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Study of hospital acquired infections in ICUs with special reference to the PICU in a new tertiary care health set up in North Eastern India

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North East India is the northeastern region of the country comprising eight states with 4500 km of international border with China, Myanmar, Bangladesh and Bhutan having population of >40 million with 220 ethnic groups. North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences (NEIGRIHMS), Shillong is the first post graduate institute of Govt. of India in the region and one of apex medical institutes in the country dedicated to the nation in 2010 which is catering tertiary care services to the patients of the entire North Eastern states. The study was planned to know the Hospital Acquired Infections (HAI) trend in the ICUs of this newly started institute hospital considering the global health impact of the emergence and spread of antimicrobial-resistant pathogens in hospitals. The aims were detection of the etiological agents associated with the various types of HAIs in the ICUs and understanding the antimicrobial resistance pattern of isolates from the ICUs in general and PICU in particular. The patients with suspected HAIs admitted in the ICUs of Anesthesiology (AICU), Pediatrics (PICU), Cardiology (ICCU) and Cardio Vascular & Thoracic Surgery (CTVS ICU) Departments of NEIGRIHMS for a period of one year were included. Clinical specimens- urine, tracheal aspirate, sputum, wound swabs, pus, discharges, exudates, blood, cerebrospinal fluid, pleural fluid, peritoneal fluid and pericardial fluid were collected and processed with due ethical clearance. Relevant microbiology laboratory analysis was made for identification of the pathogens including study of the antimicrobial susceptibility pattern employing standard protocols. A total of 276 patients [126 (AICU), 47 (ICCU), 101 (PICU), 2 (CTVS ICU)] were included in the study of which 167 (8%) developed HAIs with the occurrence of 14% in AICU, 8% in PICU and 4% in ICCU respectively. Respiratory tract infections (RTI) (43%) were highest followed by urinary tract infections (34%), blood stream infections & septicemia (11%) and wound infections (10%) found in general. Urinary tract infections (54%) and RTI (24%) were the major HAIs in the PICU. *Escherichia* coli was the commonest pathogen (26%) followed by *Enterococcus* species (16%), *Pseudomonas aeruginosa* (14%) and *S. aureus* (12%). The *Escherichia* coli isolated showed resistance to beta lactam (73%) and *cephalosporins* (68%); *Enterococcus* species to quinolones (62%), aminoglycosides (46%) and cephalosporins (38%) and *Pseudomonas aeruginosa* to cephalosporins (67%), beta lactam (50%) where S. *aureus* was resistant to penicillin (50%) and quinolones (40%) respectively. The study demonstrated that HAIs are found to be a major threat in practice of patient safety in hospitals. Holistic approach for awareness, effective surveillance, antimicrobial policy and strict infection control practices is the present day need to address this global health issue.

Biography

Anil Chandra Phukan has completed his MD (Medical Microbiology) from Dibrugarh University, Diploma in Medical Virology (DMV) from National Institute of Virology, Pune University, India and Diploma in STI & AIDS (DSA) from COTTISA, Bangkok, Thailand under WHO Fellowship. He worked as Biomedical Research Senior Scientist in Indian Council of Medical Research for a long time. He is presently working as Medical Superintendant and Head of Department of Microbiology at North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences (NEIGRIHMS), Shillong. He has been associated with patient care services, academics and researches with more than 20 national and international publications in reputed journals with involvement in many academic and research institutes of India.

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