عنوان مقاله:

High frequency of carbapenem-resistant Enterobacteriaceae fecal carriage among ICU hospitalized patients from Southern Iran

محل انتشار:

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خلاصه مقاله:

Objective(s): The worldwide emergence of carbapenem-resistant Enterobacteriaceae (CRE) has become a major therapeutic concern to medical institutions. To date, no study has determined the frequency and risk factors of inpatients with CRE fecal carriage in Southern Iran. We studied the features of carbapenemase-producing Enterobacteriaceae (CPE) collected from the central ICU of a university hospital.Materials and Methods: Totally, ۱۷۳ samples, including ۱۲۴ stool samples from ۴۶ ICU inpatients on admission and different follow-ups, ۹ ICU staff, and ۴۰ environmental samples were included. CRE was identified using microbiological methods. Antimicrobial susceptibility was investigated by using the disk diffusion method and E-test. Carbapenemase producers were detected using the mCIM method. Seven carbapenemase genes were characterized. The genetic relationship among ۲۰ CPE was elucidated by PFGE. Results: The overall fecal carriage rate was ۲۸.۲%, while CRE acquisition was ۶.۱%. CRE were classified as Klebsiella pneumoniae (۷۱.۴%), Escherichia coli (۲۳.۸%), and Enterobacter aerogenes (۴.۸%). From ۲۱ CRE, ۲۰ (۹۵.۲%) produced carbapenemases, of which ۱۰, ۱۵, ۱۰, ۲۵, ۵, and ۶۵% were blaKPC, blaSME, blaIMP, blaVIM, blaNDM and blaOXA-۴۸-positive, respectively. Out of ۲۰ CPE, ۱۴ different PFGE patterns were observed, categorized into six clusters, suggestive of non-clonal spread. No difference between the examined risk factors with CRE carriage was shown. Conclusion: The data indicate a high CRE fecal carriage rate among inpatients. Our findings implicate the widespread of OXA-۴۸ carbapenemase together with heterogeneity among CRE with great concern for dissemination and therapeutic threat. Early diagnosis and monitoring of CRE among inpatients are urgent.

کلمات کلیدی:

Antibiotic resistance, Carbapenemase, Enterobacteriaceae, Fecal carrier, PFGE