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A probiotic against the three idiots in critical care: ET tube-biofilm-MDR organisms

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Biofilm formation in endotracheal tube is significant risk factor for ventilator associated pneumonia. Such biofilm producing bacteria were isolated by semi quantitative method from 3 different portions of inner lumen of endotracheal tubes after extubation from patients (n=73) in critical care unit. CPIS (Clinical Pulmonary Infection Score) of these patients was measured with other clinical history. Drug resistance by Kirby-Bauer disc diffusion testing and *in vitro* biofilm production by crystal violet assay was performed. Clinical data and microbiological results were correlated to determine the significance of the role of biofilm. Among the isolated bacteria, probable pathogenic Gram negative bacteria (GNB) were co-cultured with *Saccharomyces cerevisiae* (a probiotic) and subjected to crystal violet assay to see any reduction in biofilm production by them. Only 8 patients had CPIS more than 6. Microbial biofilm was isolated from 55 patients. Lower (innermost) part of ET tube had maximum yield. *Acinetobacter* species followed by *Pseudomonas* and *Klebsiella* had highest growth. Other than bacteria, *Candida* species were frequently isolated. Highest growth was seen in patients with intubation period of 4-7 days. Multi drug resistance was observed in most of the GNB. Only one case of MRSA was found. All the GNB were found *in vitro* to form heavy biofilm. A significant decrease in O.D. value was seen in crystal violet assay when GNB were co-cultured with probiotic alone which proves that *S. cerevisiae* have an antagonistic effect on GNB isolated from ET tube of patients from critical care unit.

Biography

Vikrant Negi is a PhD Scholar at Rajasthan University of Health Sciences. He has completed his Post-graduation in Medical Microbiology from Kasturba Medical College, Manipal University. He has published 11 papers in reputed journals. He has won Gold Medal in Bacteriology at MICROCON 2010 India, is nominated winner of Scientists Solution Innovative Student Project Fund Award 2011 and Winner of Quiz Competition in Parasitology at AIIMS Jodhpur, 2016. He has served as Demonstrator in Government Medical College, Srinagar Uttarakhand and as District Microbiologist at Integrated Diseases Surveillance Program, Jaisalmer, Rajasthan.

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