTB such as Acid fast staining, Fluorescent staining, culture, histopathology, tuberculin skin test (TST), serological assays, interferon-gamma release assays (IGRAs).^[5] However, sensitivities & specificities of these tests are variable. Also, some of these tests require a number of manual steps, and some having relatively long turnaround time. A rapid diagnosis of *Mycobacterium tuberculosis* complex (MTBC) is crucial for prevention and treatment of tuberculosis and to break the chain of transmission. CBNAAT is cartridge-based nucleic acid amplification test/ (MTB/RIF) which detects the presence of tubercular bacilli and also check susceptibility to rifampicin within 2 hours. CBNAAT is

Original article

Student Perception and Effectiveness of Case based Learning in Pharmacology

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Abstract

Background: Pharmacology is an important subject of second year MBBS curriculum. Present study has been planned to find out the student perception and effectiveness of innovative new teaching learning method of Case based Learning (CBL) as compared to traditional didactic lecture.

Material and Methods: Total 186 students from 5th semester MBBS participated in the study. Two batches (A and B) were exposed to Didactic lecture & CBL respectively in first week for topic of Antiamoebic drugs and then cross-over was done in second week for the topic of Antileprotic drugs. The students' knowledge before and after both the sessions was assessed by Pre and Post-test questionnaire. Perceptions of students about CBL was assessed by pre-validated questionnaire using a five-point Likert scale.

Results: Post-test scores in CBL groups have shown significant improvement as compared to Post-test scores in didactic lecture groups in both topics i.e. Antiamoebic drugs and Antileprotic drugs ($p < 0.0001$). 80.4% students from feel that CBL is good teaching learning method which increased their understanding of subject and they were satisfied with it.

Conclusion: Result from Post-test and the positive perceptions of students indicate that the introduction of CBL in the Pharmacology teaching will be a successful endeavour.

Key words- Case Based Learning, Pharmacology, Medical education, Competency based medical education

1. Introducción

In India, traditionally delivered didactic lectures may not always suffice the students to understand the basic concepts of Pharmacology.¹ Most of the knowledge given through didactic lecture is focussing on recall (Lower cognitive domain) rather than comprehension and application (higher cognitive domain) Routine didactic lectures are not having sufficient active participation of students in learning & students find the subject of Pharmacology very vast, dry and volatile as

well as less interesting and having poor memory retention.

Competency based Medical Education (CBME) adopted by Medical council of India (Now replaced by National medical Commission) provides an effective outcome-based strategy where various domains of teaching including teaching learning methods and assessment form the framework of competencies.² Competency is defined as "the ability to do something successfully and efficiently,"³ and CBME is an approach to

Case Report

Case Report of *Hymenolepis Diminuta* From Rural Tertiary Care Centre

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ABSTRACT

Hymenolepis diminuta is a parasite infecting mainly rats which is acquired accidentally to humans by ingesting infected intermediate host which is arthropod (Flea, beetles, cockroaches) harboring the cysticercoid larvae. In the present case report, a case of parasite *H. diminuta* infection in a 7 year old female child from the rural area of western Maharashtra is reported. The patient came to pediatrics outpatient department of rural tertiary care hospital with the chief complaints of three days of fever, intermittent abdominal pain, anal pruritus, nocturnal restlessness and vomiting. Stool microscopy revealed presence of eggs of *H. diminuta*. The present case responded well to praziquantel therapy (10mg/kg) for 7 days. More awareness is required for a better understanding of epidemiology and transmission routes of these kind of rare zoonosis.

Key words: parasite, *Hymenolepis diminuta*, praziquantel, rat tapeworm.

Introduction:

Hymenolepis diminuta is a rodent parasite infecting mainly rats and mice. The parasite is also known as 'rat tapeworm'. Humans acquire infection accidentally by ingesting infected arthropods (intermediate host) harboring the cysticercoid larvae. The rats are definitive host while obligatory intermediate hosts are arthropods mostly flour beetles and flour moths.^[1] Inside the arthropod (Flea, beetles, cockroaches) the hexacanth embryo will develop into a cysticercoid. When an infected arthropod is ingested, cysticercoids of parasite will develop into an adult form in the small intestine of definitive host and their eggs will be passed out in the stool.^{[2] [3]} Humans, usually

children, are accidental hosts and acquire infection by ingesting the infected intermediate host.^[3]

Many cases of *H. diminuta* infection are reported from India.^{[2] [3] [4] [5]} and from foreign countries.^{[1] [6] [7] [8] [9] [10] [11] [12] [13]}

Case report:

A 7-year-old female child resident of Loni (Bk) village (in Ahmednagar district of Maharashtra) was presented in out patient department with chief complaints of fever, dry cough, and intermittent pain in the abdomen. Single episode of vomiting which was nonprojectile, non-bilious in nature. Anal pruritus, nocturnal restlessness was also present. There was no history of loose motion, passage of worms or

Disseminated cryptococcosis in an AIDS patient

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Abstract

Humans live in peaceful coexistence with the microorganisms, but sometimes infectious conditions emerge. An increased incidence of invasive fungal infections is being observed recently. Yeasts and moulds now rank amongst the 10 most frequently isolated fungal pathogens among seriously ill patients. *Cryptococcus neoformans* is one of the common causes of meningitis in human immunodeficiency virus (HIV) infected individuals. Previously considered a sleeping giant, *Cryptococcus neoformans*, has now become an important emerging threat after the acquired immunodeficiency syndrome (AIDS) pandemic. Cryptococcosis is the first illness to appear in around 45% of the cases, among the AIDS defining illnesses. We report a case of disseminated cryptococcosis in an AIDS patient. *C. neoformans* was isolated from Cerebrospinal fluid and blood as well. Novel strategies of screening and pre-emptive therapy offer great promise at making a sustained and much needed impact on reducing morbidity related opportunistic infections. We emphasize the importance of early suspicion of cryptococcal infection in AIDS patients to escalate early diagnosis and treatment.

Keywords: Cryptococcosis, *Cryptococcus neoformans*, AIDS, Blood culture, Meningitis, Disseminated cryptococcosis.

Introduction

Human beings, most of the times, are able to live in peaceful coexistence with almost all microorganisms present around them. An infectious condition may emerge only when the immune system is compromised or the concentration of pathogenic microorganisms reach an exceptionally high density. Prions, viruses, bacteria & parasites; all have been incriminated in infectious disease conditions, but since last few decades, an increased incidence of invasive fungal infections is being observed. Fungi are remarkable organisms constituting a separate kingdom in classification; of which, yeasts and moulds now rank amongst the 10 most frequently isolated fungal pathogens among seriously ill patients.¹

The true yeast, *Cryptococcus neoformans*; a capsulated fungus from the family Basidiomycetes,² can produce sub-acute or chronic, pulmonary infections, meningeal infections or systemic infections and is often recovered from immuno-compromised patients. In fact, *C. neoformans* is one of the common causes of meningitis in human immunodeficiency virus (HIV) infected individuals.³

Cryptococcal infection commonly can occur by direct inhalation of either poorly encapsulated yeast cells or the basidiospores present in environmental reservoirs. *C. neoformans* is found throughout the world in association with excreta from birds like pigeons, environmental scavengers such as amoeba and sow bugs; and in a variety of trees.⁴ Previously considered a sleeping giant, *Cryptococcus neoformans*, has now become an important emerging threat after the acquired immunodeficiency syndrome (AIDS) pandemic.⁵

We, hereby report a rare case of disseminated cryptococcosis in an immuno-compromised patient.

Case History

A 50 year old female patient was admitted to the Pravara Rural hospital, Loni, Maharashtra with complains of on and

off fever and weakness for last one month. The patient was a known case of HIV infection since last five years. Multiple specimens of the patient were received in microbiology laboratory including blood and cerebrospinal fluid (CSF).

Blood culture was processed in BacT/ALERT 3D 120 automated aerobic blood culture system. The bottle was flagged positive by the machine after 48 hours and contents of the same were used for sub-culture on Blood agar (BA) (Image-1) and MacConkey's agar (MA). After overnight incubation at 37°C, the growth obtained was subjected to further analysis. Gram staining of the colony smear (Image-2) showed gram positive spherical budding yeast cells. Negative staining of the colonies with India ink (Image-3) showed spherical yeast cells with clear haloes. The colonies on BA were subjected to conventional tests and Vitek-2 compact system for identification and antifungal susceptibility. The isolate was identified as *Cryptococcus neoformans*, sensitive to amphotericin-B. Other antifungals like fluconazole, caspofungin, micafungin & voriconazole were reported as 'unclaimed' by the Vitek-2 system.

The colonies on BA were also subcultured on Sabouraud Dextrose Agar (SDA). Growth of *Cryptococcus*; confirmed by Gram staining and negative staining. Christensen Urease agar was inoculated for Urease test. Urea was hydrolysed.

CSF sample also showed similar findings in direct microscopy - gram positive spherical budding yeast cells in Gram staining (Image-4) and capsulated yeast cells in negative staining by India ink (Image-5). CSF culture isolate (Image-6), was identified on Vitek-2 system; as *Cryptococcus neoformans* which showed similar findings as that of growth from the blood culture.

Sputum sample of the patient was processed on GenExpert [cartridge-based nucleic acid amplification test (CBNAAT)] for *Mycobacterium tuberculosis*, which turned out to be negative. Aerobic culture, Gram & Acid fast

A Rare Case Report of Visceral Leishmaniasis from Rural tertiary care center in western Maharashtra

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Abstract

Visceral leishmaniasis is common in eastern part of India mainly Bihar, Uttarpradesh, Jharkhand and Bengal. In this report, we presented a case of visceral leishmaniasis from Maharashtra. A 9 yrs female child with chief complaints of on and off fever, abdominal pain, constipation since 8 months was admitted in Pravara Rural hospital Loni, Maharashtra. On systemic examination the child had hepatosplenomegaly. All laboratory investigations were normal except for routine cytological examination where severe anaemia and pancytopenia was seen. Abdominal ultrasonography revealed marked hepatosplenomegaly. Bone marrow aspiration was done and smear was send to microbiology laboratory. On examination, Giemsa stained smear showed amastigote form of *Leishmania donovani*. The patient was put on Amphotericin B (intravenously), antacid and vitamin supplement for treatment.

Key words: amastigote form, *Leishmania donovani*, Kala azar, Visceral leishmaniasis.

Background

Kala-azar (KA), also known as visceral leishmaniasis (VL), is a protozoan infection caused by *Leishmania donovani* that attacks macrophages in the liver, spleen, and bone marrow. VL is transmitted by the bite of an infected female sand fly, *Phlebotomus*. *Leishmania* spp. has complex life cycle. It shows two forms in its life cycle, promastigote and amastigote. Promastigote forms develop and lives in the sand fly vector whereas the amastigote forms multiply intracellularly in the reticulo-endothelial cells of the host.² VL is endemic³ in India with majority cases reported from Bihar. Many cases are also reported from the border regions of Nepal and Bangladesh.¹ In case of VL man is the only source of infection.³ Among *Leishmania* spp, *L. major* and *L. tropica* causes cutaneous disease (Delhi Boil). Mucocutaneous disease (espundia) is caused by *L. braziliensis*. *L. donovani* causes visceral disease which involves the liver and spleen.²

Case report

A 10 year old female child currently residing at Shirdi, but originally from Panchanali village, District Doti, State Dipayal Silgadhi, Nepal came to Pravara Rural Hospital with complaints of, inter-

mittent fever since 7 to 8 months, abdominal pain, abdominal distension, constipation since 5 to 6 month, history of weight loss since 3 to 4 months and cough since 1 to 2 months, vomiting since 5 to 6 days, she had been treated with antibiotics and antimalarial in Nepal but it didn't relieved her symptoms.

Her father was working in Shirdi so he shifted his family to India for her treatment. He had consulted several other hospitals in Maharashtra but her symptom didn't retrieve. There was no history of petechial hemorrhages, haematemesis, melena, diarrhea. No evening rise of fever, chest pain, headache, body ache, joint pain, hypochondriac pain, lymphadenopathy and bone pain seen.

On general examination, the patient had oedema, icterus and severe pallor. There was no sign of cyanosis and lymphadenopathy. On abdominal examination, abdomen was soft, non tender, abdominal distension was presented. Liver was enlarged 5 cm below left costal margin. Massive hepatosplenomegaly was seen.

Routine blood investigations revealed pancytopenia with hemoglobin level at 5.2 gm/dl with normocytic hypochromic morphology. TLC: 1050/cubic mm, total serum protein 5g/dl, albumin: 1.9 g/dl globulin 3.1g/dl, SGOT: 16 IU/L, SGPT: 13 IU/L, urea: 21 mg/dl, creatinine 0.5mg/dl. Blood culture for brucellosis was negative. Serum was negative for HIV antibodies, hepatitis surface antigen (HbsAg), widal test. Peripheral blood smear (PBS) was negative for malaria parasite and *Leishmania donovani* (L.D) bodies.

Finally bone marrow aspiration was done. Received bone marrow aspiration was stained by Giemsa staining in the Dept. of Microbiology and amastigotes forms of *L. donovani* were identified.

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Methicillin, Vancomycin and Multidrug-Resistance Among Staphylococcus Aureus

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Abstracts: **Introduction:** The difficult therapeutic problem of multidrug-resistant Staphylococcus aureus (MRSA) is just one example of the diminishing efficacy of antimicrobial agents for the treatment of bacterial infections. The present study was undertaken to determine the prevalence of Methicillin, Vancomycin and multidrug-resistance of Staphylococcus aureus. **Methodology:** The study included 312 non-duplicate Staphylococcus aureus which were isolated from various clinical specimens. The isolates were tested for Methicillin resistance by Oxacillin disc diffusion, Cefoxitin disc diffusion and Oxacillin screen agar. They were also tested for vancomycin resistance by Vancomycin screen agar, agar dilution technique and E strip technique. The antibiogram was determined by Kirby Bauer Disc Diffusion Method. **Results:** Oxacillin screen agar technique was found to be more sensitive than Oxacillin disc diffusion method for detection of MRSA. Prevalence of MRSA in our study was found to be 36.54 %. All MRSA isolates were found to have increased resistance to all antibiotics as compared to MSSA isolates. No VISA and VRSA were found by any of the three methods. Prevalence of MDRSA in our set up was found to be 51.28%. **Conclusion-** In the Hospitals where resources are constrained, Cefoxitin disc diffusion method and Vancomycin screen agar can be used as screening of MRSA and VRSA strains respectively. [Kulkarni VL NJIRM 2017; 8(3):68-74]

Key Words: Staphylococcus aureus, MRSA, VRSA, MDRSA

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Introduction: Staphylococcus aureus, a Gram positive bacterium from Micrococcaceae family has been recognized as an important cause of human disease for more than 100 years.¹ It is perhaps the pathogen of greatest concern because of its intrinsic virulence, its ability to cause a diverse array of life threatening infections, its capacity to adapt to different environmental conditions and its nasal carriage which accounts for possible re-infection and also spread.²

Methicillin resistant Staphylococcus aureus (MRSA) has been reported with increasing frequency worldwide.³ Life threatening sepsis, endocarditis, postoperative wound infections, skin & soft tissue infections and osteomyelitis caused by MRSA have been reported since 1961 from various parts of the world.⁴ These strains are not only resistant to routinely used antibiotics but also act as a reservoir for multidrug-resistance development. Once MRSA is introduced in hospital, it is difficult to eradicate and have differential ability to spread and cause major outbreaks.^{5,6}

Currently, the treatment options for MRSA infections are mainly limited to very expensive drug like Vancomycin and Teicoplanin.⁶ However due to frequent and inadvertent use of Vancomycin for the treatment of MRSA; resistance to these antibiotics is also increasing. Staphylococcus aureus with reduced susceptibility to Vancomycin and Vancomycin

resistant Staphylococcus aureus (VRSA) have been reported from various parts of the world.^{7,8,9,10}

The difficult therapeutic problem of multidrug-resistant Staphylococcus aureus (MDRSA) is just one example of the diminishing efficacy of antimicrobial agents for the treatment of bacterial infections.² Multidrug-resistance has become a major cause of nosocomial and community acquired infections.¹

The resistance pattern of this organism can be detected in the laboratory by various methods like disc diffusion test, resistance agar screening test and minimum inhibitory concentration (MIC) method.¹¹ Among these MIC is the most accurate and specific method for antimicrobial resistance determination. Also accurate and prompt detection of Methicillin resistance in Staphylococcus aureus and subsequent detection of Vancomycin resistance in these MRSA strains is of utmost importance in managing these infections and preventing their spread.

The present study was undertaken to know the prevalence of Methicillin and Vancomycin resistance among various clinical isolates of Staphylococcus aureus, to evaluate various detection methods and to know the antibiogram of the isolates to the commonly used antibiotics.



Research Article

MULTIDRUG RESISTANT *ACINETOBACTER BAUMANNII*: RISE OF THE SUPERBUG !

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Abstract- Introduction-Infections due to *Acinetobacter baumannii* has become a global medical challenge. Multidrug resistant *Acinetobacter baumannii* isolates are causing catastrophic consequences in healthcare settings particularly in the critical care areas. The purpose of this study was to isolate *A. baumannii* species from different clinical specimens and to determine their antimicrobial resistance pattern. Methodology- The study was done in Department of Microbiology, RMC, Loni. The clinical samples were subjected to Gram staining, aerobic culture using MacConkey and blood agar. *Acinetobacter baumannii* species were identified by standard microbiological identification methods. Antimicrobial susceptibility testing was done by Kirby Bauer disc diffusion technique. Result- A total of 114 *Acinetobacter baumannii* species were isolated. Maximum number of *Acinetobacter baumannii* isolates were recovered from pus sample (41.23%) followed by tracheal secretions (30.7%). Rate of isolation of *A. baumannii* was highest from critical care areas (42.11%). Highest resistance was noted against Tobramycin (100%) followed by Cefotaxim (98.4%), Piperacillin (96.8%), and Ceftazidime (96.2%). All strains were sensitive to Polymyxin B & Colistin. Multidrug resistant *A. baumannii* isolates were found to be 77.19%. Conclusion- Stringent infection control protocols, regular practice of hand hygiene and strict implementation of antibiotics policy may help to control multidrug resistant ICU bugs.

Keywords- Clinical Microbiology, Bacteriology, *Acinetobacter baumannii*, Nonfermenters, Multi-drug resistance, ICU infections

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Academic Editor / Reviewer: Dr Santosh Tathe, Dr Nagesh Abdagire

Introduction

Acinetobacter baumannii (*A. baumannii*) is a nonfermenter, gram-negative, nonmotile, oxidase negative coccobacillus, which live and multiply not only in soil and water, but also on the skin of humans, especially in health care settings [1]. *A. baumannii* does not need fastidious growth factors for survival and it can grow at various temperatures and pH [2]. The versatile organism uses a variety of carbon and energy sources. These exceptional characteristics can explain its survival in moist or dry conditions and ubiquitous presence in the healthcare environment, which helps contributing to transmission [3]. The most notorious problem encountered is the capacity of these species to acquire the different mechanisms of resistance and the emergence of strains that are resistant to all commonly used antibiotics coupled with the scarcity of development of new antibiotics; this has resulted in a limited choice of antibiotics for treatment of multidrug resistant *Acinetobacter baumannii* (MDRAB) [4]. MDR *A. baumannii* infections usually occur in immunocompromised patients or in the patients having serious underlying condition, also in the patients who are on antibiotics for a long time. It is also associated with certain invasive procedures [5]. They are known to cause variety of healthcare associated infections including bacteremia, meningitis, urinary tract infections and ventilator associated pneumonias [6]. *A. baumannii* also causes, although less commonly, complicated skin and soft tissue, abdominal, and central nervous system infections [7]. The mortality in patients who are suffering with the *A. baumannii* infections can be high as 75% [8]. Infections due to Multidrug resistant *Acinetobacter baumannii* isolates are difficult to treat. Until now, Carbapenems, Sulbactam and Colistin were most effective antibiotics used in the management, but carbapenem resistance is on the rise globally [9]. It is believed by some of the medical practitioners, that the isolation of *A. baumannii* in the hospitalized patient is an indicator of severe illness.

