

Isolation, Identification and Antibiotic Susceptibility Testing of Common Respiratory Pathogens Collected from Nasopharynx of Asymptomatic School Children in Dhaka City

Abstract

Infections caused by *Staphylococcus aureus*, *Streptococcus pneumoniae* and *Haemophilus influenzae* are major health concerns in children. Children are at a higher risk of contracting infections due to the systemic invasion of these pathogens from the nasopharynx. This study aims to investigate the prevalence and antibiotic susceptibility of these microorganisms collected from the nasopharynx of 163 children aged between 5 and <15 years, randomly selected from different schools in Dhaka City, Bangladesh. The microorganisms were isolated and identified using standard microbiological methods. The antibiotic resistance of the identified bacterial isolates was assessed by the disk diffusion method and VITEK[®] 2 system. It was found that 27% of the schoolchildren carried *S. aureus* and 24.5% carried *S. pneumoniae*. None of the study participants were found to be carrying *H. influenzae*. About 72.7% *S. aureus* isolates exhibited resistance to multiple antibiotics, with 100% resistance to cefixime, and higher resistance rates to ampicillin (95.5%) and penicillin (90.9%). Among the *S. aureus* isolates (n=40), 47.5% tested positive for methicillin-resistant *S. aureus*, with 100% resistance to both cefixime and ampicillin. *S. pneumoniae* isolates (87.5%) exhibited multidrug resistance, particularly elevated resistance levels to cotrimoxazole (87.7%), macrolides (85%), ciprofloxacin (75%), and cefixime (72.5%). The current research findings demonstrate a high prevalence of multidrug-resistant organisms. It is crucial to implement proactive measures to monitor and regulate antibiotic use. Additionally, the effective implementation of the national antimicrobial resistance surveillance program is essential to curtail the further spread of antibiotic resistance within the community.