27th ECCMID Vienna, Austria 22 – 25 April 2017

The congress of ESCMID

Session: OS063 Changing face of Gram-negative resistance epidemiology

Category: 8d. Nosocomial infection surveillance & epidemiology

23 April 2017, 11:42 - 11:52
OS0315

Carbapenem resistance found in community patients admitted to the emergency department: known risk factors and unknown reasons for colonization

Matias Salomão*[1], Icaro Boszczowski[2], Thais Guimaraes[3], Daniel Fernandes Duailibi[4], Leila Suemi Harifa Letaif[4], Amanda Cardoso Montal[4], Flávia Rossi[5], Ana Paula Cury[4], Alberto Duarte[4], Anna Sara Levin[6]

[1]*Hospital Das Clinicas Da Faculdade de Medicina Da Universidade de Sao Paulo; Infectious Diseases; Infectious Diseases Department*

[2]*Hospital Alemão Oswaldo Cruz and Hospital Das Clínicas Da Faculdade de Medicina Da Universidade de São Paulo; Infection Control Department*

[3]*Hospital Das Clínicas Da Faculdade de Medicina Da Universidade de São Paulo; Infection Control Department*

[4]*Hospital Das Clinicas Da Faculdade de Medicina Da Universidade de Sao Paulo*

[5]*Hospital Das Clínicas; Divisão de Laboratório Central Serviço de Microbiologia Clínica*

[6]*Hospital Das Clinicas Da Faculdade de Medicina Da Universidade de São Paulo; Infectious Diseases*

Background:

Carbapenemases are a concern since the first description of *Klebsiella pneumonia* carbapenemase (KPC) in 2001 in North Carolina. Since then, they have been reported all over the world and associated to higher mortality rates.

Intestinal colonization with Carbapenem Resistant *Enterobacteriaceae* (CRE) acts as a human reservoir and plays a role in exchanging resistance mechanisms leading to dissemination of these pathogens.

In this study, we investigated the prevalence of patients harboring CRE at hospital admission and analyzed risk factors associated to CRE colonization as well as the transmission rate within the emergency department (ED).

Material/methods:

We conducted a cross sectional study during the period from May 31st to July 7th, 2016. All patients consecutively admitted to the ED, were prospectively included in the study. Two swabs were obtained, one sent for culture and the other to molecular test, a real-time polymerase chain-reaction for KPC, NDM, VIM, IMP-1, OXA-48, OXA-181 and OXA-232 (Cepheid® Xpert® Carba-R). Information regarding possible risk factors for CRE colonization was collected at admission. A proportion of patients hospitalized at the ED for more than 7 days was screened again for CRE colonization with rectal culture and RT-PCR.

Results:

At admission, 45 (6,7%) patients were colonized by CRE based on at least one laboratory method, culture was positive for 37 (5,5%) patients, all *Klebsiella pneumoniae*, and RT-PCR was positive for 35 (5,2%), all KPC. The transmission rate, identified during the swab obtained after one week of admission, was 18,5%.

Patients cared at a healthcare facility in the last year, hepatopathy or previous use of antibiotics in the last month were independent risk factors for colonization by CRE at admission in the ED; OR 6.72 (95% CI 2.59-17.42 *p* 0.0001); OR 3.62 (95% CI 1.42-9,24 *p* 0.007); and OR 4.72 (95% CI 2.08-10.67 p 0.0002); respectively.

Six community patients with no previous hospitalization in the last year were colonized at admission. Two patients with urinary tract infection; one patient with systemic lupus and febrile neutropenia; one patient with cholangitis; one patient with acute aortic aneurism; and one patient admitted due to a polytrauma.

Conclusions:

We considered to have a high prevalence of CRE at admission in the ED. Besides known risk factors previously identified by other authors we were surprised by the high proportion of colonized patients with no previous hospitalization in the last year. As a very crowded department, probably transmission is facilitated within this unit leading to the high transmission rate observed. Dynamics of transmission of CRE within community individuals need further investigation.