The purpose of this study is to isolate *Acinetobacter baumannii* species from different clinical specimens and to determine their antimicrobial resistance pattern as well as to know the rate of Multidrug resistant strains from isolated species.

Methodology

The study was done in Department of Microbiology, Rural Medical College, Pravara Institute of Medical Sciences, (DU) Loni. All clinical specimens received from in patient departments and outpatient departments from Pravara Rural Hospital at the Department of Microbiology. From these processed specimens only *A. baumannii* isolates were included for the present study. Same isolate from repeat sample and the isolates other than *A. baumannii* species were excluded. All the samples were subjected to Gram staining and aerobic culture. The clinical specimens were inoculated on to blood agar & MacConkey agar plates and which were incubated at 37° C for 18 hours. *Acinetobacter baumannii* species were identified by colony morphology, Gram stain, catalase, oxidase test, OF glucose, Growth at 42°C and other standard microbiological identification methods [10]. Antimicrobial susceptibility testing were done by Kirby Bauer disc diffusion technique using Hi Media discs, E strips (wherever required) and the result were interpreted according to CLSI guidelines [11]. Multidrug resistant *Acinetobacter baumannii* isolates were defined as those strains which were resistant to more than three classes of antibiotics according to the CDC definitions. The antibiotic potency of the disks was standardized against the reference strains of *E. coli* ATCC 25922 as the negative control and *A. baumannii* ATCC 19606 as the positive control. All the patients' information details like age, gender, diagnosis, OPD/IPD were recorded. The appropriate statistics were applied wherever needed.

A Case of Keratomycosis Caused by *Fusarium Solani* at Rural Tertiary Care Center

VISHAL LAXMIKANT KULKARNI¹, ANAGHA GOVIND KINIKAR², DEEPIKA SHIVAJI BHALERAO³, S ROUSHANI¹

ABSTRACT

Keratomycosis is defined as invasive infection of corneal stroma caused by variety of fungi. Most of these cases occur in agricultural workers with history of corneal trauma with vegetative matter contaminated by fungi. *Fusarium* species which causes keratomycosis receives occasional mention in literature. We report a case of a 27-year-old male, farmer by occupation presented with complains of foreign body sensation, itching and discharge from the right eye and developed white patch on cornea which was progressed gradually to size of diameter of pea which was later diagnosed as keratitis caused by *Fusarium* species.

Keywords: Corneal ulcer, Mycotic keratitis, Ocular mycoses

CASE REPORT

A 27-year-old male, farmer by occupation, resident of village located nearby Sangamner, Maharashtra, presented with complains of foreign body sensation, redness, itching, discharge from the right eye since five days.

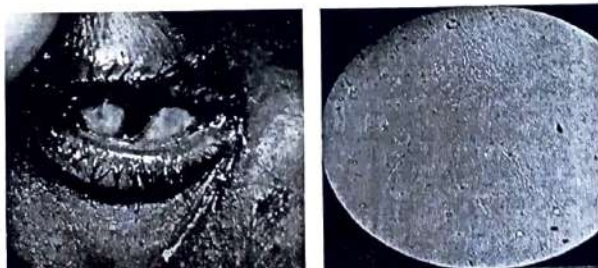
On asking details, he gave history of injury to cornea of right eye by sudden accidental inoculation of small insects (size less than mosquito as described by patient), following which he tried to remove it with fingers. From next day patient started complaining of redness, itching and discharge from right eye and developed white patch on cornea which was progressed gradually to size of diameter of pea. Patient also complained about blurring of vision of right eye and low grade fever. No history of topical application of corticosteroids or herbal juice was noted. Patient was non diabetic and non hypertensive.

On local examination of right eye, cornea showed ulcer approximate 6-7 mm in size, irregular in shape, white opaque in colour with irregular margin [Table/Fig-1]. Vision was impaired in right eye. No abnormality was detected in left eye. Routine blood examination was within normal limit. Clinical case was diagnosed as corneal ulcer and patient was put on local symptomatic and antibiotic treatment like atropine, ibuprofen plus paracetamol, amoxicillin-clavulanic acid and topical antibiotic eye drops like ciprofloxacin (0.3%), moxifloxacin (0.5%) to which patient did not respond. Hence, it was decided to do an investigation to rule out fungal infection.

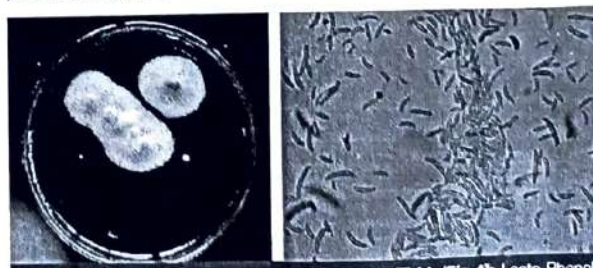
Microbiological Examination

Scraping from the cornea was collected using Kimura spatula with all aseptic precautions. Scraped material was processed for KOH wet preparation and Gram staining. KOH wet preparation revealed

fragments of septate, branched, hyaline hyphae with swelling at some points [Table/Fig-2]. Gram smear examination revealed few pus cells and few Gram positive fragments of septate hyphae. Further, the sample was processed for bacterial culture (on MacConkey's agar and blood agar) and fungal culture on Sabouraud Dextrose Agar (SDA). MacConkey and blood agar were incubated at 37°C for 24 hours. SDA was incubated in two sets at two different temperatures (30 and 37°C) for three weeks. No bacterial growth was observed on MacConkey and blood agar within 24 hours although fungal colonies were grown on blood agar within four days. On SDA also, fungal colonies were visible within four days. The colonies were wooly, cottony, flat and white coloured at first which then produced aerial mycelium with pinkish pigment in center of the colony [Table/Fig-3]. Lactophenol Cotton Blue (LPCB) mount revealed hyaline branched septate hyphae, long monophialidic conidiogenous cells, moderately curved macroconidia and oval microconidia. Slide culture was done to identify the species which showed three to five septate, fusiform, cylindrical, often moderately curved macroconidia, with an indistinctly pedicellate foot cell [Table/Fig-4]. Microconidia were wider, cylindrical to oval, with thicker wall and were single-celled to two-celled [Table/Fig-5,6]. The isolated colony was also subjected to urease test which came as negative. Slide culture from the colonies grown on Potato Dextrose Agar (PDA) revealed chlamydospore production. They were produced singly, oval in shape and smooth walled [Table/Fig-7]. Therefore, on the basis of KOH mount, colony morphology, colour of pigment produced, microscopic picture on LPCB (morphologic characteristics of macroconidia, microconidia, presence of long monophialidic conidiogenous cells, production of chlamydospores), urease test and slide culture, it was identified as *Fusarium solani*. The ophthalmologist was informed the report and patient's treatment was switched from antibiotics to natamycin (5%



[Table/Fig-1]: Corneal ulcer 6-7 mm in size, irregular in shape, white opaque in colour with irregular margin. [Table/Fig-2]: KOH wet preparation microscopy (at 400x) showing branched, septate, hyaline hyphae of *Fusarium solani*.



[Table/Fig-3]: Colony of *Fusarium solani* on SDA. [Table/Fig-4]: Lactophenol Cotton Blue microscopy (at 400x) showing three to five septate, fusiform, cylindrical often moderately curved macroconidia.

Original Research Article

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Study of *Acinetobacter* Species with Special Reference to Species Differentiation and Metallo-Beta Lactamase Production in a Rural Tertiary Care Hospital

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ABSTRACT

Keywords

Acinetobacter,
Metallo-beta-
lactamase,
Carbapenemase
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Acinetobacter has developed resistance against a number of broad spectrum drugs and is considered as multi-drug resistant bacteria. Metallo-beta-lactamase (MBL) production is important mechanisms of the resistance as they can hydrolyse almost all beta-lactam antimicrobial agents. To isolate *Acinetobacter* species from different clinical specimens and to determine their antimicrobial susceptibility pattern as well as to know the rate of MBL production. The study was done in Department of Microbiology, RMC, Loni. The clinical samples were subjected to Gram staining, aerobic culture using MacConkey and blood agar. *Acinetobacter* species were identified by standard microbiological identification methods. Antimicrobial susceptibility testing was done by Kirby Bauer disc diffusion technique and according to CLSI guidelines. The Imipenem resistant strains were subjected to MBL detection by Disk Potentiation test (DPT) and Epsilonometer test. A total of 101 (2.18%) *Acinetobacter* species were isolated out of 4627 clinical samples. Rate of isolation was maximum from burn department (38) followed by ICUs (23). *A. baumannii* (71) was the commonest species isolated followed by *A. lowfii* (18). The isolates were highly resistant to cefotaxime (100%), Co-trimoxazole (87%), Ciprofloxacin (78%), Cefepime (77%), Gentamicin (73%). All isolates were sensitive to Colistin. The number of MBL producing strain by DPT and E-test were 42 & 40 respectively. MBL production was detected better by DPT than E-test, therefore can be used as better screening method. Emergence of MBL producers and multidrug resistance in hospitals is alarming and reflect excessive use of carbapenems. Therefore early detection and prompt infection control measures are needed.

Introduction

Acinetobacter are opportunistic pathogens and are frequently present on normal skin. Though widely prevalent in nature and generally regarded as commensals of human skin and respiratory and genitourinary tracts, (Al-Khoja, 1979) (Glew *et al.*, 1977) they

have been implicated as the cause of serious infectious diseases such as meningitis, pneumonia, tracheobronchitis, endocarditis, wound infections, and septicemia, mostly involving patients with impaired host defences (Seifert *et al.*, 1993). They can

Isolation And Antimicrobial Susceptibility Pattern Of Staphylococcus Aureus.

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Abstract: Introduction- Staphylococcus aureus is one of the principal human pathogens that colonizes healthy individuals as well as causes severe infections in hospitalized patients. They have differential ability to spread and cause outbreaks in hospitals. The study was done to isolate S.aureus from various clinical samples and to know their antibiogram. Methodology- The study included a total of 312 Staphylococcus aureus strains isolated from various clinical specimens. The specimens received were processed further for identification by standard microbiological procedures like direct microscopic examination, culture and various standard identification methods. Antimicrobial susceptibility testing was done by Kirby-Bauer disc diffusion method on Mueller-Hinton agar as per CLSI guidelines. Result- A total of 312 isolates of S. aureus were obtained from various clinical samples. Male to female ratio was 1.6:1. Infection rate was more in age group 46-60 years. Staphylococcus aureus isolates were more commonly obtained from surgery department (38.78%) followed by orthopedics. All the strains were 100% sensitive to Vancomycin, Netilmicin, Linezolid and Teicoplanin. Higher resistance was noted against Penicillin (94.87%), Trimethoprim/Sulfamethoxazole (72.44%). Lower resistance was noted against Nitrofurantoin (13.33%). Conclusion- The determination of the anti-microbial susceptibility is also crucial for an optimal therapy, for epidemiological purposes and for infection control measures. [Kulkarni VL NJIRM 2016; 7(4):33-38]

Key word: Antimicrobial Susceptibility, Staphylococcus Aureus

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Introduction: Staphylococcus aureus, a Gram positive bacterium from Micrococcaceae family has been recognized as an important cause of human disease for more than 100 years.^[1] It is one of the principal human pathogens that colonizes healthy individuals as well as causes severe infections in hospitalized patients, especially in high risk areas like ICUs, burn, surgical and skin wards. They have differential ability to spread and cause outbreaks in hospitals.^[2]

In the preantibiotic era, mortality from Staphylococcus aureus disease was high and introduction of penicillin had a dramatic impact which was short lived due to the emergence of penicillinase producing Staphylococcus aureus. Later resistance was spread to semisynthetic penicillins such as Methicillin and Oxacillin, macrolides, tetracyclines and aminoglycosides.^[3] This has made the staphylococcal disease a global challenge.

Methicillin resistant Staphylococcus aureus (MRSA) has been reported with increasing frequency worldwide.^[4] Life threatening sepsis, endocarditis, postoperative wound infections, skin & soft tissue infections and osteomyelitis caused by MRSA have been reported since 1961 from various parts of the world.^[5] These strains are not only resistant to routinely used antibiotics but also act as a reservoir for multidrug-resistance development.

The determination of the anti-microbial susceptibility is also crucial for an optimal therapy, for epidemiological purposes and for infection control measures.^[6] The present study was undertaken to isolate staphylococcus aureus from various clinical samples and to know the antibiogram of the isolates to the commonly used antibiotics.

AIMS & OBJECTIVES:

1. To study the isolation pattern of staphylococcus aureus from various clinical samples
2. To know the antibiogram of clinical isolates of Staphylococcus aureus to commonly used antibiotics.

Methods: The present study was carried out in the department of Microbiology at a tertiary care hospital. The study included a total of 312 non-duplicate Staphylococcus aureus strains which were isolated from various clinical specimens.

Study design: Prospective study

Duration of study: Oct 2012 to Sep 2014.

Ethical clearance from institutional ethical committee was obtained.

Inclusion criteria:

1. Specimen from both indoor as well as outdoor patients of all age groups and both sexes

A Comparative Study of Knowledge, Attitude and Practice Regarding Biomedical Waste Management Before and After Training among Doctors

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Abstract

Introduction: Effective management of biomedical waste is not only responsibility of hospital but also an individual working in hospital. Hence, there is a need for awareness among the administrators, doctors, nurses and paramedical staffs.

Methodology: The study was carried out in S.R.T.R.G.M.C, Ambajogai. The population included fifty participants who were medical graduates working as an interns in the same hospital. They were subjected to a short training session regarding the Biomedical Waste management. The participants were also subjected to the questionnaire before and after the session. The scores of both the assessment (before and after training session) were compared and statistically analysed.

Result: There was significant improvement found in the scores of the participants after training session regarding all of the areas, i.e. knowledge, attitude and practicing methods for biomedical waste management. The difference in the score was statistically significant.

Conclusion: Such kind of studies should be conducted at regular interval at every tertiary care center. Every employee working in a hospital should be trained for every aspect of biomedical waste handling and management rules, as lack of proper knowledge about bio medical waste management leads to inappropriate waste disposal and hence improper infection control in the healthcare center.

Keywords: Knowledge, Attitude, Practice, Biomedical waste management

I. Introduction

Biomedical or hospital waste refers to any waste generated while providing healthcare, performing research and undertaking the investigations or related procedures on human beings and animals in hospitals, clinics laboratories or similar establishments.^[1]

It is estimated that annually about 0.33 million tons of hospital waste is generated in India and, the waste generation rate ranges from 0.5 to 2.0 kg per bed per day.^[2] It is also estimated that, 10-25% of the healthcare waste generated is hazardous & causes serious health problems.^[3] The waste generated in the hospital has significant health impact not only on the healthcare workers but also on the general public. Improper handling of waste not only poses significant risk of infection due to pathogens like HIV, Hepatitis B & C virus but also carries the risk of water, air & soil pollution thereby adversely affecting the environment and community at large.^[4]

Since biomedical waste can be serious pollutants of soil, water and air, unless carefully managed, governments across the world have been forced to introduce legal restraints in this area. The Government of India has promulgated the Medical Waste Management and Handling Rules (1998).^[5]

Effective management of biomedical waste is not only responsibility of hospital but also an individual working in hospital. Hence, there is a need for awareness among the administrators, doctors, nurses and paramedical staffs. The purpose of BMW is mainly to reduce waste generation, to ensure its efficient collection, handling, as well as safe disposal in such a way that it will help for infection control as well as safety of employees working in a hospital.

Therefore present study was undertaken to assess the knowledge, attitude and practice among the Medical graduates working in our tertiary care center.

II. Aim & Objectives

The aim was to study the impact of training regarding the Biomedical waste management among the medical graduate employees working in a tertiary care center.

Early Diagnosis of Dengue Infection Using Immuno-Chromatographic Technique

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ABSTRACT

Background: Dengue fever is an important mosquito - borne viral disease of humans. Nowadays detection of IgM and IgG antibodies along with NS-1 antigen by immunochromatographic method offers rapid option for presumptive diagnosis of Dengue. Therefore, the present study was conducted to detect the rate of dengue virus infection in clinically suspected cases as well as to know the age, sex and season related seropositivity of Dengue infection.

Material and methods: The study was carried out from January to December 2014 at S.R.T.R. Govt. Medical College, Ambajogai. The clinically suspected cases for dengue were included in this study. Serum samples from such patients were collected and were subjected for detection of NS1 antigen, IgM and IgG antibodies by in vitro solid phase immunochromatographic technique. The test was read after 20 minutes. Details of the patient like age and sex were recorded.

Results: Out of 403 serum samples received during period of one year, 169 (41.94%) were positive. Maximum number of seropositive cases (109) was in pediatric age group. The rate of infection was more common in males. Highest number of positive cases was recorded in September to November.

Conclusion: Immunochromatographic method detecting NS-1, IgM and IgG can give result in only 20 minutes. This helps in early diagnosis and timely intervention that may reduces risk of complications such as DHF and DSS, especially in areas where dengue is endemic.

Key Words: Dengue, NS-1, IgM, IgG, Immunochromatography.

INTRODUCTION

Dengue fever is an important mosquito - borne viral disease of humans. It is caused by infection with one of the four serotypes of dengue virus (DEN 1- 4) which are arboviruses belonging to the *flaviviridae* family and are transmitted by mosquito principally *Aedes aegypti*. Its presentation may vary from a nonspecific febrile illness to its most severe forms like Dengue

Hemorrhagic Fever (DHF) and Dengue shock syndrome (DSS).^[1] The World Health Organization (WHO) estimates that more than 2.5 billion people are at risk of dengue infections with 50-100 million cases occurring annually. Among these infections, approximately 250,000-500,000 cases are dengue hemorrhagic fever (DHF), with 24,000 deaths that mostly occurred in children.^[2]

Dermatophytosis in and around Ambajogai

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Abstract:

Background: The mycoses caused by dermatophytes are called as dermatophytosis. Dermatophytes are moulds that can invade the stratum corneum of skin and other keratinized tissues such as hair and nails. As various aspects of dermatophytosis are likely to differ markedly in different regions, the present study was undertaken to know the pattern of dermatophytosis in Rural area.

Material and Methods: The present study was carried out in the Department of Microbiology, S. R. T. R. Govt. Medical College, Ambajogai. A total of 160 clinically diagnosed cases of dermatophytosis attending the skin and venereal disease Outpatient department (OPD) were included. Skin, hair, nail specimens were taken from relevant clinical lesion examined by direct microscopy and culture.

Result: Out of 160 cases, most common clinical type was Tinea corporis (32.5%) cases. Incidence of all clinical type was maximum in rainy season (44.37%) followed by winter. Out of 160 dermatophytosis cases, 73 dermatophyte isolates were obtained, in which, *Trichophyton rubrum* (41) was the commonest followed by *Trichophyton mentagrophytes* (18).

Conclusion: Dermatophytosis is not frequently documented disease. Because of its contagious nature and chronicity, early diagnosis and treatment should be done in all suspected cases of dermatophytosis.

Keywords: Dermatophytosis, Epidermophyton, Microsporum and Trichophyton.

I. Introduction

The mycoses caused by dermatophytes are called as dermatophytosis. Dermatophytes are moulds that can invade the stratum corneum of skin and other keratinized tissues such as hair and nails.^[1]

Depending upon morphological characteristics, dermatophytes are divided into three main anamorphic genera, *Trichophyton*, *Microsporum* and *Epidermophyton*. The *Trichophyton* species usually infect the skin, hair and nails. The *Microsporum* species infect the skin and hair not the nails. The *Epidermophyton* species infect the skin as well as nails but not the hair.^[2]

Dermatophytes affect all races. Socioeconomic factors which result in overcrowding, poor hygiene, malnutrition plays the important role. The pathology induced in the host initially is an eczemaform response, followed by allergic and inflammatory manifestations.^[3]

Dermatophytosis is still one of the major skin diseases prevalent all over the world and its prevalence varies in India. Dermatophytosis constitutes about 10% of all skin diseases. However, dermatophyte infections are poorly documented in literature, possibly because of relatively low morbidity and no mortality.^[4] As various aspects of dermatophytosis are likely to differ markedly in different regions, the present study was undertaken to know the pattern of dermatophytosis in Rural area.

