

Short communication

Carbapenem Resistance; Surveillance Data of 2013 - 2017

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Abstract

The aim of the study was to investigate the status of intestinal colonization with CRE in patients admitted to Istanbul Medipol University Hospital. CRE prevalence was found in 4.1% of specimens collected between January 2013 and August 2017. The results indicate that there was a peak in 2016 with an isolation rate of 6.9% that is thought to be associated with the increasing amount of foreign patients admitted to our hospital.

Keywords: *Enterobacteriaceae*, carbapenem resistance, intestinal colonization

Резюме

Целта на изследването е да се установи статусът на колонизация на червата с карбапенем-резистентни бактерии от род *Enterobacteriaceae* (CRE) при пациенти, приети в университетската болница "Медикол" в Истанбул. Значително присъствие на CRE е установено при 4.1% от пробите, събрани между януари 2013 г. и август 2017 г. Резултатите показват, че през 2016 г. се проявява пик със степен на изолация 6.9%, която вероятно е свързана с нарастващото количество чуждестранни пациенти в болницата.

Introduction

Turkey is the country where people take the highest levels of antibiotics in Europe according to the data from the European Centre for Disease Prevention and OECD Health Statistics (OECD, 2016). The misuse/overuse of antibiotics is a major global concern in terms of being main drivers of resistance. Carbapenems are potential treatment options for infections caused by otherwise drug-resistant organisms. Carbapenem resistance thus leaves patients with very few treatment options (Doi *et al.*, 2015). The incidence of carbapenem-resistant *Enterobacteriaceae* (CRE) infections has been increasing throughout the world. Intestinal colonization with CRE has been an increasing concern in healthcare settings (Albiger *et al.*, 2015).

Materials and Methods

A retrospective surveillance study was conducted at Istanbul Medipol University Hospital be-

tween January 2013 and August 2017. Data from a total of 9139 rectal swab specimen were evaluated. All specimens were inoculated using ChromAgar Orientation Media (BD™ CHROMagar™ Orientation Medium, Beckton Dickenson, USA). After 24 hours, suspicious colonies were identified by conventional methods. Antimicrobial susceptibility testing was performed on all *Enterobacteriaceae* strains with Kirby-Bauer disc diffusion method. Evaluation was based on CLSI (M100 S-24, M100 S-26) criteria. Carbapenem intermediate and resistant strains were retested using the VITEK 2 system (bioMérieux, France). Evaluation was based on CLSI (M100 S-24, M100 S-26) criteria.

Results and Discussion

CRE was isolated from 377 (4.1%) of 9139 specimens. The prevalence of CRE was 2.7% (38/1408) in 2013 and reached the highest level in 2016 with 6.9% (143/2064). The trends in CRE isolation over the years are given in Fig. 1.

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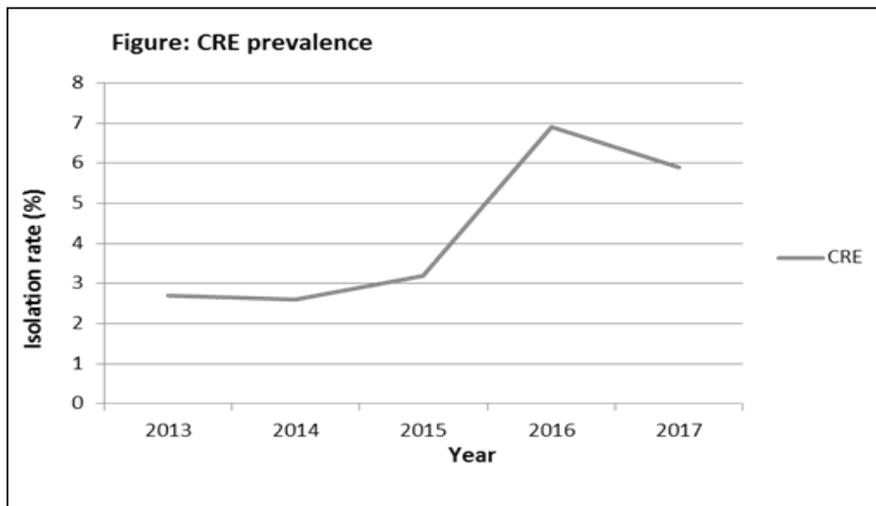


Fig. 1. CRE prevalence

Conclusions

Screening of rectal swab specimens for CRE carriage is appropriate to detect endemic situations besides playing an important role to take prevention strategies against dissemination of resistant bacteria. We found the main reason for the peak in CRE prevalence in 2016 and 2017 to be an increasing amount of foreign patients receiving care at our hospital. Most of these patients originated from the Middle Eastern countries and had war injuries. The increasing amount of CRE in Turkish patients in the same period is thought to be due to incorporation and spread of resistant strains in the Turkish population. Implementation of CRE surveillance programs on hospital inpatients and restrictive antibiotic use remains the most important tools for limiting CRE increase.

References

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