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Extended-spectrum β -lactamase producing Enterobacteriaceae (ESBL-PE)

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Introduction

Extended-spectrum β -lactamase producing Enterobacteriaceae (ESBL-PE) is one of the multi-drug resistant organisms causing global challenge. UCH data revealed that the proportion of ESBL-positive *Escherichia coli* and *Klebsiella* species increased from 25.2% & 13.8% (2010) to 29.7% & 15.7% (2011) respectively. These organisms vary between geographical regions, hospitals and change over time resulting in limited antibiotic choice, infection control burden, patient morbidity and mortality.

Objectives

1. To determine the prevalence of the intestinal carriage of ESBL-PE. 2. To investigate the risk factors associated with acquisition of ESBL-PE.

Methodology

A prospective study was conducted in ICU during 1/5 – 31/7/2012. Stool / rectal swabs were collected from all patients on admission to and / or discharge from ICU. The specimens were cultured on ChromID™ ESBL agar and processed according to standard laboratory protocol. A standardized surveillance template was used for data collection.

Result

A total of 211 patients were recruited, 186 cases were available for analysis. There were 110 (59.1%) male and 76 (40.9%) female; the mean age was 62.6 years old (ranged 21-91). Sixteen patients had ESBL-PE isolated from clinical samples collected from blood, peritoneum, urinary and respiratory tract. The overall prevalence rate of intestinal carriage of ESBL-PE was 97/186 (52.2%), 87 of them (46.8%) were positive at the time of admission to ICU. Among them, 64 (66%), 10 (10.3%) and 23 (23.7%) were categorized as community acquired, ICU acquired and indeterminate cases respectively. No significant risk factors were identified for ESBL-PE carriage. Patients with diabetes mellitus and a positive carriage were significantly associated with ESBL-PE related clinical infections (P value < 0.05). Conclusion The prevalence of ESBL-PE carriage on admission to ICU was high (46.8%), this limited the empirical

choice of antimicrobial therapy for patients with sepsis. There is no promising eradication protocol for such carriage. The infection control strategy of “search and kill” appeared very challenging. This highlighted the importance of the stringent application of “Standard Precautions” for the care of all patients. Extra efforts on the prudent use of antimicrobials in the community and agricultural industry are urgently required.