II. Material And Methods

The present study was carried out in the Department of Microbiology, S. R. T. R. Govt. Medical College, Ambajogai. A total of 160 clinically diagnosed cases of dermatophytosis attending the skin and venereal disease Outpatient department (OPD) were included. Clinical history of patients was taken as age, sex, occupation, socioeconomic status. Details of clinical lesions such as origin, site, size, colour, itching, any treatment received were noted down.

Collection of Specimen:

Specimens were taken such as:

- 1.1. Skin scraping in- Tinea corporis, Tinea cruris, Tinea manuum, Tinea pedis, Tinea faciei, and Tinea barbae
- 1.2. Nail scraping- Tinea unguium
- 1.3. Hair- Tinea capitis

All the 160 samples from relevant clinical lesions were subjected to direct microscopy by KOH mount (10% KOH for skin and hair, 40% KOH for nail) and culture.

Clinicobacteriological study of pyoderma in pediatric age group

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Abstract

Background: Pyoderma is the pyogenic infection of the skin and its appendages. In India, pyoderma account for 25% of the patients attending dermatological clinics. It is more common in paediatric age group. **Methodology:** The study was carried out in the Department of Microbiology, at S.R.T.R. GMC, Ambajogai. The study was carried out on 108 samples obtained from clinically diagnosed cases of pyoderma in paediatric age group. After a detailed history and complete clinical examination, sample was collected from site of lesion with the help of sterile cotton swab. Immediately after collection, sample was transported to the laboratory for further bacteriological processing and Antimicrobial susceptibility testing. **Result:** The age-group of patients was from 0-12 years and majority of patients (62.03%) belonged to low socioeconomic status. Commonest clinical type of pyoderma was impetigo. The *Staphylococcus aureus* (68.5%) was observed to be the most common pathogen followed by Beta haemolytic Streptococci. Antibigram reveals that most of the GPCs showed resistance to commonly used antibiotics like Erythromycin, Tetracycline, Co-trimoxazole. *E. coli* and *Klebsiella* species showed resistance to all antibiotics except Imipenem and Gentamicin. **Conclusion:** Continuous monitoring of antimicrobial susceptibility to prevent development of antimicrobial resistance should be done for better patient management.

Keywords: Impetigo, Paediatrics, Pyoderma, *Staphylococcus aureus*.

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INTRODUCTION

Pyoderma is the pyogenic infection of the skin and its appendages.¹ It is one of the commonest conditions encountered in dermatological practice in all age groups. In India, pyoderma account for 25% of the patients attending dermatological clinics. It is more common in paediatric age group.² There is a higher incidence of pyoderma in developing countries, particularly in children of lower socio-economic status. Various factors like poverty, malnutrition, overcrowding and poor hygiene

have been stated to be responsible for it.³ In paediatric age group, pyoderma is more common in preschool children than in school going children. Clinically pyoderma is divided into primary and secondary types. Primary pyoderma tends to have characteristic pattern and course. They are caused by single organism and arise in normal skin. Examples are folliculitis, impetigo, furuncles etc. Secondary pyoderma arises in diseased skin as a superimposed condition. The infection may not follow the characteristic course. Usually more than one organism is involved in their infections. Example is infectious eczematoid dermatitis. Coagulase positive staphylococci, group A Beta haemolytic streptococci and coagulase negative staphylococci are responsible for most of the primary as well as secondary pyogenic infections of the skin. Occasionally some Gram negative organisms like *Escherichia coli*, *Klebsiella* spp., *Pseudomonas aeruginosa* and few anaerobes like *Bacteroides* and *fusobacterium* spp. are also responsible.^{1,4} Changing trends are being noted in the aetiological aspect of primary pyoderma. *Staphylococcus aureus* was predominant causative organism found in most types of

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**ASO TITRE IN ACUTE RHEUMATIC FEVER/RHEUMATIC
HEART DISEASE IN PEDIATRIC AGE GROUP****DR. D. M. KULKARNI*, DR. S. A. BARDAPURKAR,
DR. S. L. NILEKAR AND DR. V. L. KULKARNI***Department of Microbiology, SRTR Govt. Medical College, Ambajogai, Dist- Beed***ABSTRACT**

Rheumatic fever and rheumatic heart disease remain significant causes of cardiovascular disease and mortality, particularly in the developing countries. The identification of the first attack of rheumatic fever/carditis is of paramount importance to prevent further episodes and residual cardiac damage. In the present study, we report the significance of antistreptolysin-O (ASO) test in the diagnosis of RF and RHD. The study aimed to determine ASO titre in normal children & in those with rheumatic fever. Blood samples of 200 children clinically diagnosed as ARF/RHD and of 100 normal children aged 5-15 years were screened for ASO antibodies by latex agglutination test. Seropositivity of ASO antibodies was 77% in ARF/ RHD cases and 21% in control children. A total of 41% ARF/RHD cases and 14% of control children showed an ASO titre of 200IU/ml. Seropositivity of ASO antibodies was slightly more in females than males in cases as well as control. It can be suggested from our study that ASO titre of >200IU/ml or above should be taken as a diagnostic titre in the pediatric age group of our geographic area.

KEYWORDS: ASO, ARF, RHD, Pediatrics

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BACTERIOLOGICAL EVALUATION OF URINARY TRACT INFECTION (UTI) IN PEDIATRIC PATIENTS.

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ABSTRACT

Urinary tract infection is one of the most common diseases in children. It is associated with high morbidity and long term complications. The current study was undertaken to determine the bacteriological profile and antibiogram of uropathogens causing UTI among the pediatric age group. The study population included 0 to 12 years old patients, who were clinically suspected to have a UTI. The urine samples were collected and processed by conventional microbiological methods and antimicrobial susceptibility testing was performed. Among 352 cases, 64 had their urine culture positive. In Infants, there was a male preponderance for culture proven UTI and in the age group 1-12 years there was female preponderance. Also, overall there was female preponderance. Predominant uropathogens isolated in our study were *E.coli* followed by *Klebsiella* species. Most of the isolates were resistant to commonly prescribed antibiotics. Accurate knowledge on local epidemiology and antibiogram of uropathogens among pediatric patients is necessary for treatment.

KEY WORDS- UTI, Pediatrics, *E.coli*, Antimicrobial resistance



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S.A

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Bacteriological Profile of Surgical Site Infections in Obstetrics and Gynaecology Patients

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Abstract:

Introduction: One of the major problems faced by surgeons today is to deal with surgical site infections (SSI), as most of them are caused by multidrug resistant bacteria. They have been responsible for the increasing cost, morbidity & mortality related to surgical operations.

Aims & objectives: 1) To study the rate of SSI in Obstetrics and Gynaecology. 2) To study bacteriological profile and antibiogram of SSI.

Material and methods: The study was carried out at SRTTR Govt. Medical College, Ambajogai in the Department of Microbiology during January to June 2013. The samples were collected from patients who had undergone operations and developed signs or symptoms of SSI in Obstetrics and Gynaecology department. Swabs were collected from such patients and processed aerobically by standard microbiological procedures. Antimicrobial susceptibility testing was done by Kirby-Bauer disc diffusion method as per CLSI guidelines.

Result: Overall rate of SSI was 12.8%. Out of 116 cases, 84 (72.4%) were culture positive. Amongst these, *Staphylococcus aureus* was the most common isolate followed by *Escherichia coli* and *Proteus mirabilis*. All Gram positive bacteria were sensitive to vancomycin, linezolid, teicoplanin & netilmicin and were least sensitive to penicillin. All gram negative bacteria were sensitive to imipenem, meropenem and were least sensitive to cephalosporins.

Conclusion: Hospitals need to make more efforts to minimize SSI following strict aseptic procedures, effective method of sterilization and patient management. Such type of study may serve as guide to implement infection control practices and rational use of antibiotics.

Keywords: Bacteriological profile, surgical site infections, *Staphylococcus aureus*

Introduction:

One of the major problems faced by surgeons these days is to deal with surgical site infections as most of them are caused by multidrug resistant bacteria⁽¹⁾.

Surgical site infection rates reported by different workers vary from as low as 2.8% to 49.5 %⁽¹⁾. They have been responsible for the increasing cost, morbidity and mortality related to surgical operations and continue to be a major problem even in hospital with most modern facilities and standard protocols of preoperative preparation and antibiotic prophylaxis⁽²⁾. The present study deals with the bacteriological profile of surgical site infections (SSI) and their antibiotic sensitivity pattern in Obstetrics and Gynaecology.

Aims and objectives:

1. To study the rate of surgical site infections in Obstetrics and Gynaecology.
2. To study the bacteriological profile of surgical site infections.
3. To know the antibiotic susceptibility pattern of the isolates.

Material and methods:

The study was carried out in S.R.T.R. Govt. Medical College & Hospital Ambajogai in the Department of Microbiology, during January to June 2013. The samples were collected from patients who had undergone operations and developed signs or symptoms of SSI in Obstetrics and Gynaecology department.

Inclusion criteria: Clinically suspected case of postoperative wound infections.

Exclusion criteria: All wound infections other than postoperative wound were excluded from study.

Swabs were collected from postoperative wound infections of each patient and processed by conventional microbiological methods. Swabs were inoculated on blood agar & MacConkey agar and plates were incubated at 37°C aerobically. The isolated organisms were identified by standard microbiological techniques. Antimicrobial susceptibility testing was done by Kirby-Bauer disc diffusion method as per CLSI guidelines. Data obtained was analyzed using descriptive statistics.



Research Article

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Antimicrobial Resistance among Commonly Encountered Bacteria Isolated in 2013 – The ESKAPE Menace

Anuradha S De*, Baveja S, D'Souza D and Patwargar S

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Abstract

Introduction: The most serious, life-threatening infections caused by a group of drug-resistant bacteria are named as "ESKAPE" pathogens by the Infectious Diseases Society of America (IDSA), because they effectively escape the effects of antibacterial drugs.

Objectives: To find out the antibiotic susceptibility pattern of bacteria isolated from various specimens, with special reference to the ESKAPE bugs.

Methods: A retrospective study of one year was undertaken in this tertiary care hospital. Samples (pus/wound swabs, respiratory samples, blood cultures and urine samples) were processed as per standard techniques and bacteria identified by standard biochemical tests.

Antibiotic susceptibility (ABS) was done by the Kirby Bauer Disc Diffusion Method on Mueller Hinton Agar, according to CLSI guidelines.

Results: Maximum growth was seen from pus swabs (51.49%), followed by respiratory samples (35.66%). Overall Gram negative bacilli (GNB) isolated was 77% and GPC 23%. MDR was mainly seen with *Proteus* species (50%), followed by *Acinetobacter* species (48%) and *Pseudomonas aeruginosa* (46%). *Staphylococcus aureus* was the major Gram positive isolate in pus samples and enterococci in urine samples. Impenetrable susceptibility for all bacteria was more than 80%, except in some respiratory samples. Both MDR and carbapenem resistant bacteria increased in 2013, as compared to 2012. *S. aureus* showed 100% susceptibility to linezolid and 33.86% of all MRSA showed ICR. One VISA and four VRE were isolated. HILAR was seen in 23.36% enterococci.

Conclusion: Judicious use of antibiotics is the need of the day to control the spread of MDR "ESKAPE" bugs. There is also an urgent need to develop Antimicrobial Stewardship.

Keywords: ESKAPE bugs; Multidrug resistant (MDR) bacteria; IDSA

Introduction

"We're not at the point where all antibiotics are useless, that's overstating it. But there's no question we have a problem with increasing bacterial resistance to current antibiotics." – Dr. Andrew Simon.

Antimicrobial Resistance (AMR) is present in all parts of the world. New resistance mechanisms emerge and spread globally. It is an increasingly serious threat to global public health that requires action across all government sectors and society. There is a warning for India by WHO, that antimicrobial resistance is reaching critical levels [1]. AMR is a problem worldwide, but is particularly worrying in India, where hospital standards are inconsistent and antibiotics are readily available over the counter at pharmacies. Antibiotic use is unnecessary or inappropriate in as many as 50% of cases and this creates unnecessary pressure for the selection of resistant species. Moreover, overuse and misuse of antimicrobial agents in humans, food, animals, agriculture and consumer products are also responsible for increase in AMR. Inadequate infection control practices add further to this problem [2,3].

Antibiotic exposure increases the risks of resistance of Carbapenem Resistant Enterobacteriaceae (CRE). Carbapenems increase the risk of resistance up to 15 fold and ESBL producing organisms and cephalosporins increase the risk up to 6 to 29 fold [4].

The most serious, life-threatening infections caused by a group of drug-resistant bacteria are named as "ESKAPE" pathogens by the Infectious Diseases Society of America (IDSA), because they effectively escape the effects of antibacterial drugs. The six "ESKAPE" bacteria are *Enterococcus faecium* (E), *Staphylococcus aureus* (S), *Klebsiella pneumoniae* (K), *Acinetobacter baumannii* (A), *Pseudomonas*

aeruginosa (P) and *Enterobacter* species/*Escherichia coli* (E). These bugs are responsible for two thirds of all health care-associated infections (HAIs) [5], prompting IDSA to raise the alarm and label this threatening situation as "Bad Bugs, No Drugs" [6]. The latter microorganisms span over a wide range of microbial species such as methicillin resistant *Staphylococcus aureus* (MRSA) being healthcare-associated (HA-MRSA) or community-associated (CA-MRSA), vancomycin-intermediate or resistant *S. aureus* (VISA or VRSA), vancomycin-resistant enterococcus (VRE), the multidrug-resistant *Acinetobacter* spp. and *Pseudomonas aeruginosa*, extended-spectrum-lactamase (ESBL)-producing *Escherichia coli* and *Klebsiella* spp., and carbapenem resistant enterobacteriaceae.

(CRE) [7,8]. Thus, surveillance and revealing the antimicrobial profile as well as monitoring and determining the changing trends of resistance among these pathogens at different periods of time provides essential valuable information to the clinicians, hospital infection control committee and also to epidemiologists, for the containment of this problem [9,10].

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Therefore the present study was undertaken to reveal and reflect on antimicrobial resistance among commonly encountered bacteria recovered in this tertiary care hospital during one year period, with special reference to the ESKAPE bugs.

Materials and Methods

maximum from urine samples to the tune of 37.5%, though GNB also predominated in blood cultures, GPC was slightly more predominant in pus samples, i.e. 37.5%, though GNB also predominated.

Table 1 shows overall bacteria isolated from different samples. Table 2 shows type of growth from different samples taken from each specimen. Figure 1, 2, 3 shows antibiotic susceptibility pattern of GNB



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Research Journal of Pharmaceutical, Biological and Chemical Sciences

Assessment of Implementation of Case Based Learning Approach in Medical Microbiology.

Vishal Kulkarni, Salma Patwagar, Rohini Gaikwad, Shruti Sabne*, and Ankita Singh.

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ABSTRACT

Essential attributes of Medical education includes critical thinking, clinical reasoning & clinical correlations which are important for proper diagnosis and management. Teaching through conventional methods, there is inadequate retention of Microbiology concepts, inadequate development of skills in laboratory diagnosis and clinical correlation. It has been observed that conventional techniques fail to stimulate students' analytical and reasoning skills and their problem-solving ability. Objectives - To study the effectiveness of CBL as Teaching/Learning (T/L) method in Microbiology as compared to didactic lecture and to study the perception of II MBBS students about the CBL approach as a T/L method in Microbiology. IInd year MBBS students from BAVMC, Pune were the participants of the project. Two batches (A and B) were exposed to Didactic lecture & CBL respectively in 1st week for topic 1 and then cross-over was done in second week for the Topic 2. The students' knowledge before and after both the sessions was assessed by Pre and Post-test questionnaire. Perceptions of students about CBL was assessed by pre-validated questionnaire using a five-point Likert scale. Out of whole batch of IInd MBBS students 77 students had participated in session on Topic 1. Post test scores of both methods of topic 1 were found to be more (statistically significant) compared to pretest scores of each method. In comparison of posttests of both methods; score of CBL method was found to be more and this difference was statistically significant. A total of 69 students had participated in session for topic 2. Post test scores of both methods of topic 2 were found to be more (statistically significant) compared to pretest scores of each method. In comparison of posttests of both methods in topic 2; score of CBL method was found to be more and this difference was statistically significant. Most of the students perceived CBL as an effective T/L method compared to didactic lecture. Our study demonstrates that CBL method is found to be effective compared to didactic lecture method. It can be used in combination with traditional didactic lecture method for more effective teaching learning.

Keywords: Assessment, Case based learning, Medical Microbiology.

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INTRODUCTION

In Medical sciences while learning, critical thinking, clinical reasoning, and clinical correlations are vital attributes for appropriate diagnosis and management of a clinical condition [1,2]. It is essential for medical students to acquire these required qualities through learning for better diagnosis and management.

The first two years in the Medical college are focused on pre-clinical & paraclinical branches (basic sciences) where students learn various basic science subjects with less or no emphasis on how



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Antibiotic Susceptibility Pattern of Bacteria Isolated from Adult Patients with Ventilator Associated Pneumonia (VAP) in Intensive Care Units in a Tertiary Care Hospital

Authors

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Abstract

Ventilator-associated pneumonia (VAP) refers to pneumonia developing in a patient on mechanical ventilator >48 hours after intubation or tracheostomy. VAP is an important cause of morbidity and mortality in mechanically ventilated patients. The aim of the study was to assess the clinical and bacteriological profile of VAP, risk factors, prevalence of multidrug-resistant pathogens in VAP cases in ICU setting and to correlate Endotracheal aspirate (ETA) with blood culture in those cases. The study included 130 adult patients of both sexes who were admitted to ICUs and fulfilling the criteria of VAP. Endotracheal aspirates (ETA) and blood samples were collected from the suspected VAP cases and subjected to culture and antimicrobial susceptibility testing as per standard protocol. Incidence of VAP was found to be 40.8%, out of which 81.13% had late-onset VAP. Diabetes mellitus, advancing age (>60 years) and Chronic Obstructive Pulmonary Disease were the important risk factors associated with VAP. The most frequently isolated microorganism was *Acinetobacter* species (70.37%), followed by *Pseudomonas aeruginosa* (14.81%) and *Klebsiella pneumoniae* (5.56%). All *Acinetobacter* species and 75% of *Pseudomonas aeruginosa* isolates were multidrug resistant. Overall carbapenem resistance was 46%. Blood culture results were positive for 47.16% cases of VAP of which 76% showed bacteraemia of pulmonary origin. *Acinetobacter* species (33.96%) was the most common isolate from blood. Mortality in VAP cases was 50.94%. Due to the increasing incidence of multidrug-resistant organisms in ICUs, early and correct diagnosis of VAP is an urgent challenge for an optimal antibiotic treatment and cure. Hence, knowledge of the local microbial flora causing VAP and effective infection control practices are essential to improve clinical outcome.

Keywords: Ventilator-associated pneumonia, Endotracheal aspirate, *Acinetobacter* species, Multidrug resistant.

