

POSTER PRESENTATION

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Trends in extended spectrum beta-lactamase (ESBL) producing Enterobacteriaceae and ESBL genes in a Dutch teaching hospital, measured in 5 yearly point prevalence surveys (2010-2014)

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From 3rd International Conference on Prevention and Infection Control (ICPIC 2015) Geneva, Switzerland. 16-19 June 2015

Introduction

For the execution of a good infection control policy we depend on information about the local endemic level of resistant microorganisms and resistance genes.

Objectives

This paper describes the trends in prevalence of ESBL producing Enterobacteriaceae (ESBL-E) and ESBL genes, measured in five consecutive yearly Point Prevalence Surveys (PPS), in a Dutch teaching hospital.

Methods

On the day of the survey all patient present in the hospital and day-care clinic (including patients on dialyses), were screened for rectal ESBL-E carriage. Rectal swabs (Eswab, Copan, Italy) were taken and cultured using an enrichment broth, containing cefotaxime (0.25 mg/L) and vancomycin (8 mg/L) (TSB-VC) and a selective agar plate (EbSA, Alpha-Omega, Netherlands). Both phenotypical and genotypical methods were used to detect the production of ESBL and presence of ESBL-genes. Isolates containing an identical ESBL gene, from patients that were admitted on the same ward, were selected for Amplified Fragment Length Polymorphism typing to identify clonal relatedness.

Results

Out of 2,695 patients who were screened and evaluable, 135 (5.0%) were positive for ESBL-E. *E. coli* was most frequently found (112/145), followed by *K. pneumoniae* (9/145), and

E. cloacae (7/145). The ESBL-E prevalence was stable over the years. In all PPSs CTX-M ESBLs were the most prevalent ESBL type. Over the years, a decrease in CTX-M-1-1 like ESBL genes was observed, starting with a proportion of 44% in 2010, 34% in 2011, 22% in 2012, 24% in 2013 to 25% in 2014 ($p=0.026$). Overall 5.2% of all ESBL-E were acquired by nosocomial transmission based on epidemiological linkage and molecular typing of the strains.

Conclusion

During this 5-year period the prevalence of rectal ESBL-E carriage was stable and only a minority was caused by nosocomial transmission. A relative decrease of CTX-M-1-1 like ESBL genes was observed. As this is the most prevalent ESBL gene in poultry, this decrease might be related to the strong (>60%) decrease in the use of antibiotics in poultry in our country in the same period.

Disclosure of interest

None declared.

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Published: 16 June 2015

doi:10.1186/2047-2994-4-S1-P123

Cite this article as: Willemsen et al.: Trends in extended spectrum beta-lactamase (ESBL) producing Enterobacteriaceae and ESBL genes in a Dutch teaching hospital, measured in 5 yearly point prevalence surveys (2010-2014). *Antimicrobial Resistance and Infection Control* 2015 **4** (Suppl 1):P123.

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