Introduction

Ventilator Associated Pneumonia (VAP) is defined as pneumonia occurring more than 48 hours of mechanical ventilation and not incubating at the time of intubation. VAP is the most frequent Intensive Care Unit (ICU) acquired infection occurring in 9–24% of patients intubated for longer than 48 hours.^[1] Diagnostic testing in VAP is necessary as it allows one to define whether a patient has pneumonia or any other related diseases. Diagnosing VAP requires a high clinical suspicion combined with bedside examination, radiographic examination and microbiological analysis of respiratory secretions. Due to increasing incidence of Multi Drug Resistant (MDR) organisms in ICUs, early and correct diagnosis of VAP is an urgent challenge for optimal antibiotic treatment.^[2] The present study aimed to find out the incidence of VAP in ICUs in this tertiary care hospital, major pathogens responsible for VAP, the antimicrobial susceptibility pattern of the organisms isolated from cases of VAP and to correlate Endotracheal aspirate (ETA) with blood culture in cases of VAP. This will help in initiating appropriate antibiotic treatment, thus reducing the morbidity, mortality, length of hospital stay, cost of treatment and the adverse effects of inadequate antibiotic treatment on patient

culture was also performed in these 130 cases, for which 10 ml blood was inoculated in 50 ml of tryptic soy broth and incubated at 37°C. Subcultures were done on MacConkey agar and Blood agar on 2nd day, 4th day and 7th day. Growth seen any subculture was identified by standard biochemical tests.^[4]

Results

In this prospective study, 130 patients were enrolled as per inclusion criteria. VAP was found to be more common in males (60%), than in females (40%). Maximum patients belonged to the age group of 21–40 years (42.3%), with mean age of 37.42±16.95 years. Eighty percent of the cases were from Medical Intensive Care Unit (MICU) and 20% from Intensive Respiratory Care Unit (IRCU). The predominant clinical conditions were poisoning (17.7%), followed by meningoencephalitis and Acute Febrile illness with Acute Respiratory Distress Syndrome (12.3% each). Diabetes mellitus, advancing age (> 60 years) and Chronic Obstructive Pulmonary Disease were the important risk factors associated with VAP.

As per Clinical Pulmonary Infection Score (CPIS),³ 53 cases (40.8%) turned out to be VAP and the remaining 59.2% were Non-VAP cases. Mechanical ventilation days, leukocyte count, P/F, and CPIS



Comparison of Quantitative and Qualitative Cultures in the Diagnosis of Ventilator Associated Pneumonia

Authors

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Abstract

Introduction: Less invasive technique such as quantitative culture of Endotracheal Aspirate (ETA) with a threshold of 10^5 to 10^6 CFU/ml of exudates is considered as optimal for microbiological confirmation of Ventilator Associated Pneumonia (VAP). Therefore, the present study was conducted to compare quantitative culture of ET aspirates with qualitative culture in clinically suspected cases of VAP.**Methods:** Endotracheal aspirate (ETA) was collected under aseptic precautions. Qualitative as well as quantitative cultures of the endotracheal aspirate were performed as per standard methods. Even a single colony in plate of 10^{-3} dilution was considered as infection.**Results:** Out of 130 ETA, 40.77% were VAP and 59.23% were non-VAP cases, according to clinical criteria. Though sensitivity of qualitative culture was 100% but specificity was only 22%. Sensitivity of quantitative culture was 94.34% and specificity was 88.31%. All VAP cases showed growth in qualitative culture (100%). Qualitative culture in the Non-VAP group showed growth in 77.92% cases, which significantly reduced to 11.69% in quantitative culture. All VAP cases showed growth in qualitative culture (100%).**Conclusion:** To potentially improve the specificity of the diagnosis of VAP, quantitative cultures of respiratory secretions should be done. Of the quantitative techniques, quantitative endotracheal aspirate culture is least invasive, most readily available, least expensive, requires least experience and is easily repeatable.**Keywords:** Ventilator-associated pneumonia, Endotracheal aspirate, Quantitative culture.

Introduction

Ventilator Associated Pneumonia (VAP) is defined as pneumonia occurring > 48 hours of mechanical ventilation and not incubating at the time of intubation.^[1] VAP is the most frequent IntensiveCare Unit (ICU) acquired infection occurring in 9-24% of patients intubated for longer than 48 hours. It is associated with increased morbidity, prolonged hospitalization and increased health-care costs.^[2] Pathogens causing VAP may vary by hospital,patient population, exposure to antibiotics and changes over the time, emphasizing the need for timely, local surveillance data. More resistant microorganisms appear in late onset form of VAP, which occurs 5-7 days after mechanical ventilation.^[3]Centers for Disease Control and Prevention (CDC) provide guidelines which help in diagnosis of VAP. Also, the Clinical Pulmonary Infection Score (CPIS) aids in diagnosis of the same. Score calculated by quantifying amount of tracheal secretions on a subjective 0-4 scale multiple times per day, then summing all of a patient's scores for the day. Total score of > 6 points suggests Ventilator Associated Pneumonia.^[4] VAP is diagnosed more accurately by bronchoscopic sampling and microbiologic cultures of lower respiratory tract samples. Bronchoscopy being invasive is commonly associated with complications, especially inpatients on high respiratory support. This has paved the way for less invasive techniques such as quantitative culture of

permission from the Institutional Ethics Committee. A total of 130 cases were included in this study. All were adults > 14 years admitted in Intensive Care Units and fulfilling the criteria of VAP. Patients with respiratory malignancies and HIV positive patients were excluded from the study. Written informed consent was taken for each patient along with detailed clinical history.

Endotracheal aspirate (ETA) was collected under aseptic precautions using a sterile 30 cm long, 12F suction catheter. The secretions obtained were collected in a sterile 40-ml sputum trap. If no respiratory secretions were obtained on the first pass, 5 ml of sterile saline was injected through the endotracheal tube and the aspirate repeated. If the yield was <1 ml, the procedure was repeated following chest physiotherapy. The presence of epithelial cells of >10% implied contamination of the specimen, whilst <10% neutrophils suggested that the diagnosis of pneumonia was less likely.^[11]

The sample collected was transported to the



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Assessment of Implementation of Case Based Learning Approach in Medical Microbiology.

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ABSTRACT

Essential attributes of Medical education includes critical thinking, clinical reasoning & clinical correlations which are important for proper diagnosis and management. Teaching through conventional methods, there is inadequate retention of Microbiology concepts, inadequate development of skills in laboratory diagnosis and clinical correlation. It has been observed that conventional techniques fail to stimulate students' analytical and reasoning skills and their problem-solving ability. Objectives - To study the effectiveness of CBL as Teaching/Learning (T/L) method in Microbiology as compared to didactic lecture and to study the perception of II MBBS students about the CBL approach as a T/L method in Microbiology. IInd year MBBS students from BAVMC, Pune were the participants of the project. Two batches (A and B) were exposed to Didactic lecture & CBL respectively in 1st week for topic 1 and then cross-over was done in second week for the Topic 2. The students' knowledge before and after both the sessions was assessed by Pre and Post-test questionnaire. Perceptions of students about CBL was assessed by pre-validated questionnaire using a five-point Likert scale. Out of whole batch of IInd MBBS students 77 students had participated in session on Topic 1. Post test scores of both methods of topic 1 were found to be more (statistically significant) compared to pretest scores of each method. In comparison of posttests of both methods; score of CBL method was found to be more and this difference was statistically significant. A total of 69 students had participated in session for topic 2. Post test scores of both methods of topic 2 were found to be more (statistically significant) compared to pretest scores of each method. In comparison of posttests of both methods in topic 2; score of CBL method was found to be more and this difference was statistically significant. Most of the students perceived CBL as an effective T/L method compared to didactic lecture. Our study demonstrates that CBL method is found to be effective compared to didactic lecture method. It can be used in combination with traditional didactic lecture method for more effective teaching learning.

Keywords: Assessment, Case based learning, Medical Microbiology.

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An Interesting Case Report of *Ascaris lumbricoides* in Psoas Abscess

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Abstract:

Ascaris lumbricoides is one of the most common helminthic infections of the intestinal tract. Ascariasis is an endemic disease in our country due to the prevailing poor sanitary conditions. We report a unique and extremely rare case of *Ascaris lumbricoides* extracted from Psoas abscess in an adult female.

Keywords: *Ascaris lumbricoides*, Psoas abscess.

INTRODUCTION

Ascaris lumbricoides is one of the most common helminthic infections of the intestinal tract in endemic areas (Heyman, H. *et al.*, 1983). Ascariasis is an endemic disease in our country due to the prevailing poor sanitary conditions (Sundriyal, D. *et al.*, 2015). Physical migration of adult *Ascaris* is seen in sites such as biliary duct, liver parenchyma, pancreas, peritoneum, thoracic cavity, lacrimal duct, Eustachian tube, fallopian tube, brain, and even a pulmonary artery. Areas that are not commonly part of the *Ascaris* migration pattern are accessed through fistulization from sites that are normally infested with *Ascaris* (Barab, B. *et al.*, 2018).

We report a unique and extremely rare case of *Ascaris lumbricoides* extracted from Psoas abscess in an adult female.

CASE PRESENTATION

A 24 year old female residing in a slum area was admitted to Urology department of a tertiary care hospital with complaints of abdominal pain in the right flank region, fever with chills and dysuria. Patient gave history of administering medication from a local medical practitioner one month back for abdominal pain and passage of worms in stool details of which were not known.

An Ultrasonography (USG) of abdomen and pelvis revealed mild ascites, mild worm infestation in the small bowel. Right kidney showed features suggestive of pyelonephritis with multiple renal abscesses. Worm in right Psoas muscle was also noted with resulting abscess formation in the upper and mid one third of psoas muscle. Left kidney was normal.



EVALUATING DIAGNOSTIC EFFICACY: A COMPARATIVE ANALYSIS OF TWO AND THREE TEST STRATEGIES FOR HIV DIAGNOSIS IN POSITIVE SAMPLES BY USING COMBAIDS AS A FIRST SCREENING METHOD

Microbiology

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ABSTRACT

Background: Human Immunodeficiency Virus (HIV), it is the virus that is prime cause of acquired immunodeficiency syndrome or AIDS. Spread of the HIV and AIDS has reached a pandemic form within short duration.^[1] Diagnosis of HIV infection is primarily based on serological detection of antibodies against HIV, detection of antigen or nucleic acid or isolation of the virus. Detection of anti-HIV antibodies is the mainstay of testing and diagnosis of HIV.

Objectives:

1) To compare two test and three test strategy (2TS, 3TS) for HIV diagnosis in positive sample by using combaids as a first screening test

Methods: An observational study was conducted including 250 samples for period of 1 year and six months. Each sample was tested by NACO strategy III, by sequentially using 3 tests based on different principles, Combaids as a first screening test, Meriscreen HIV 1-2 WB & Signal HIV as 2nd and 3rd test respectively. Results were summarized by cross tabulating HIV status by 2 TS and 3 TS. Statistical analysis done by using 'SPSS software version 23. **Result:** When using Combaids as a first screening test, out of the 250 samples, by 2TS, 98.8% (247) samples were positive and 1.2% (3) were indeterminate. In comparison, by 3TS 98.4% (246) were positive and 1.6% (4) were indeterminate. None of these samples were negative by 2TS or 3TS.

Conclusion:

- 2TS and 3TS are equally effective diagnostic strategy.
- Combaids can be used as 1st screening test because of 100% sensitivity.

KEYWORDS

2TS, 3TS, Combaids

INTRODUCTION:

Infection with Human Immunodeficiency Virus (HIV), which causes AIDS (Acquired Immune Deficiency Syndrome) has become worldwide epidemic since its first documentation in 1981 and is a major public health concern for all countries^[1]. Diagnosis of HIV infection is important for preventing further transmission and patient management. Expanding voluntary counselling and testing for HIV in a variety of health care setting calls for a simple and effective testing strategy^[1].

As per HIV testing guidelines by WHO in 2015, sequential testing of the sample for HIV specific antibodies by three Rapid tests is recommended for confirmation of HIV diagnosis in setting of low HIV prevalence (less than 5%). As per NACO guidelines, two tests are used for HIV diagnosis in symptomatic clients. It is observed that the performance of two sequential rapid tests is as good as using three tests, even for asymptomatic clients.^[4]

Using three tests has certain disadvantage; It warrants a stringent procurement system for availability. Also, diagnosis is held up in case of unavailability of any one/more of the 3 tests.^[4] This 2TS appears to be simple, dependable as well as practicable in under equipped laboratories. One sample can be tested at a time, avoiding the need to wait for large number of samples as with classic enzyme immune assay tests on microplate.^[1]

Thus, it was thought of to assess the efficacy and performance of using Two Tests Strategy (2TS) instead of Three Tests Strategy (3TS) for diagnosis of HIV infection without compromising any quality issue.^[4]

This study was proposed to build evidence on whether two test strategy can be used in place of three test strategy without compromising the quality of testing; with the following aims and objectives:

Objectives:

1) To compare two test strategy and three test strategy for HIV diagnosis in positive sample by using Combaids as a first screening test

Methodology

Study Design: Observational study

Study Setting: Department of Microbiology at a tertiary care hospital

Study Sample: All OPD clients and walk in clients attending the Integrated counselling and testing center (ICTC) at tertiary care hospital.

Study Duration: 1 year and six months.

Inclusion Criteria: All clients attending the ICTC aged, 18 years and above, of all 3 genders (men, women, transgenders) whose samples were reactive by first screening test for HIV antibodies, these included

1. Antenatal mothers and their spouses
2. All HIV asymptomatic OPD clients
3. All HIV asymptomatic walk-in clients

Exclusion Criteria:

1. All Clients below 18 years of age.
2. Any client with symptoms suggestive of HIV or its opportunistic infection.
3. All clients who were non-reactive by the first screening test for HIV antibodies.

Sample size:

All clients satisfying the inclusion criteria and reactive by first screening test. A total of 250 clients were included in this study in the enrolment period of 1 year and six months.

Study Procedure:

This study involved the comparison of 2TS versus 3TS for diagnosis of HIV infection in samples positive by first screening test. screening test used were as follows- Combaids as a first screening test. The second test was Meriscreen HIV 1-2 WB and third test was Signal HIV. For the two tests strategy, diagnosis based on first two tests was considered and the result of third tests was disregarded for the purpose of analysis (Figure:1). It provided two outcomes- positive and indeterminate.

For three test strategy, results of all three tests were considered for analysis (Figure:2). The three tests strategy provided three outcomes or results viz; Positive, Negative, Indeterminate.

The testing at the ICTC was performed using the standard strategy as

Comparative Study between IgM ELISA and Widal Test for Diagnosis of Enteric Fever at a Tertiary Care Centre

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Abstract: Enteric fever is major public health problem in developing countries like India. Early and accurate diagnosis is necessary for prompt treatment. We have compared diagnostic accuracy of IgM ELISA test and Tube Widal test for early and rapid diagnosis of Enteric fever considering blood culture as gold standard test. A total 100 clinically suspected enteric fever cases were included. Blood culture, Tube Widal and IgM ELISA tests were performed. In 33 patient's alternative diagnosis was made after 48- 72 hours which was considered as control group. Among 67 clinically diagnosed enteric fever patients, only 8.9% were blood culture positive for *Salmonella* species., 58.21% tube widal positive and IgM ELISA 26.87% patients. Positivity percentage of IgM ELISA was 47% in first week of illness, 18% in second, it was significantly decreased ($p < 0.05$) to 9% in the third week whereas positivity percentage of Tube Widal test was (39.13%) in first week which was increased to 78% in second week & was 36.36% in third week. Sensitivity, specificity, Positive predictive value, and Negative predictive value of IgM ELISA 83.33%, 78.69%, 90.00%, 38.75% as compared to Tube Widal test 50.00%, 40.98%, 7.69%, 89.29% respectively considering blood culture as gold standard. Conclusion: IgM ELISA is sensitive, specific rapid and easy to perform test for early diagnosis of enteric fever.

Keywords: Widal test, IgM ELISA test, Enteric fever, Blood culture, *S.typhi*, *S.paratyphi*

1. Introduction

Enteric fever caused by *Salmonella enterica* serotype typhi and paratyphi A, B is a major public health problem, both in developing as well as developed economies.^[1] About 21 million cases and 128 000 to 161 000 typhoid-related deaths occur annually by *Salmonella typhi*.^[2] An estimate of annual typhoid incidence rate of 493.5 cases per 100, 000 person-years has been reported from India.^[3,4]

Overcrowded populations and poor hygienic conditions predispose developing countries to being endemic for typhoid fever, with the highest incidence found in the Indian subcontinent and Southeast Asia.^[5]

The major cause of enteric fever are *Salmonella enterica* serovar Typhi and also, to a lesser extent, strains of *S.enterica* belonging to serovars Paratyphi A, B, C. Enteric fever is mostly seen in low or middle income countries with inadequate sanitation and hygiene, particularly regarding food, water and disposal of human excreta. In such places there are also other causes of febrile illnesses, such as vector borne malaria, dengue fever, and rickettsiosis as well as environmentally transmitted leptospirosis and melioidosis.^[6-10]

Enteric fever is diagnosed clinically and treated presumptively which leads to delay in diagnosis and emergence of drug resistance.^[11] Therefore, reliable laboratory tests are essential to establish etiologic diagnosis so that appropriate treatment can be given.^[12]

Blood culture remains the gold standard test for diagnosis of enteric fever till today, but has poor sensitivity 40-60%,

requires time, trained labour, infrastructure, equipment and indiscriminate use of antibiotics leads to poor results.^[13]

The sensitivity of stool and urine cultures is low and become positive only after first week of infection. Bone marrow cultures are more sensitive but its utility for diagnosis is limited in public health settings.

Widal test is most widely used serological test as it is readily available, inexpensive and has been used in clinical settings for years. But lacks sensitivity and specificity and reliance on it alone in areas where enteric fever is endemic, in different populations and in the presence of other febrile illnesses leads to errors in diagnosis.^[14-16]

Hence we need a test which is fast, reliable and easy to perform serodiagnostic test with higher specificity, sensitivity than Widal test. Rapid diagnosis of Enteric fever is required to reduce morbidity and its complications.

The early rising antibodies to the lipopolysaccharide (LPS) O are predominantly IgM in nature. The *S. typhi* specific IgM antibodies can be used as an early marker to detect a recent infection.^[17]

Currently, another serological test that detects IgM antibody (Enzyme linked immunosorbent assay) is commercially available for the diagnosis of typhoid fever. This has been reported as a fast, reliable, and easy to perform sero diagnostic test with higher sensitivity and specificity than Widal.

Few studies conducted in South India and other parts of Asia have shown encouraging results in terms of

diagnostic tool and have found it to be of practical alternative to Widal test in the diagnosis of typhoid fever [18-22]

The present study was undertaken to compare results of Tube Widal test and IgM ELISA along with blood culture and to evaluate efficacy of IgM ELISA in diagnosis of Enteric fever.

2. Material and Methods

The present study was carried in the department of Microbiology, at a tertiary care teaching hospital BJGMC & SGH Pune over a period of 24 months. Study included patients with complain of continuous fever for 3 days or more of duration. Total 100 blood samples were collected from clinically suspected Enteric fever patients attending Medicine and paediatric opd at our hospital. Blood culture, Tube Widal test and IgM ELISA was performed.

Blood culture was done by conventional method using trypticase soy broth and identification of organisms was done by gram staining, standard biochemical tests and confirmed by agglutination with the Salmonella polyvalent 'O', 09 and the H:d antisera, antimicrobial susceptibility tests were also performed according to CLSI (M100S-26) guidelines.

The Tube Widal test was done as per manufacturer kit insert (STAR Diagnostics) and agglutination was considered positive if with titre equal or more than S.typhi O antigen 1: 80, S.typhi H antigen 1: 80, was observed.

IgM ELISA test (AB Diagnostics Ltd) was performed according to manufacturer kit insert.

Procedure for IgM ELISA:

- Treat the patient serum with RF absorbent with mixture of 2 µl patient serum+ 21µl of RF absorbent in small tube.
- Add 177µl of sample diluent to each serum mixture, dilution is 1:100 for positive and negative control and Incubate for 15 minutes.
- Remove all liquids from well, wash 3 times with 300µl of 1X washing buffer. Blot on absorbed paper.

- Dispense 100µl of enzyme conjugate of anti-human IgM hrp conjugated to each well and incubate for 30 minutes.
- Remove conjugate by washing 3 times with 300µl of 1X wash buffer. Blot on absorbent paper.
- Dispense 100µl of TMB substrate and incubate for 10 minutes and add 100µl stop solution
- Results is read by OD at 450 nm using ELISA reader within 10 minutes

Statistical analysis: To compare diagnostic efficacy of IgM ELISA and Widal test, various parameters like Sensitivity, Specificity, Positive predictive value (PPV), Negative predictive value (NPV) were calculated. Chi Square test was used to assess the difference between tests. For all statistical tests, a *P* value less than 0.05 was taken to indicate a significant difference.

Ethics clearance: Ethical clearance was obtained from institution ethical committee ref no D-1214135-135 dated 16 December 2014. Awritten consent was obtained from all patients prior to sample collection.

3. Results

A total of 100 clinically suspected enteric fever cases, maximum were in age group of 11-20 (34%), followed by followed by 21-30 years (20%). Male to female ratio is 51:49 (table1).

Total 100 clinically suspected enteric fever cases; alternative diagnosis was made after 48-72 hours in 33 cases were febrile illness due to other causes that constituted the control group (table2). Among 67 clinically diagnosed enteric fever patients, only 8.9% were blood culture positive for *Salmonella species.*, 58.21% were tube widal positive and IgM ELISA was positive in 26.87% patients (table3, 4). Positivity percentage of IgM ELISA was 47% in first week of illness, 18% in second, it was significantly decreased ($p < 0.05$) to 9% in the third week whereas positivity percentage of Tube Widal test was (39.13%) in first week which was increased to 78% in second week & was 36.36% in third week (table 5). Over all sensitivity specificity, positive predictive value, negative predictive value of IgM ELISA was observed 83.33%, 78.69%, 90.00%, 38.75% as compared to Tube Widal test 50.00%, 40.98%, 7.69%, 89.29% respectively considering blood culture as gold standard. (table 6).

Table 1: Age and sex wise distribution of clinically suspected enteric fever cases (n=100)

Age group	Males (Number)	Females (Number)	Total (Number, %)
1-10	4	3	7 (7%)
11-20	17	17	34 (34%)
21-30	9	11	20 (20%)
31-40	6	7	13 (13%)
41-50	11	5	16 (16%)
51-60	2	1	3 (3%)
61 and above	2	5	7 (7%)
Total	51	49	100

Table 2: Distribution of causative agents of febrile illness due to other causes or control group n=33

Alternate Diagnosis	Number of cases
Primary septicemia	9
Malaria	6
UTI	6
Dengue	5
URTI	3
Meningitis	2
Rickettsial Infections	2
Total	33

Table 3: Comparison of Tube Widal test with blood culture in clinically diagnosed enteric fever cases (n=67)

	Blood culture positive for <i>salmonella</i> species (n=6)	Blood culture negative for <i>salmonella</i> species (n=61)
Tube Widal positive (n=39)	3	36
Tube Widal negative (n=28)	3	25

Table 4: Comparison of IgM ELISA with blood culture (n=67)

	Blood culture positive for salmonella species (n=6)	Blood culture negative for salmonella species (n=61)
IgM positive	5	13
IgM negative	1	48

Table 5: Comparative of blood culture, Tube Widal and IgM ELISA according to duration of illness in clinically diagnosed enteric fever cases (n=67)

Duration of illness	Total No. of samples	Blood culture Positive for <i>salmonella</i> species (n=6)	Tube Widal positive (n= 39)	IgM ELISA positive (n= 18)
1 st week	23	3 (13.04%)	9 (39.07%)	11 (47%)
2 nd week	33	3 (9.09%)	26 (78.78%)	6 (18%)
3 rd week	11	0	4 (36.36%)	1 (9%)
Total	67	6	39	18

Table 6: Comparative evaluation of Tube Widal and IgM ELISA tests in clinically diagnosed enteric fever cases (n=67)
[Blood culture as gold standard]

Tests	Sensitivity	Specificity	Positive Predictive Value (PPV)	Negative predictive value (NPV)
Tube Widal test	50.00%	40.98%	7.69%	89.29%
IgM ELISA	83.33%	78.69%	90.00%	38.75%

4. Discussion

Early and rapid detection of enteric fever is essential to reduce morbidity and mortality caused due to enteric fever.

The present study was carried out to compare Tube Widal test and IgM ELISA test and to evaluate the efficacy of IgM ELISA test as rapid diagnostic tool. A total of 100 clinically suspected enteric fever patients were included in the study.

Out of these 100 clinically suspected enteric fever patients, predominant age group was 11-20 (34%) followed by 21-30 (20%) similar to N. Makwana et al^[23] (2014) observed numbers of the patients were of 11-20 (34%) years group. Out of 100 clinically suspected patients, 51% were males and 49% were females with male to female ratio of 51:49 consistent with A. Akhtar et al^[24] (2015) reported (52.9%) of males and 49 (47.1%) were females in their study. Out of these 100 patients, in 33 (33%) patients alternative diagnosis was made after 48-72 hours. These patients were considered as febrile cases due to other causes and considered as control group. These consisted of 9 cases of primary septicemia, 6 cases with malaria and 6 with

urinary tract infections, 5 cases with dengue, 3 with upper respiratory tract infections, 2 with meningitis and 2 with rickettsia infections Jindal N et al (2014)^[20] made similar observations a total of 100 cases presented to hospital with suspected typhoid fever but in 38 cases (38%), alternative diagnosis was made.

In our study we have also compared Tube Widal test with blood culture in clinically diagnosed enteric fever cases. Isolation rate for *Salmonella* species out of total samples (n=67) was 8.9%. A. Adhikari et al^[13] reported isolation rate for *salmonella* species 8.9%, Chawla V et al^[25] (1970) reported that isolation rate of *Salmonellae* varies from 8.6%-14% in different parts of India.

We observed tube widal positivity in relation with blood culture, Out of 6 blood culture positive for *Salmonella* species, 3 were widal positive and 3 were widal negative. The 3 blood culture positive which came widal negative were the patients who presented with symptoms in their first week of illness as compared to the 3 which were blood culture and widal positive were from second week of illness. In blood culture negative (n=61), 36 were widal positive this could be due to late presentation of patients in our tertiary care centre. Sensitivity, specificity of tube

Widal test in comparison with blood culture is 50.00%, 40.98%.

In our study among 6 blood culture positive cases for *Salmonella* species, 5 were IgM ELISA was positive and 1 was IgM ELISA negative which was *S. paratyphi A*. Sensitivity, specificity, Positive predictive value, and Negative predictive value for IgM ELISA was 83.33%, 78.69%, 27.78%, 97.76% with blood culture as gold standard. In our study *S. paratyphi A* was IgM ELISA negative false negative results may be failure of the test to detect antibodies or antibodies did not reach the detectable level. Begum Z et al.^[26] (2009) reported sensitivity, specificity, positive predictive value, negative predictive value as follows 92.85%, 90.00%, 76.47%, 97.29%. Similar findings were also reported in study from N. Makwana et al.^[23] (2014) 95.4%, 80.7%, 58.3% and 98.4%. N. Jindal et al.^[20] (2014) study from Punjab reported sensitivity and specificity of IgM ELISA sensitivity 83.8%, 92.11%.

In this study, we compared blood culture, Tube widal and IgM ELISA results in respect with duration of illness of enteric fever, we observed. Out of the total number of patients who presented with first week of illness (n=23) IgM ELISA have shown maximum positivity percentage 47%, followed by tube widal test 39 % and blood culture was positive in 13.04% patients. Total number of patients who presented with second week of illness (n=33), in these patients tube widal test have shown maximum positivity percentage 78.78%, followed by IgM ELISA with positivity percentage of 18% and blood culture positivity percentage was 9.09% respectively. Out of total number of patients who presented in third week of illness, Tube widal test positivity percentage was 36.36%, IgM ELISA positivity percentage 9%, while none of blood cultures were positive in patients who presented with third week of illness. IgM ELISA have shown maximum positivity percentage in first week of illness. In our evaluation, the positivity percentage of IgM ELISA was high in the first week of illness onset, this is because the early rising antibodies to the lipopolysaccharide (LPS) O are predominantly IgM in nature.^[17] The *S. typhi* specific IgM antibodies occur earlier in the course of the illness. Tube widal test was sensitive in second and third week patients are presented late in the course of their illness and fever, so they have sustained peak antibody titre at the time of admission this could be explanation for maximum widal positivity in second and third week of illness similar findings were reported by Ali Musa et al.^[27] (2011) maximum widal positivity in second and third week of illness.

In our study we compared Tube Widal test and IgM ELISA with blood culture as gold standard we observed IgM ELISA has greater sensitivity 83.33%, and 78.69% specificity, positive predictive value (PPV) 90.00% and negative predictive value (NPV) 89.29%. In comparison with tube widal test sensitivity 50.00%, specificity 40.98%, PPV 7.69%, NPV 89.29%.

In our study we observed IgM ELISA was more sensitive and specific than Tube Widal. This is consistent with other

studies such as Fadeel et al.^[28] (2011) Tube widal sensitivity specificity 78%, 75% and IgM ELISA sensitivity, specificity, 79%, 78%, Sanjeev^[29] et al (2013), 78.78%, 58.82%, 100%, 76%.

5. Conclusion

Current guidelines of Integrated disease surveillance programme (IDSP) recommends to use blood culture for diagnosing and reporting enteric fever, however our study suggest that blood culture should be supplemented with IgM ELISA in first week of illness, As in our current study results indicate that additional 13 patients of enteric fever cases were confirmed by IgM ELISA which were not picked up by blood culture.

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STUDY OF CLINICAL AND BACTERIOLOGICAL PROFILE OF COMMUNITY ACQUIRED PNEUMONIA IN A TERTIARY CARE HOSPITAL

Microbiology

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ABSTRACT

Community Acquired Pneumonia (CAP) is a lower respiratory tract parenchymal lung infection which continues to be a major health problem. 1 CAP remains a common and serious illness despite the availability of potent new antimicrobials and effective vaccines. 2 The problem is much greater in developing countries where pneumonia is the most common cause of hospital attendance in adults. 3 Despite advances in management of CAP, mortality ranges from 6-15%. 4 Initial management of CAP is empirical and dependent on the clear understanding of likely pathogens. 5 In clinical practice, etiological agent is identified in <30% of cases. The present study was carried out to ascertain the bacterial profile of community acquired pneumonia. A detailed clinical history along with gram staining and culture was carried out on sputum samples from 100 patients above 18 years of age with signs and symptoms of LRTI. All isolates were subjected to antimicrobial susceptibility testing by Kirby-Bauer Disc Diffusion method on Mueller-Hinton agar. *Klebsiella pneumoniae* was the most common organism isolated (22.7%) followed by Methicillin resistant *Staphylococcus aureus* and *Escherichia coli* in 13.6% each.

KEYWORDS

Community acquired pneumonia, clinical history, sputum culture, Antimicrobial susceptibility testing

INTRODUCTION

CAP is common in India, affecting 2,50,000 adults per year of whom 80,000 require hospitalization. 1 The overall rate of CAP in adults is 5-12 cases per 1000 population and the incidence markedly with age. 2 Despite advancement in management of CAP, mortality ranges from 6-15%. 3 Mortality is highest in CAP patients who require hospitalization, with a 30-day mortality up to 23%. 4 Identifying the cause remains a challenge. Due to lacunae in knowledge and lack in facilities pneumonia is misdiagnosed and mistreated. Another reason for poor outcome is the failure to assess the severity of the disease. Initial antimicrobial management of CAP is empirical and dependent on the clear understanding of the likely pathogens. 5 In clinical practice, the etiological agent is identified in <30% of all cases. Hence, this study is an attempt to find out the clinical and bacteriological profile of community acquired pneumonia.

MATERIAL AND METHODS

Study Design: The study was an observational study carried out in the Department of Microbiology in collaboration with the Medicine department at a tertiary care hospital in Western Maharashtra. Ethical clearance was taken, and the duration of the study was from January 2018 to December 2018.

Study Population: 100 clinically diagnosed patients of CAP

- Inclusion Criteria:** All adults (>18 yrs) with
- Signs and symptoms with LRTI (cough with or without expectoration, dyspnea, pleuritic chest pain, crackles on auscultation)
 - New focal chest signs on physical examination
 - At least one systemic feature (sweating, fever, shivering, aches or pains)
 - No other explanation of the illness

Exclusion Criteria:

- Patients with immunosuppression
- An emerging alternative diagnosis during follow-up
- Pneumonia secondary to tuberculosis
- History of hospitalization within the previous 10 days
- Ventilator-associated pneumonia

Study Procedure:

- Detailed history along with general physical examination findings, clinical findings and radiological findings of all patients were collected.
- Sputum sample was collected in a sterile wide mouth container.
- Gram stain was performed on the sample. Those with >25 neutrophils and <10 epithelial cells per 10x low power field were taken as infectious samples and processed further, else were

reported as salivary samples and repeat sample was advised. Gram stain was reported for pus cells and organisms seen.

- Sample was plated on two Blood agar (BA), one MacConkey agar and one Chocolate agar (CA). One BA and MacConkey were incubated at 37°C in aerobic conditions. The other BA and CA plate was placed in candle jar and incubated at 37°C in carbon dioxide jar.
- Antimicrobial susceptibility was performed for all the isolates using Kirby-Bauer disc diffusion method and using appropriate antimicrobials. Interpretation was done according to CLSI guidelines.

Statistical Analysis: All data was entered using the SPSS statistical software package, Version 23.0.0.0 (IBM Corporation). Continuous variables were expressed as mean ± standard deviation. Pearson chi-square test was done for categorical variables. Pearson correlation test was done to find a correlation. A 2-sided P value of <0.05 was considered statistically significant.

RESULTS

- Of the 100 patients included in the study, 63% were male and rest 37% were female. The age group of the patients varied from 18 to 80 years with a mean age of 52.13±16 yrs. Associated comorbidities like COPD, diabetes mellitus, congestive cardiac failure, smoking and alcoholism were observed in most of the patients of which 68% of the patients were smokers.
- Patients presented with both typical and atypical symptoms. Typical respiratory symptoms were cough, fever, expectoration, pleuritic chest pain. Atypical symptoms were altered sensorium and gastrointestinal complaints. 94% of the patients presented with fever and 89% complained of cough.
- Most patients had fewer signs on general physical examination, 26% had pallor and 13% had pedal edema.
- Common clinical signs noted on examination were hyperthermia in 86%, tachypnoea in 48%. 89% of patients had crepitations on respiratory examination.
- Leukocytosis was the most common laboratory finding noted in 83% of patients.
- Lobar pneumonia was the most common radiological presentation seen in 77% of patients.
- Sputum gram positivity was obtained in 59% of the cases, of these most common was gram negative bacilli seen in 25%, followed by gram positive bacilli seen in 22% of the cases as depicted in Fig
- Bacterial isolation by sputum culture was possible in 41% patients (Fig. 2). As depicted in Table 1, *Klebsiella pneumoniae* was the most common, isolated in 22.7% patients. Other organisms isolated were *Escherichia coli* (13.6%), Methicillin resistant *Staphylococcus aureus* (13.6%), *Streptococcus pneumoniae*

COMPARISON OF IgM ELISA AND CULTURE IN THE DIAGNOSIS OF COMMUNITY ACQUIRED PNEUMONIA DUE TO *MYCOPLASMA PNEUMONIAE* IN A TERTIARY CARE HOSPITAL

Medical Science

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ABSTRACT

Community Acquired Pneumonia (CAP) is a lower respiratory tract parenchymal lung infection which continues to be a major health problem. Identifying the cause remains a challenge. Although aetiology varies per geographic region, of all the etiological agents of CAP, atypical respiratory bacteria are increasingly being recognised as emerging pathogens. Atypical bacteria rank as third or fourth leading organisms causing CAP, being present in about 20-40% of all CAP patients, often as co-pathogens. The most common organisms are *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, and *Legionella pneumophila*. Among them, *M. pneumoniae* is one of the leading causes of CAP. This study is an attempt to compare results of IgM ELISA and culture in the diagnosis of CAP due to *M. pneumoniae*. A detailed clinical history was taken from 100 patients above 18 yrs of age with symptoms of LRTI. Throat swab was collected in PPLO broth, 3-5 ml of blood was collected in a plain bulb for detection of IgM antibodies against *M. pneumoniae*. *Mycoplasma pneumoniae* could not be isolated on culture from any of the throat swab samples. Serum samples of all the patients were tested for the presence of *Mycoplasma pneumoniae* IgM antibodies by ELISA and were found positive in 10 samples (10%).

KEYWORDS

Community Acquired Pneumonia, *Mycoplasma pneumoniae*, Serology, Culture

INTRODUCTION

Community Acquired Pneumonia is one of the most important causes of morbidity and mortality worldwide.¹ Mortality data specific to the community acquired pneumonia is not available for the Indian population, however, lower respiratory tract infections are responsible for around one-fifth of the deaths caused due to infectious diseases in India and pneumonia is a major culprit.² Although aetiology varies per geographic region, of all the etiological agents of CAP, atypical respiratory bacteria are increasingly being recognised as emerging pathogens.³ Atypical bacterial pneumonia is caused by atypical organisms which are not detected on Gram stain and cannot be cultured using standard methods, and characterized by a symptom which includes headache, low-grade fever, cough, and malaise. Atypical bacteria rank as third or fourth leading organisms causing CAP, being present in about 20-40% of all CAP patients, often as co-pathogens. The most common organisms are *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, and *Legionella pneumophila*. Among them, *M. pneumoniae* is one of the leading causes of CAP.⁴ Although treatment is straight forward, proving *Mycoplasma pneumoniae* infection in specific patients is a complex task as it is difficult to culture and is not normally detected in bronchial secretions, thus serology is the principal method for laboratory diagnosis.⁵

MATERIAL AND METHODS

Study Design:

The study was an observational study carried out in the Department of Microbiology in collaboration with the Medicine department at a tertiary care hospital in Western Maharashtra. Ethical clearance was taken, and the duration of the study was from January 2018 to December 2018.

Study Population: 100 clinically diagnosed patients of CAP

Inclusion Criteria: All adults (>18 yrs) with

- Signs and symptoms with LRTI (cough with or without expectoration, dyspnea, pleuritic chest pain, crackles on auscultation)
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- No other explanation of the illness

Exclusion Criteria:

- Patients with immunosuppression
- An emerging alternative diagnosis during follow-up
- Pneumonia secondary to tuberculosis
- History of hospitalization within the previous 10 days
- Ventilator-associated pneumonia

Study Procedure:

- Detailed history along with general physical examination findings,

clinical findings and radiological findings of all patients were collected.

- Specimen was collected and swab was transported to laboratory in 2 ml of PPLO broth.
- The broth was incubated at 37°C and was observed for colour change after a week.
- After one week, in presence of colour change to yellow, broth was subcultured on PPLD agar.
- 100 l of the broth using a micropipette were dispersed on to the agar medium.
- PPLD agar was incubated at 37°C and observed for presence of colonies every week for four weeks in an inverted position under microscope.
- In presence of the colonies, the block of agar is cut and stained with Dienes stain to confirm the presence of *Mycoplasma pneumoniae*.
- In absence of obvious colour change, blind subculture to agar was performed after 1st and 3rd week of incubation.

Serum IgM ELISA test:

3-5 ml of blood was collected in a plain bulb for detection of IgM antibodies against *Mycoplasma pneumoniae* by NOVATEC *Mycoplasma pneumoniae* IgM ELISA. Serum was obtained after centrifugation of blood sample. The test was conducted as instructed in the kit manual.

Interpretation:

- Samples were considered **POSITIVE** if the absorbance value was higher than 10% over the cut-off.
- Samples were considered **NEGATIVE** if the absorbance value was lower than 10% below the cut-off.
- Samples with an absorbance value of 10% above or below the cut-off were not considered as clearly positive or negative rather be considered to fall under **GREY ZONE**.
- It was recommended to repeat the test again 2-4 weeks later with a fresh sample. If the results in the second test were again in the grey zone, then sample had to be considered negative.

Statistical Analysis:

All the data was entered using the SPSS Statistical software package, Version 23.0.0.0 (IBM Corporation). Continuous variables were expressed as mean ± standard deviation. Pearson chi-square test was done for categorical variables. Pearson correlation test was done to find a correlation. A 2-sided P value < 0.05 was considered statistically significant.

RESULTS

- *Mycoplasma pneumoniae* could not be isolated on culture from any of the throat swab samples.
- Serum samples of all the patients were tested for the presence of *Mycoplasma pneumoniae* IgM antibodies by ELISA and were



SALMONELLA SEPSIS IN CANCER PATIENTS

Microbiology

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ABSTRACT

Background And Objective: Bloodstream infections are a major hazard in cancer patients. Salmonella infections pose a big threat to the patients undergoing chemotherapy. The objectives of this study are to determine the prevalence of salmonella sepsis in cancer patients in a tertiary care hospital and to determine the susceptibility pattern of salmonella isolates from blood samples. **Methods:** A retrospective study was conducted spanning 3 years duration from January 2021 to December 2023. Blood samples were collected aseptically for culture. **Results:** During the three-year period the laboratory received 2,413 blood cultures that were positive for various organisms of which 58 salmonella species were isolated. The age group ranged from 1 year to 72 years with the mean age being 28 years $\pm$ 23.63 years. The prevalence of salmonella species was 2.4% (58/2413). *S. typhi* was the most commonly isolated species which accounted for 63.79% of the total number of cases followed by *S. paratyphi B* (32.8%) and *S. paratyphi A* (3.4%). These isolates were tested for antimicrobial susceptibility testing which included ciprofloxacin, ampicillin, chloramphenicol, ceftriaxone, cefotaxime, pefloxacin and cotrimoxazole. Ciprofloxacin showed a lower susceptibility pattern as compared to other drugs. **Interpretation And Conclusions:** The study showed that the initiation of chemotherapy is the most likely cause of salmonella sepsis amongst the cancer patients. The ever-increasing irrational use of antimicrobials has led to decreased susceptibility of the isolates to ciprofloxacin. More studies need to be undertaken as limited data is available about typhoid infections in cancer patients.

KEYWORDS

Salmonella typhi, *Salmonella paratyphi A*, *Salmonella paratyphi B*, susceptibility, ciprofloxacin, sepsis, resistance

INTRODUCTION

Bloodstream infection (BSI) remains the major cause of morbidity and mortality in patients undergoing treatment for cancer. Patients on chemotherapy in particular are at higher risk of developing bacterial and fungal infections. A variety of factors such as neutropenia, altered gut flora, emerging advanced life-support facilities, damage of epithelial surfaces and disruption of skin increase their susceptibility to develop notorious infections. The presence of bacterial BSIs and antimicrobial resistance many times result in failure of failure and prolonged infections in cancer patients.

Salmonella is a gram-negative, rod-shaped, facultatively anaerobic bacterium, belonging to the Enterobacteriaceae family. It primarily lives in the digestive tracts of animals and humans. Salmonella infection occurs globally and has diverse presentations including enteric fever, gastroenteritis, localized infection, chronic enteric or urinary carrier state and bacteraemias. We had restricted our study to the salmonella species isolated from blood culture.

The aim of our study was to determine the prevalence and susceptibility pattern of salmonella species isolated in cancer patients and susceptibility pattern. Limited studies have been conducted determining susceptibility patterns of salmonella isolates in cancer patients. This study is one of its kind in which the susceptibility patterns of salmonella species has been studied.

MATERIAL AND METHODS

Study Design and period

This retrospective observational study was conducted in the Microbiology Department of Tata Memorial Hospital, Mumbai, India, a specialized hospital for cancer patients. The study spanned from January 2021 to December 2023

Inclusion Criteria

Patients diagnosed with salmonella sepsis irrespective of age and gender were included in the study.

Exclusion Criteria

All the blood cultures which were positive for organisms other than salmonella species.

Microbiological Methods

Blood samples (upto 10 mL for adults, upto 4 mL for children) were collected aseptically and transferred into Bactec blood culture bottles.

The samples were processed aerobically using the VIRTUO system for five days. The blood samples which flashed positive were processed using the standard techniques. For identification the VITEK system was used while antimicrobial susceptibility testing was performed using Kirby-Bauer's disc diffusion method. The antibiotics tested included ceftriaxone, ciprofloxacin, cotrimoxazole, ampicillin, pefloxacin, chloramphenicol, and cefotaxime. Serotyping was used to identify specific strains using BD diagnostics kit for speciation. Electronic medical records were utilized to extract demographic information, including age, sex, type of cancer, and clinical outcomes.

RESULTS

In the study population, age group ranged from 1 year to 72 years with the mean age being 28 years $\pm$ 23.63 years. Adult population above the age of 14 years accounted for 56.9% (33/58) (Figure 1) while the pediatric population contributed to 43.1% (25/58) of the total number of cases. It showed a male predilection (Table 1) accounting to 74.1% (43/58) while 25.9% (15/58) were female patients. Furthermore, when a detailed analysis (Table 1) of the age, gender and salmonella species distribution was done it was observed that *S. typhi* was identified in almost 21 paediatric patients out of 25 (84%) followed by *S. paratyphi B* and *S. paratyphi A*. Demographic distribution of the study population showed that most of them were natives of Maharashtra 27.6% (16/58), followed by West Bengal 25.86% (15/58), Bihar 6.8% (4/58), Uttar Pradesh 5.1% (3/58).

DISTRIBUTION AMONGST TARGET POPULATION

■ Adult ■ Paediatric

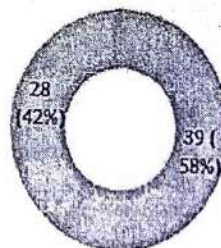


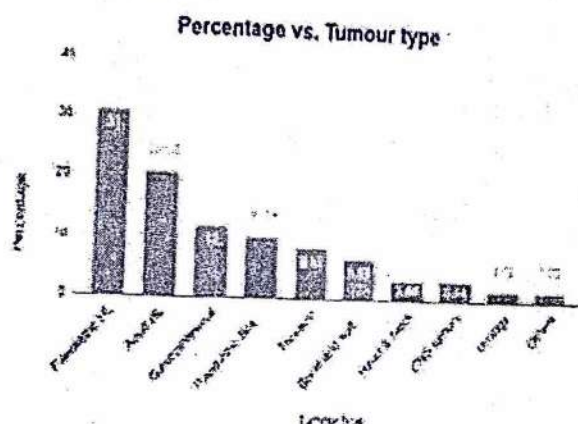
Figure 1: Distribution Of Patients Among Paediatric And Adults

Table 1: Age Wise Distribution Of Patients Enrolled In The Study Along With Salmonella Species Identified

Age (yrs)	No. of patients	Male	Females	S. typhi	S. paratyphi A	S. paratyphi B
1-14	25	18	7	21	1	3
15-30	8	7	1	5	1	1
31-45	8	5	3	6	0	5
46-60	10	7	3	3	0	5
> 60	7	6	1	2	0	5
Total	58	43 (74.13%)	15 (25.86%)	37 (63.8%)	2 (3.44%)	19 (32.8%)

Out of 2413 isolates from blood culture during the three-year period, 58 salmonella species were identified. Thus, the prevalence of salmonella species was 2.4% (58/2413). The salmonella isolates were categorized into *S. typhi*, *S. paratyphi B* and *S. paratyphi A* on the basis of serotyping (Table 1). *S. typhi* constituted 63.8% (37/58) amongst the strains which were studied. *S. paratyphi B* contributed to 32.8% (19/58) of the isolates while only two strains of *S. paratyphi A* were identified.

Majority of patients diagnosed with salmonella infections were known cases of hematolymphoid malignancies followed by gastrointestinal malignancies (Figure 2).



Paediatric HL: Paediatric Hematolymphoid (HL) malignancies, Adult HL: Adult Hematolymphoid (HL) malignancies

Figure 2: Percentage Wise Distribution Of Malignancies In Salmonella Infected Patients

Acute lymphoid leukemia (ALL) was the most common i.e. 66.6% (20/30) malignancy amongst these patients. A Chi-Squared test (Table 2) was performed to test the association between type of cancer and salmonella species. The test result was significant with a p value of 0.004. A statistically higher proportion of patients with blood cancer had *S. typhi* as compared to solid organ cancer who had a higher proportion of other species.

Table 2: Contingency Table

Chi-Squared Tests	Value	Df	p
X ² continuity correction	8.108	1	0.004
N	57		

The antimicrobial susceptibility patterns of the salmonella isolates studies showed resistance to ciprofloxacin in 15.5% (9/58) of the strains. Pefloxacin showed resistance in 12% (7/58) of the total number of species.

Sensitive (%), Intermediate (%) and Resistant (%)



Figure 3: Susceptibility patterns of the antibiotics tested

(Figure 3) Cotrimoxazole showed 5% (3/58) resistance while ampicillin, chloramphenicol, ceftriaxone and cefotaxime showed 1.72% (1/58) resistance each. Maximum resistance to ciprofloxacin was noted in *S. typhi* (8.62%) followed by *S. paratyphi B* (5.17%) and *S. paratyphi A* (1.72%).

Organism	Type of cancer	Other salmonella species	S. typhi	Total
Blood	Count	5	24	29
	% within row	17.24%	82.76%	100 %
	% within column	23.81%	66.67%	50.88%
Solid organ	Count	16	12	28
	% within row	57.14%	42.86%	100%
	% within column	76.19%	33.33%	49.12%
Total	Count	21	36	57
	% within row	36.84%	63.16%	100%
	% within column	100%	100%	100%

DISCUSSION

Cancer can affect any body part and is a disabling, challenging, and frightening disease. Typhoid fever is an infectious disease which is widely spread and tends to affect millions all over world. Every year an estimated 11-21 million cases of enteric fever and 5 million cases of paratyphoid fever occur globally, causing approximately 135,000-230,000 deaths. Non-typhoidal salmonellae are known to cause severe infections in immunocompromised individuals. There are limited studies with regards to typhoidal infections in cancer patients. Thus, we evaluated retrospectively the trends of salmonella infection in cancer patients along with the susceptibility patterns of salmonella isolates.

The study showed male predominance, with the male: female ratio of 2.8:1. However, in a study conducted by Aslam et al⁷, female preponderance was observed. It was seen that adult age groups were more affected than the paediatric population in solid organ tumors. Vice versa trend was seen in case of hematological malignancies. This finding was consistent with the study conducted by Sinkovics et al⁸. In another study by Noriega et al¹⁶, similar findings were reported. Salmonella infections are many times associated with lower socio-economic status. Poor hand hygiene and improper food handling are major risk factors in the spread of typhoid infections. As the patients visiting Tata Memorial Hospital belong to lower socioeconomic class and tend to eat street food with lack of hygiene are at greater risk of catching the infection. Immunity is suppressed due to the chemotherapy and thus becomes a predisposing factor.

The most commonly isolated species in the present study was *S. typhi* (63.8%). This finding was found to be in concordance with the study conducted Aslam et al⁷, in cancer patients. However, the work of Muri et al¹, Chia-Wen Li et al¹⁰ identified non-typhoidal salmonellae in cancer patients. *S. typhimurium* was most commonly identified amongst them. Few other studies led by Wolfe et al¹¹, Noriega et al¹⁶ also documented infection caused by non-typhoidal salmonellae.

In this study (figure 3), the susceptibility patterns of salmonella species were analyzed. Resistance was mainly noted against ciprofloxacin followed by pefloxacin. All of the patients survived after appropriate treatment. Although nine deaths were noted, they were unrelated to the infection caused by salmonella species. The patients died much later after getting recovered. The data for salmonella infections caused by typhoidal salmonellae in cancer patients is limited. Thus, the sensitivity patterns of the typhoidal and paratyphoidal isolates were compared to the typhoidal salmonellae recovered from blood samples of non-cancer patients. A study by Islam et al¹² showed findings similar to our study wherein decreased susceptibility to ciprofloxacin in *S. typhi* isolates was reported in non-cancer patients.

Study headed by Zehra et al¹³ documented similar findings. Madhulika et al¹⁴ also reported increased resistance to ciprofloxacin amongst the *S. typhi* and *S. paratyphi A* strains. In North India, in a study led by Behl et al¹⁵ similar findings were seen. Gaiind et al¹⁶ also reported resistance to ciprofloxacin in *S. typhi* and *S. paratyphi A*.

CONCLUSION

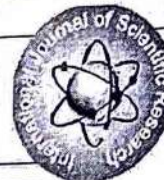
The patients with cancer should be careful while having food. As patients are immunosuppressed, they are at a higher risk of catching salmonella infections due to improper food handling. More studies are needed to assess the susceptibility pattern of salmonella isolates from cancer patients.

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OCCURRENCE OF HEPATITIS B, HEPATITIS C AND TREPONEMAL CO-INFECTION IN PEOPLE LIVING WITH HIV

Microbiology

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ABSTRACT

Morbidity and mortality of HIV positive patients depends on their response to antiretroviral therapy. Early detection and treatment of co-infection may lead to better outcomes as indicated by immune restoration. The present cross-sectional study was undertaken to assess occurrence of co-infections of HBV, HCV and Syphilis and its impact on immune response in HIV positive patients. A total of 200 HIV positive patients receiving ART at the centre of SGH Pune were randomly selected for this study. Blood sample which is routinely collected for CD4 count was taken for our study. No extra sample was taken. This group comprised of 102 male 97 female and one transgender. The age group included in the study was 3 years to 76 years. A total of 25.5% (51/200) of the patients were tested positive for co-infections. 60.78% (31/51) were positive for Hepatitis B, 3.92% (2/51) for Hepatitis C, 35.29% (18/51) for Syphilis. To study the effect of co-infection on immune response, patient's periodic CD4 count data was analyzed. CD4 count ranged from 15 to 4329 with mean of 392 while in the 51 co-infected patients CD4 count ranged from 3 to 1044 (mean 354). A significant difference in CD4 count was observed between the non-co-infected and co-infected groups. A constantly decrementing trend of CD4 count was the cardinal finding in patients with underlying co-infection.

KEYWORDS

HIV, Hepatitis B, Hepatitis C, Syphilis

INTRODUCTION

Sexually transmitted infections (STIs) are important health related issues both globally as well as in India(1). In India, approximately 6% of the adult population suffers from STIs. HIV, syphilis, hepatitis B virus (HBV) and hepatitis C virus (HCV) are four common infections associated with systemic manifestations and grave consequences that share common routes of transmission, the most common being sexual route(1). Underlying co-infection in PLHIV has a synergistic impact on the pathophysiological manifestation of the individual diseases and their associated sequelae.

(TPHA) (PLASMATEC KIT) and Rapid Plasma Reagin (RPR) (OMEGA DIAGNOSTICS) tests using standard and reverse algorithm.

A hepatitis panel using Rapid Immunochromatography testing kit(BIOLAB DIAGNOSTICS) was performed on the samples to check for hepatitis coinfection. CD4 counts and viral load values were collected for the entire population enrolled in the study from the hospital ART Centre and NACO website databases, to monitor their response to ART, treatment and disease progression. PLHIV patients who have been counseled and are started on antiretroviral treatment, and had given their consent were enrolled in the study. Variables taken under study assessment were- age, gender, CD4 count, viral load, HBsAg and HCV panel results,TPHA and RPR results, type of ART the patient is started on, duration and compliance to treatment with regular follow ups present or not.

RESULTS:

A total of 15.5% (31/200) patients were tested positive for co-infection with Hepatitis B and 1% (2/200) for Hepatitis C. One patient each with Hepatitis B & Hepatitis C co-infection were excluded because they were transferred to another center. Although the data for one patient with Hepatitis C coinfection is available we will not be commenting on it to minimize incidence prevalence bias. To study the effect of co-infection on immune response, the CD4 Count of the patients with and without co-infection were analyzed in juxtaposition. A CD4 count of <500 cells/cmm (poor prognosis) in patients with HBV co-infection was significant($p=0.034$) compared to non-co-infected patients($p=0.06$). Among the 30 patients tested positive for HBV, the majority being chronically HIV infected patients 61.30% (19/30); 20 were men (64.5%) and 11 were women (35.48%). One had both Syphilis and hepatitis B coinfection. The two patients tested positive for HCV are both males from the age group 20-40 years.

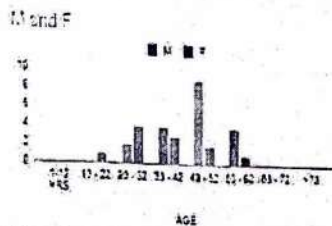
AIM & OBJECTIVES:

- 1) To analyze the occurrence of hepatitis and syphilis co-infection in People Living with HIV(PLHIV).
- 2) To assess the effect of co-infection on T-cell response of patients enrolling into ART and elicit the aetiology behind lack of response to treatment.

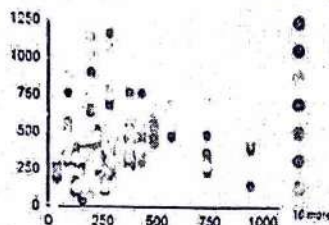
MATERIALS AND METHODS:

A cross-sectional study was conducted with 200 HIV positive blood samples of all age groups irrespective of gender. Blood sample which is routinely collected for CD4 count was taken for our study. This group comprised 102 male 97 female and one transgender. The age group included in the study was 3 years to 76 years. The specimens were subjected to Treponema Pallidum Haemagglutination Assay

According to the WHO clinical staging for people diagnosed with HIV, 7 were classified under WHO stage I; 9 patients under WHO stage II; 9 under WHO Stage II and 1 under Stage IV. No variation was found in treatment given with respect to WHO staging of patients.



Age wise gender distribution in Hepatitis co-infected patients



CD4 count range and variation of hepatitis B co-infection patients

Table 1: Treatment Regimen for hepatitis B co-infection patients

HEPATITIS		
Start of ART	ART Regimen	No. of patients
2007 - 2011	TLE	1
	Initially ZLN now TLD in 2021	2
	TLD	1
	ZLN	1
2012 - 2016	TLE	7
	ZLN	3
	TL+ATV/r	1
2017 - 2021	Initially TLE shifted to TLD	2
	TLE	12
	TLD	3

A total of 9% (18/200) patients were found to have exposure to *T. pallidum*. To study the effect of the co-infection on immune response, data of CD4 count was analyzed. Two patients were excluded from the study as they were transferred to another centre. Baseline CD4 count ranged from 3 to 4329 with mean of 392 in 200 patients while in the 16 co-infected patients CD4 count ranged from 3 to 815 (mean 287). Out of the 16 patients who were infected with syphilis, 12 were male, 3 were female and 1 was transgender. Age group of syphilis-infected patients ranged from 23 to 74 years.

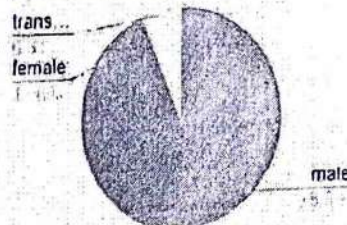
Out of the 16 patients who tested positive for syphilis, 12 patients were positive for TPHA and RPR. Four were TPHA positive and RPR negative. RPR positivity was found in 1:2 titre in 5 patients, 1:4 titre in 3 patients, 1:8 titre in 1 patient, 1:32 titre in 1 patient and 1:64 titre in 2 patients.

CD4 count of <500 cells/mm³ was observed in 87.5% (14/16) of the patients. Nine of them were newly diagnosed patients (in 2021) while 7 were previously diagnosed. The viral load of the 7 patients who were chronically infected was found to be TND i.e. target not detected. The viral load testing of the remaining nine patients who were newly diagnosed was not done as they had not completed six months of antiretroviral treatment. However most of them had a CD4 count <350 cells/mm³. They all were started on Cotrimoxazole Preventive Therapy (CPT). (7) CD4 count of <500 cells/mm³ observed in 87.5% (14/16) of the patients.

Table 2: Treatment regimen of HIV Patients with syphilis Co-infection

SYPHILIS

Start of ART	ART Regimen	No. Of Patients
2007 - 2011	ZLE (1)	1
	TLE (1)	1
2012 - 2016	TLD (1)	1
	TLE (1)	1
	ZLE (1)	1
2017 - 2021	TLE (1)	1
	ZLE (1)	1
	TLD (9)	9

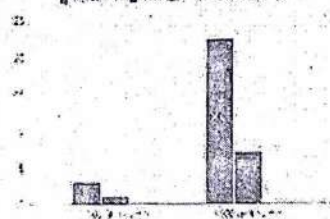


Gender wise distribution of syphilis co-infection patients

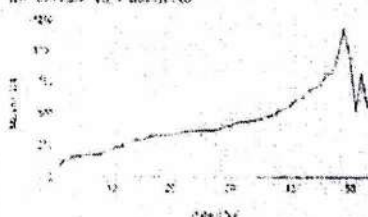
According to the WHO clinical staging for people diagnosed with HIV, 12 were classified under WHO stage I while 4 patients under WHO stage II. It was seen that the treatment regimen did not differ according to the clinical staging.

For all 200 patients the latest CD4 count was available. However there were only 54 patients for whom data for periodic CD4 count was available. Amongst them 37 of them had a CD4 count of <500 cells/mm³ whereas 17 of them had a CD4 count >500 cells/mm³. A total of 29/37 (78.37%) patients were suffering from coinfection. Hepatitis B coinfection was seen in 22/29 (75.86%) whereas 7/29 (24.13%) were suffering from treponemal infection. Only 8 patients who were not suffering from HBV and/or syphilis coinfection had a CD4 count of <500 cells/mm³.

HEPATITIS, SYPHILIS AND CO-INFECTION



Mean CD4 vs. Patient No.



Charts showing mean CD4 count distribution among the 54 patients

VIRAL LOAD TESTING:

Detectable levels of viral load was available for 28 patients. However the sequential testing reports are not available probably due to the lockdown during the COVID19 pandemic. Out of them 9 were coinfected with HBV and/or syphilis. In 8 patients an increase in viral copies in 2018 was observed. However they responded to antiretroviral therapy and the viral load was below the detection limit. This showed that they responded to the ongoing antiretroviral treatment. Similar finding was observed in one patient suffering from syphilis coinfection.

DISCUSSION

HIV continues to be a major global public health issue, having claimed

3.3 million [27.2–47.8 million] lives so far.¹⁰ There were an estimated 37.7 million [30.2–45.1 million] people living with HIV at the end of 2020, over two thirds of whom (25.4 million) are in the WHO African Region.¹¹ Chronic hepatitis B virus (HBV) infection affects 5–20% of the 36 million people living with HIV worldwide, and hepatitis C virus (HCV) affects 5–15%, rising to 90 % among people who inject drugs.¹² HIV infection has a significant impact on the natural history of chronic HBV infection, with increased levels of HBV DNA, accelerated progression of liver disease and increased liver-associated mortality compared to HBV mono-infection.¹³ Previously studies which have evaluated age as a variable have not found any significant association and trends in age related occurrence. In this study, we found an increasing occurrence of co-infection in PLHIV patients in higher age groups. This result can be attributed to the chronicity of infection with HIV.

When the patients were divided into groups according to gender, the male to female ratio of occurrence of co-infection increased with a ratio of 2:1. From a biological point of view, women are more susceptible to HIV infection than men and on the contrary the occurrence of HBV mono-infection with a poorer prognosis of transformation to Hepatocellular Carcinoma (HCC) is more common in males than females.¹⁴ Studies show that Male to Female transmission of STIs is between two to four times more efficient and as most sexually transmitted infections (STIs) are asymptomatic in women, diagnosis and treatment is more difficult. Women also have limited access or receive an inferior quality of care than men and frequently wait longer than men before visiting health facilities.¹⁵ Studies have shown that a higher frequency of HBsAg loss has been associated with lower CD4+ T cell count prior to initiation of HBV-active ART and a greater increase in CD4+ T-cells following ART¹⁶ which is contrary to the results obtained in our study wherein 80.66% (p=0.034) of the co-infected patients had a CD4 count of <500 cells/mm³ compared to the 66.67% (p=0.06) of the non-coinfected patients indicative of poorer prognosis in co-infection despite active treatment.

In the setting of co-infection with Hepatitis B Virus (HBV), the availability of ART, with activity against both HIV and HBV, particularly tenofovir, has led to significant improvements in outcomes.⁹ When the treatment plan of the 31 co-infected patients was compared with the duration of infection and periodic trends of CD4 Count, we observed that majority of the older patients were enrolled under TLE Regimen, newer patients were started on TLD as per the new WHO Guidelines. 11 patients had a decreasing trend in CD4 Count despite which they didn't have a change in the treatment plan. Of the 18 patients enrolled in TLE previously 9 showed improvement in CD4 count which justifies the treatment plan and doesn't call for prompt change. Ancillary treatment for Hepatitis B infection other than Tenofovir, can lead to better improvement in CD4 counts of patients.

Syphilis is not only a frequently detected sexually transmitted disease in developing countries but also has an increasing importance for HIV infected individuals as it leads to rapid progression.¹⁷ Hence, the early diagnosis of syphilis is of paramount importance for HIV-infected patients.¹⁸ Because syphilis and HIV can be asymptomatic, many individuals are unaware of their infection and remain undiagnosed.¹⁹ Majority of the patients had CD4 count < 500 cells/mm³ in our study. In a study conducted by Harnati et al syphilis infection in HIV patients was associated with increased viral load and decreased of the CD4+ count.²⁰ Studies have proven that increase of viral load occurs mainly in patients with secondary syphilis infection and also those who are not adherent to ART.²¹

However in our study, 7 patients who were probably suffering from a past infection of syphilis were on ART. Although viral load of these 7 patients was below the detection limit, significant immunological improvement was not seen in terms of CD4 count. The data of viral load for the newly diagnosed patients was not available as they had not completed six months of antiretroviral treatment.²²

When the patients were divided into groups according to gender, the male to female ratio in occurrence of co-infection was found to be 3:1. In a previous study of 830 HIV patients by Signorini et al it was also proved that male to female occurrence of HIV-syphilis coinfection to be 4:1.²³ In the same study they also concluded that age was not a significant factor in determining the prevalence of syphilis co-

infection.²⁴ In our study also age did not play a significant role.

One female patient was a case of latent syphilis and had completed the treatment of benzathine penicillin for the same. As she was initially enrolled under Obstetrics for a Caesarean section, her testing was routinely done for syphilis as per the antenatal care protocol. Therefore she was diagnosed and treated for the treponemal infection. She was newly diagnosed of HIV infection and was on TLD regimen. The data for the treatment of syphilis coinfection in other patients was not available with the ART center in the hospital. So there is a high possibility that PLHIV with syphilis coinfection are going undiagnosed.

CONCLUSIONS

The purpose of this study was to investigate the occurrence and trends of syphilis and hepatitis co-infection in PLHIV. It is evident from the results obtained, that co-infection has a marked negative impact on CD4 Counts despite treatment. The study highlights the importance of diagnosing coinfection so as to improve immune response and reduce morbidity. Because of the overlap in risk behaviors that lead to HIV, syphilis and hepatitis infections, integrated public health efforts are needed to prevent new coinfections, and to improve the quality of life of the patient.

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Our deepest gratitude to NATIONAL AIDS CONTROL ORGANIZATION for their co-operation. We would like thank the technical staff of Serology and Virology sections of Byramjee Jeejeebhoy Medical College, Pune : Mrs. Shobha Sable, Mrs. Jeejeebhoy Medical College, Pune : Mrs. Ketaki Mokashi, Mr. Vijayamala Shende, Ms. Nilufer Metkari, Mrs. Vasant Chaugule, Ms. Pooja Shelar, Ms. Gauri Yadre & Ms. Alfya Mulani. We would also like to thank Dr. Shivani Sakalkar, Dr. Madhuri Jadhav, Dr. Reshma Bawale for all their co-operation. We would like to extend our special thanks to ART CENTRE staff, Mrs. Anita Kalgonda for all her help in data collection.

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An Early and Preliminary Assessment of the Clinical Severity of the Emerging SARS-CoV-2 Omicron Variants in Maharashtra, India

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Abstract

Background: The SARS-CoV-2 Omicron variants BA.2.74, BA.2.75, and BA.2.76 have appeared recently in India and have already spread to over 40 countries. They have acquired additional mutations in their spike protein compared to BA.2, branching away on the SARS-CoV-2 phylogenetic tree. These added mutations have raised concerns about the impact on viral pathogenicity, transmissibility, and immune evasion properties of the new variants.

Material and methods: A total of 990 Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) positive SARS-CoV-2 samples, with a cycle threshold value (Ct) less than 25, were processed for SARS-CoV-2 whole genome sequencing between June 3, 2022 to August 7, 2022. All corresponding demographic and clinical data were recorded and analyzed using Microsoft® Excel.

Results: Out of 990 samples sequenced, BA.2.75 (23.03%) was the predominant Omicron sublineage, followed by BA.2.38 (21.01%), BA.5 (9.70%), BA.2 (9.09%), BA.2.74 (8.89%) and BA.2.76 (5.56%). A total of 228 cases of BA.2.74, BA.2.75, and BA.2.76 were contacted by telephone, of which 215 (94.30%) were symptomatic with mild symptoms, and 13 (5.70%) had no symptoms. Fever (82.02%) was the most common symptom, followed by cough (49.12%), cold (35.97%), fatigue (27.19%), headache (21.05%), and myalgia (20.61%). Of the 228 cases, 195 (85.53%) cases recovered at home, and 33 (14.47%) required institutional quarantine. Recovery with conservative treatment was observed in 92.98% of cases, while 4.83% required additional oxygen therapy. Only three (1.32%) cases had poor outcomes resulting in death, and the remaining 225 (98.68%) survived. Among the 228 cases, 219 (96.05%) cases were vaccinated with the COVID-19 vaccine; of these, 72.60% had received both doses, 26.03% had also received the precautionary booster dose, while 1.37% were incompletely vaccinated with a single dose of vaccine.

Conclusion: The current study indicates that the three BA.2 sublineages are causing mild disease in India. However, BA.2.75 has key mutations that are notable for accelerated growth and transmission and require close and effective monitoring.

Categories: Infectious Disease

Keywords: sars-cov-2 whole-genome sequencing, ba.2.76, ba.2.75, ba.2.74, omicron

Introduction

Since the first case of severe acute respiratory syndrome coronavirus (SARS-CoV-2) in March 2020, India has witnessed three pandemic waves. The original SARS-CoV-2 strain with D614G mutation (Clade G, Pangolin lineage B.1), Clade GH (Pangolin lineage B.1), and GR (Pangolin lineage B.1.1.1) dominated the first wave followed by the Delta (B.1.617.2) and its sublineages (AY. *) caused the second wave, and Omicron (B.1.1.529) and its sublineages (BA.1 and BA.2) are driving the third wave [1].

The first Omicron variant, B.1.1.529 was first reported from South Africa on November 24, 2021 [2] and was designated as a Variant of Concern (VoC) on November 26, 2021 by World Health Organization. By late January 2022, the Omicron variant had been identified in 171 countries across all six WHO regions. Due to its substantial growth advantage over Delta, the Omicron variant rapidly replaced the Delta variant globally. Initially, the Omicron variant (B.1.1.529) comprised three sister lineages, B.1.1.529.1 (BA.1), B.1.1.529.2 (BA.2) and B.1.1.529.3 (BA.3). Characteristic constellation of mutations, particularly 26-32 mutations in its spike protein, have been responsible for its increased transmissibility and its ability to evade immunity established by natural infection or vaccination [3].

India witnessed its third wave from late December 2021 to late February 2022 [4], with BA.1 and BA.2

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Genomic Characterization of an Emerging SARS-CoV-2 Variant During the Early Second Wave of the SARS-CoV-2 Pandemic in Maharashtra, India

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Abstract

Background

The severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) has led to a global health crisis, with various variants emerging over time. In India, particularly in Maharashtra, a resurgence of cases and distinct transmission patterns have been observed. This study aimed to identify and characterize the circulating SARS-CoV-2 variants during the early second wave in Maharashtra, India.

Materials and methods

Nasopharyngeal swabs were collected from 24 RT-PCR-positive coronavirus disease of 2019 (COVID-19) cases across four districts of Maharashtra. Whole genome sequencing (WGS) was performed using the ARTIC amplicon sequencing protocol, and the data were analyzed.

Results

A total of 189 amino-acid mutations were identified across the 24 samples. Compared to the Indian genomes, 44 amino-acid mutations were unique to 24 genomes. Clade 20A was the most prevalent (66.66%), followed by 20B and 21B. The lineage B.1.36 (45.83%) was the most common, followed by B.1.617.1 (16.67%). The D614G mutation was the most frequent spike mutation (95.83%). Four samples from the Amravati district clustered distinctly under Clade 21B with spike mutations E154K in the N-terminal domain (NTD), L452R and E484Q in the receptor-binding domain (RBD) and P681R in proximity to the furin cleavage site. The temporal distribution of samples revealed the presence of Clade 21B in Maharashtra since the 31st of January 2021.

Conclusion

The study provides valuable insights into the circulating SARS-CoV-2 variants during the early second wave in Maharashtra, highlighting specific clades and mutations. The unique clustering patterns and the high prevalence of immune-escape mutations emphasize the need for continuous monitoring and genomic surveillance.

Categories: Public Health, Epidemiology/Public Health, Infectious Disease

Keywords: sars-cov-2 (severe acute respiratory syndrome coronavirus-2), n440k, p681r, l452r, e484q, sars-cov-2 whole-genome sequencing, kappa variant, b.1.617.1, clade 21b, covid-19

Introduction

The severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), a novel beta-coronavirus causing COVID-19, has rapidly evolved into one of the most devastating health crises in recent history. It was in late December 2019 when the human cases of SARS-CoV-2 infection were identified in a group of patients with pneumonia of unknown origin. These cases were epidemiologically linked to the seafood market in Wuhan City, Hubei Province, China. The disease spread rapidly from Wuhan to other Chinese cities and other countries [1]. As a response, the World Health Organization (WHO) declared COVID-19 as a public health emergency of international concern (PHEIC) on the 30th of January 2020 [2]. On the same day, India reported its first case of COVID-19 in Kerala, with a travel history to Wuhan, China [3].

Since the beginning of the pandemic, the world has witnessed the emergence of various variants of concerns and interests. These have dominated different geographical areas in varying proportions, reflecting the natural evolution of the virus. This trend was also observed in India [4,5]. While the early months of the pandemic (March and April 2020) were dominated by Clade I/A3i, in the latter half of April 2020, the country saw a shift in clade prevalence, with most states showing an increased representation of Clade A2a [6]. The

Original article

Clinical characteristics of AY.4 infections are similar to B.1.617.2 infections: A preliminary study

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Abstract:

Background: The SARS-CoV-2 Delta variant (B.1.617.2) was first detected in India in late 2020 and soon became the predominant lineage owing to its high transmissibility. Over time, the virus has acquired mutations and has evolved into many new sub-lineages. AY.4 is one such sub-lineage that grew in frequency globally. Therefore, we aimed to compare the severity of infection due to Delta sub-lineages to Delta infections in Pune, Maharashtra, India.

Material and Methods: Whole-genome sequencing and analysis of 255 SARS-CoV-2 positive samples, collected between 1st August to 1st September 2021, by BJ Government Medical College, Pune, was carried out at the Indian Institute of Science Education and Research (IISER), Pune and the Council of Scientific and Industrial Research-Institute of Genomics and Integrative Biology (CSIR-IGIB), New Delhi. Individual-level data on these patients were collected from ICMR COVID-19 Data Portal. Additional information regarding the presence of any symptoms, comorbidities, hospitalization, international travel history within 14 days and vaccination status was collected by telephonic interview with each patient by the BJGMC Sequencing Team.

Results: Of the 255 samples sequenced, 161 (63.13%) had VOC B.1.617.2, 90 (35.29%) had AY.*. The AY.4 (51.1%) was the predominant Delta sub-lineage, followed by AY.12 (22.2%) and AY.16 (15.6%). A total of 201 patients were contacted telephonically, of which 30 (14.93%) cases were asymptomatic, and 171 (85.07%) cases were symptomatic. Of the symptomatic cases, 58.21% had Delta, 11.94% had AY.4 and 14.93% were infected with other Delta sub-lineages. Oxygen therapy by mask/nasal prongs was required in 13.18% of Delta cases, and one (0.78%) case required mechanical ventilation. In contrast, only 3.03% and 5.13% cases of AY.4 and other Delta sub-lineages, respectively, needed oxygen therapy. Of 49 individuals vaccinated with two vaccine doses, 71.43% were infected with Delta, 20.41% with other Delta-sub-lineages and 8.16% with AY.4. There was no evidence of a significant difference in hospital attendance, disease severity, oxygen therapy requirement, hospitalization days, vaccination status, and disease outcome among patients infected with Delta and AY.* Delta sub-lineages.

Conclusion: The preliminary results suggest that the disease severity in patients with Delta sub-lineages is not markedly different from those infected with Delta variant. Therefore, currently, it shares the same public health concern as those of Delta.

vaccine-breakthrough infections after two vaccine doses were commonly seen with Delta variant compared to its sub-lineages. However, there was no significant difference in numbers between the groups. Also, there was no significant difference in disease severity among those vaccinated and those not vaccinated. Further study is needed on a greater sample size to clarify if the hospitalization risks and the disease severity differ in vaccinated individuals infected with the Delta variant compared with its sub-lineages.

5. Conclusion

This study provides essential preliminary evidence that the disease severity in patients with Delta sub-lineages is not markedly different from those infected with Delta variant. Currently, there is no evidence of added clinical or public health concerns of these sub-lineages. Good quality clinical data with whole-genome sequencing of SARS-CoV-2 is imperative in concluding whether the emergence of new variants is associated with adverse clinical outcomes. These findings will be fundamental for proper resource planning and policy decisions to mitigate the impact of these variants in India and other countries as the virus will continue to evolve.

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Authors' Contribution:

Authors RD, RK, SJ and SJ designed the study. Authors SK, PK, NS, RS, DN, MP, AR, AG and KK from IISER, Pune and RB, BJ, VS, MI, AS, MD, KP, VS and SS from CSIR-IGIB, New Delhi participated in SARS-CoV-2 genome sequencing. BJGMC sequencing team collected the clinical data of positive patients. RD and RK analysed the data and wrote the manuscript. The manuscript was reviewed and finalized by all authors.

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A Surgical Audit of Tracheostomy

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Abstract

To study the magnitude of tracheostomy, its various indications and complications. Prospective Observational Study. A Prospective Observational study was carried out on 640 patients with various indications of tracheostomy admitted in ENT or referred from other departments for tracheostomy from July 2015 to March 2022. The epidemiological data regarding their age, sex, symptoms, indication and complications of tracheostomy were recorded. Necessary interventions were done as and when required. Patients ranged from 6 months to 86 yrs. Assisted ventilation was the most common indications for tracheostomy (68.125%, n = 436). The most common complication was subcutaneous emphysema (10.625%, n = 68) followed by tube displacement (5.625%, n = 36). The complication rate was 21.25% and the mortality rate 4.375% (n = 28) with specific mortality rate 0.625% (n = 4). Tracheostomy is one of the commonest surgeries. Data was collected from this study on the various indications of tracheostomy, the epidemiological factors and various complications associated with tracheostomy. Such a data is useful to learn from the mistakes and carry forward the virtuosity.

Keywords: Complications; Indications; Magnitude.

Our Experience with Management of Foreign Bodies of Ear Nose and Throat During COVID Pandemic at Andaman Nicobar Islands

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Abstract

Background: COVID pandemic during 2020-21 had affected the management of foreign bodies in the ear, nose and throat, as aerosol spread of the virus created a risk to the treating ENT surgeon. Due to tremendous increase number of COVID positive patients affected the healthcare system and the specialists alike. Following the COVID guidelines to use personal protective equipment, face shield, goggles and N-95 masks during the simple procedures performed in OPD or the operation theatre made the procedure cumbersome to the surgeon. The number of patients with foreign bodies attending the Hospital had increased during the pandemic as other private hospitals were not taking up these patients.

Aim: To analyze the foreign bodies in the Ear, Nose and Throat encountered during the COVID pandemic of 2020-21 and to formulate a clinical guideline to prioritize the cases to avoid COVID spread.

Materials: A Prospective study with 330 patients who attended the Department of ENT, ANIIMS Hospital, Port Blair with foreign bodies in the Ear, Nose and Throat were included. It was an observational study following the STROBE Epidemiology checklist was used for strengthening the Reporting of Observational Studies. All the patients who attended the ENT Department with history of foreign body in the ear, nose, throat and trachea-bronchial tree with or without COVID-19 positivity were included. COVID protocol was adhered to in selection and treatment of the patients.

Results: 330 patients were included in the study, among them 177 (56.63%) male patients and 153 (46.36%) female patients. The male to female ratio was 1.15:1. The age distribution showed that children aged between 01 to 10 years constituted to 128 (38.78%). Patients with foreign bodies in the Ear were 131 (39.69%), foreign bodies in the nose were 87 (26.36%) and foreign bodies in the throat were 110 (33.33%). Total foreign bodies removed under General anesthesia were 64/330 (19.39%) patients in this study. Among these 31/110 (28.18%) patients had foreign bodies in the throat, 24/87 (25.28%) had in the nose and 09/131 (06.87%) had in the ears

Conclusions: The present study which analyzed all the foreign bodies in the Ear, Nose and Throat that were encountered during the COVID pandemic of 2020-21 and successful removal of foreign bodies was undertaken without any surgeon turning COVID positive as strict protocol was formulated and followed with international clinical guidelines to prioritize the cases to avoid COVID spread and at the same time give satisfactory treatment to the patients.

Keywords: Ear, Nose and Throat, Foreign Bodies, COVID, Aerosol, Virus and Endoscopy

A Prospective Study of the Hearing Loss in Global Developmental Delay Children

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Abstract

Background: Developmental disabilities are a group of related chronic disorders of early onset estimated to affect 5–10% of children. Global developmental delay is a subset of developmental disabilities defined as a significant delay in two or more of the following developmental domains: Gross/fine motor, speech/language, cognition, social/personal, and activities of daily living.

Aim of the Study: The aim of this study was to describe the clinical profile and audiological profile in children with global developmental delay presenting to the pediatric ENT unit.

Materials and Methods: The study sample size was a total of 121 children with global developmental delay. Children with complaints of global developmental delay underwent a detailed ENT examination including examination under microscope of ear which is the standard of care. Hearing loss was assessed by audiological tests such as behavioral observation audiometry (BOA), otoacoustic emission, brain stem evoked response audiometry (BERA), and tympanometry (Tymps). The degree of hearing loss was classified using the American Speech-Language-Hearing Association classification.

Observations and Results: Among 121 children with global developmental delay, there were 72 (59.5%) males. The mean age of the study group was 3.2 years. The youngest child in the study was 6 months old and the oldest child being 14 years old. 25 (20.6%) children participating in the study had syndromic association. Of 121 children, only 36 (29%) presented with speech delay and suspected hearing loss. BOA done in 242 ears showed 56 (23%) ears with normal hearing, 68 (28%) with hearing loss, and inconsistent report in 38 (15.5%) ears. In the 80 remaining ears (33%), test could not be done.

Conclusions: The mean age of referral was 3.2 years in global developmental delay children who were referred for the evaluation of speech delay. Among the 121 global developmental delay children included in the study, 36 (29%) had hearing loss with speech delay. Our study detected a higher incidence of undetected hearing loss of 144 ears (59.5%) in children with global developmental delay.

Key words: Behavioral observation audiometry, Brain stem evoked response audiometry, Global developmental delay, Hearing loss, Tympanometry

INTRODUCTION

Developmental disabilities are a group of related chronic disorders of early onset estimated to affect 5–10% of children.^[1-3] Global developmental delay is a subset of developmental disabilities defined as significant delay in

two or more of the following developmental domains: Gross/fine motor, speech/language, cognition, social/personal, and activities of daily living.^[4-6] Children with global developmental delay require complex, individualized therapy to maximize their long-term quality of life. One subset of children with special needs includes those with both developmental delays and deafness. One of the major causes of global developmental delay is cerebral palsy (CP). CP was first described in 1862 by an orthopedic surgeon named William James Little.^[7] CP is a condition caused by damage to the brain, usually occurring before, during, or shortly after birth. “Cerebral” refers to the brain and “palsy” refers to a disorder of movement or posture. CP is a central nervous system (CNS) disorder of movement,

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Hearing Impairment in children with history of kernicterus and crebral palsy

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Abstract

Introduction: Critical period of development of speech and language is early 3 yrs of life. Even a mild hearing impairment can interfere with speech and language development. Hearing impairment has the highest incidence rate for any pediatric disability, since several risk factors in infants with cerebral palsy (CP) are the same risk factors to develop hearing impairment. Thus, it should come as no surprise that hearing impairment occurs more frequently among children with cerebral palsy than in the general population. Recent studies have shown that up to 13% of children with cerebral palsy suffer from a hearing loss and important cause of auditory neuropathy.

Aim of the study: To assess and analyze the audiological profile in children with cerebral palsy

Materials and Methods: A prospective study was done on 67 children of 1 to 16 years of age of both genders who were diagnosed with cerebral palsy. Tympanometry, otoacoustic emission, and auditory brain stem response hearing tests were employed to categorize the hearing impairment.

Results: Hearing impairment was observed in right ear 67.2 % and left ear 64.2% in children with cerebral palsy. Profound sensorineural hearing loss in 25.4% in bilateral ear was observed. History of kernicterus was found in 17.9% children with cerebral palsy.

Conclusions: Prevalence of hearing impairment in children with cerebral palsy is alarming. This warrants early identification and diagnosis of hearing impairment. This early identification may facilitate better development of speech and language as well as positive outcomes. Therefore audiological assessment should be incorporated into the diagnostic and therapeutic plan of all children with cerebral palsy

Keywords: Hearing Loss, Cerebral palsy, BERA, Kernicterus

Introduction

Cerebral palsy was first described in 1862 by an orthopedic surgeon named William James Little.¹ Cerebral palsy is a condition caused by damage to the brain, usually occurring before, during or shortly after birth. 'Cerebral' refers to the brain and 'palsy' refers to a disorder of movement or posture. Cerebral palsy is a central nervous system (CNS) disorder of movement, coordination, and posture, reflecting a nonprogressive abnormality or insult to the immature brain.^{2,3} Cerebral palsy is neither progressive nor communicable. It is also not curable, although education, therapy and applied technology can help people with CP lead productive lives. Children with CP have an organic complication in the peripheral and central nervous systems.⁴ However of hearing impairment are amenable to the treatment and rehabilitation strategies if identified at an early age and effective intervention program can be initiated. Hearing impairment estimates as high as one third population of cerebral palsy, study done by Susan et al shows 4% to 13% hearing loss in children with CP.⁵ Thus, overall future and success of a child can be improved by reducing the complications of hidden disability of hearing impairment

The hearing rehabilitation in children with cerebral palsy was studied by Melo et al said that currently there is still a controversy in cochlear implant centers regarding the indication of Cochlear implantation in cerebral palsy children. Those in favour of implantation theorize that minimizing auditory sensory deprivation can improve language and comprehension, and consequently the quality of life after cochlear implantation in this children and recommended cochlear implantation.⁶

However, there is less no data is available in the developing country like Indian context, with regards to the degree, and type of hearing impairment in children with cerebral palsy. The study was done to find the presence of hearing impairment in children with cerebral palsy. Our aim is to increase the awareness of possible correctable audiological impairment that hinder development and learning in children with cerebral palsy and timely intervention can be taken.

Material and Methods

A total of 67 children in the age range of 6 month to 16 years diagnosed with CP were selected for the study. The subjects were referred to ENT OPD for hearing evaluation or visited as follow-up during

A RETROSPECTIVE STUDY OF THE HEARING LOSS IN MICROCEPHALY CHILDRENMeena Maruthi Ohal¹¹Assistant Professor, Department of ENT, Annapoorna Medical College and Hospital, Salem, Tamil Nadu.**ABSTRACT****BACKGROUND**

Microcephaly is defined as a head circumference more than two standard deviations below the mean for gender and age. Congenital microcephaly is present at birth, whereas postnatal microcephaly occurs later in life and associated with developmental delay in children. Genetic abnormalities, syndromes, metabolic disorders, teratogens, infections, prenatal, perinatal, and postnatal injuries can cause both congenital and postnatal microcephaly. In patients with microcephaly and global developmental delay, hearing loss may affect further development. We wanted to assess and analyse the audiological profile in children with microcephaly.

METHODS

A cross sectional retrospective and analytical study was conducted by studying the charts and medical records of 121 children with developmental delay for a period of six month with permission of ethical committee of the institution. The children included in this study were those who came to paediatric ENT OPD of Christian Medical College, Vellore. Out of 121 children studied, 44 children had microcephaly. Hospital records from medical records section were taken and history of consanguineous marriage, detailed paediatric birth history and developmental milestone records were noted. All children had undergone detailed ENT examination including microscopic examination of the ear. Audiological evaluation was done by Behavioural Observation Audiometry (BOA), Oto Acoustic Emission (OAE) and Brainstem Evoked Response Audiometry (BERA), Tympanometry (Tymps). They showed hearing loss which was analysed. Degree of hearing loss was classified using American Speech-Language Hearing Association ASHA classification.

RESULTS

Among 44 children with microcephaly, there were 27 (61.4%) males. The mean age of the study group was 3.1 ± 1.05 years. The age group below 6 yrs. in this cohort was 36 (81.8%). The youngest child in the study was 6 months old and oldest child being 10 years old. Behavioural observation Audiometry (BOA) results showed that out of 44 children, 30 (68.2%) with normal hearing and 14 (31.2%) had hearing loss. Consanguinity of marriage was seen in 7(15.9%). On examination of birth history records, these microcephaly children were born full term babies; 39 (88.6%) and 28 (63.6%) were appropriate to age. 21 (47.7%) children cried immediately at birth. Chi square test was applied, and the results show that microcephaly was not associated with hearing loss.

CONCLUSIONS

Among the 44 microcephaly children included in the study, 14 (31.2%) had hearing loss. Our study detected a higher incidence of undetected hearing loss among 14 (31.2%) children with microcephaly. It was concluded that children with microcephaly should be routinely screened for potential hearing loss. On statistical analysis no association of hearing loss with microcephaly was observed.

KEYWORDS

Hearing Loss, Microcephaly, BERA, Consanguinity

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BACKGROUND

Congenital microcephaly, also referred to as primary microcephaly due to its presence in utero or at birth, is a descriptive term for a structural defect in which a foetus or

infant's head (cranium) circumference is smaller than expected when compared to other foetuses or infants of the same gestational age, sex and ethnic background. Congenital microcephaly can be diagnosed either during postnatal or prenatal period and is usually defined by the measurement of occipital-frontal circumference (head circumference) that is more than 2 standard deviations (SDs) below the mean for age and sex or less than the 3rd percentile for age and sex.¹ Severe microcephaly is defined as head circumference more than 3 SDs below the mean for age and sex.² Congenital microcephaly may occur as an isolated structural birth defect or in combination with other birth defects. Physiologically, congenital microcephaly is a disorder of reduced brain size and volume resulting from

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A Clinical and Demographic Profile of Tonsillitis Patients during the COVID-19 Pandemic

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Conflict of interest: Nil

Abstract

Background: Tonsillitis is a common public health problem seen by otorhinolaryngology surgeons. It has socio-occupational and economic impact. Most of the tonsillitis is treated by antibiotic but some can lead to life threatening complication if not treated on time and not diagnosed the impending complication.

Aim and Objectives: The objective of this work was to study the epidemiological and complications profile of acute and chronic tonsillitis and their distribution, followed by final outcome of the treatment adopted in a tertiary care Hospital, Portblair, ENT Department.

Materials and Methods: This is a retrospective study over a 12-month period from September 2020 to Aug 2021 including 225 patients who presented with tonsillitis and/or their complications were analysed. Their demography, clinical findings, types of tonsillitis, month wise distribution of types of disease and final outcome after medical treatment was analyzed.

Results: Two hundred and twenty five (225) patients were studied. The mean $\pm$ SD of cases studied was 23.32 ± 12.98 years with minimum – maximum age range was 02 – 60 years. In this study there were 92/225 (40.9%) males and 133/225 (59.1%) females with a male to female ratio of 1:1.44. 76.88% of the patients showed a good outcome, 14.22% showed a moderate outcome, 07.55% showed an average outcome and 00.88% showed poor outcome. 19/ 225 (08.44%) of the patients who showed poor and average response were advised tonsillectomy after the COVID-19 pandemic in this study.

Conclusions: Chronic Tonsillitis was a common throat disorder observed during COVID-19 pandemic. Males were more commonly affected. The increased attendance of patient's throat complaints was high due to awareness and similarity of symptoms of tonsillitis and COVID-19 disease. Low socio economic groups were more affected. The common types of tonsillitis were parenchymatous type, follicular type. Complications due to acute infection frequently observed were peritonsillar abscess, neck abscess. Medical treatment with Amoxycillin and clavulanic acid combination was highly responsive with 76.88% responding well.

Keywords: Tonsillitis, Chronic Inflammatory Diseases, Abscess, Recurrence and Tonsillectomy.

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Introduction

Chronic Tonsillitis is defined as a long-standing inflammatory disease of the Tonsil

caused by viral, bacterial and fungal infections [1]. When such an inflammatory



OPEN ACCESS

Key Words

Selective serotonin reuptake inhibitors (SSRIs), ocular side effects, cataract prevalence

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The Impact of SSRIs: Evaluating Cataract Prevalence in Antidepressant Users Through a Cross-Sectional Study

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ABSTRACT

Selective serotonin reuptake inhibitors (SSRIs) have become a cornerstone in treating depressive disorders. While the systemic consequences are well-understood, less is known about potential ocular side effects, specifically in relation to cataract development. To assess the prevalence of cataracts in patients on SSRIs compared to a control group not on these medications. A cross-sectional study was designed involving 300 patients aged 40 and over. They were categorized into two groups: 150 SSRI users with at least 2 years of consistent usage and 150 controls not on SSRIs. All participants underwent a detailed ophthalmological examination to ascertain the presence and severity of cataracts. Of the SSRI users, 48% were found to have cataracts compared to 32% in the control group. The odds ratio indicated that SSRI users had a 1.9 times higher likelihood of developing cataracts than those not on the medication. This study suggests that there may be a link between long-term SSRI usage and an increased risk of developing cataracts. Given the therapeutic importance of SSRIs, it's crucial to balance potential benefits with ocular risks.



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Key Words

Ocular surface disease, anxiety, mood disorders, cross-sectional study

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Ocular Surface Disease and Its Association with Anxiety and Mood Disorders: A Cross-Sectional Study

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ABSTRACT

Ocular Surface Disease (OSD) encompasses a range of conditions affecting the cornea and tear film, often leading to discomfort and visual disturbances. Previous anecdotal evidence suggests an association between OSD and psychological disorders, but comprehensive studies on the matter are sparse. To investigate the correlation between Ocular Surface Disease and the prevalence of anxiety and mood disorders in a sample of 300 participants. A cross-sectional study was conducted with 300 participants, of which 150 were diagnosed with OSD and 150 were controls without OSD. Standardized questionnaires were used to evaluate the presence of anxiety and mood disorders. Demographics, clinical features of OSD and the prevalence of anxiety and mood disorders were compared between the two groups. Results: Among participants with OSD, the prevalence of anxiety and mood disorders was significantly higher than in the control group. The severity of OSD symptoms directly correlated with the severity of psychological symptoms. This study indicates a potential association between Ocular Surface Disease and increased prevalence of anxiety and mood disorders. Addressing the psychological aspects might be beneficial in the comprehensive management of patients with OSD. Further longitudinal studies are required to establish causality.

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Key Words

Alcohol dependence, alcohol use disorder identification test (AUDIT), pittsburgh sleep quality index (PSQI), sleep disturbances

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Sleep Disturbances in Patients With Alcohol Dependence Attending Psychiatry Outpatient Department at a Tertiary Care Hospital: A Cross-sectional Study

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Abstract

Alcohol consumption has become a topic of concern worldwide from a public health point of view. Moderate to severe dependence of alcohol has been linked to variety of sleep disturbances, which can have major consequences on the underlying alcohol dependence. It affects the overall health and social welfare of these patients. The knowledge of these sleep disturbances can be used to psycho educate these patients regarding this detrimental effect of excessive and chronic alcohol consumption so as to spread awareness in the community. An observational, cross-sectional study was carried out in the Psychiatry outpatient department of a tertiary care teaching hospital in an urban setting with a consecutive sample of 50 patients diagnosed with Alcohol Dependence. Data was collected using a semi-structured proforma, Alcohol Use Disorder Identification Test (AUDIT) and Pittsburgh Sleep Quality Index (PSQI). 74% of the participants in our study reported having poor quality of sleep according to the PSQI scale. Participants with a more severe alcohol dependence had poorer quality of sleep. A statistically significant association was found between sleep latency score on the PSQI scale and the total AUDIT score. Each of the 7 components of the PSQI were assessed. It was found that the highest mean score was found for Habitual Sleep Efficiency indicating that it was the most affected. Our study also showed that young age (<30 years), duration of alcohol intake, occupation (unskilled/semi-skilled) and sleep latency are the predictors of poor quality of sleep among the study participants.

Prevalence and Associated Factors of Depression and Anxiety Among Newly Diagnosed Retinopathy Patients: A Cross-Sectional Study

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Abstract:

Background: Retinopathy is a complication of chronic diabetes mellitus and other systemic diseases. This often impacts the patient's mental health, especially in newly diagnosed conditions. Depression and anxiety are commonly prevalent among these individuals due to the threat of loss of vision, disease burden, and reduced quality of life. We undertook this study to understand the prevalence and associated factors for developing psychological conditions.

Methods: This study included patients newly diagnosed with various retinopathies. The diagnosis of retinopathy was done using an ophthalmoscope. The validated [Hospital Anxiety and Depression Scale (HADS), and Generalized Anxiety Disorder 7-item (GAD-7) scale for anxiety] were used to assess symptoms of depression and anxiety. These are widely used and validated self-report measures. Other Relevant Factors: Questions related to social support, coping mechanisms, perceived impact of retinopathy on daily life, and access to healthcare services.

Results: The study included 100 participants (62 males, 38 females; mean age: males 62.55 ± 5.3 , females 61.25 ± 8.54 years). Retinopathy prevalence increased with age, with the 61–70 age group most affected. Socioeconomic analysis revealed higher prevalence in lower socioeconomic classes. Diabetic retinopathy (44%) was most common, followed by hypertensive retinopathy and age-related macular degeneration (AMD). Anxiety and depression levels, assessed via HADS and GAD-7 scales, showed moderate/severe anxiety in 33% of hypertensive retinopathy cases and 29% of diabetic retinopathy cases. Depression was moderate/severe in 14–17% of these groups. AMD cases exhibited milder anxiety and depression symptoms.

Conclusion: In conclusion, this study highlights a significant prevalence of anxiety and depression among patients with various retinopathies, particularly diabetic and hypertensive retinopathy. Diabetic retinopathy was the most common, followed by hypertensive retinopathy, with cases predominantly in older age groups and lower socioeconomic classes. Moderate to severe anxiety was observed in 29–33% of diabetic and hypertensive retinopathy patients, while 14–17% exhibited moderate to severe depression.

Keywords: Retinopathy, Anxiety, Depression, Diabetic Retinopathy, Hypertensive Retinopathy.

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Introduction

Retinopathy, a non-inflammatory disease of the retina, is one of the major causes of visual impairment and blindness worldwide [1]. The retina is a light-sensitive tissue situated at the back of the eye that passes light to the brain through electrical impulses. Injury to this delicate tissue impairs vision, from mere haziness and floaters to vision loss or even blindness. In addition to the physical well-being of patients, retinopathy also has a severe impact on psychological health and

Quality of Life. Diabetic retinopathy (DR) and age-related macular degeneration (AMD) are the most common conditions. Retinopathy is a diabetic complication, as chronic high blood sugar levels affect retinal blood vessels [2]. This results in leakage, obstruction, and neovascularization, with complications, such as macular edema, retinal hemorrhage, and vision loss. AMD, on the other hand, is a degenerative condition affecting the macula, the central part of the retina responsible for