Characterization of Klebsiella pneumoniae strains producing extended spectrum beta-lactamases and AMPC type beta-lactamases isolated from hospitalized patients in Kerman, Iran.

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Source
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Abstract
Klebsiella pneumoniae is a major cause of nosocomial infections. Emergence of antibacterial resistance and production of beta-lactamases are responsible for the frequently observed empirical therapy failures. The aim of this study was to determine the presence and the prevalence of extended spectrum beta-lactamases (ESBLs) and AmpC beta-lactamases in clinical isolates of K. pneumoniae in Kerman, Iran. Resistance to different antibiotics was determined using standard disk diffusion method. The beta-lactamases phenotypes were determined by combined disk method. Polymerase chain reaction (PCR) was used to determine blaCTX-M and blaCMY genes in the ESBLs and AmpC positive isolates. Out of the ٥٧ K. pneumoniae isolates, ١٣ (٣.١٤%) produced ESBLs, ١١ (١٨.٥%) produced AmpC beta-lactamases and ١ (١.٣%) was resistant to imipenem, probably by the production of a metallo beta lactamase in the phenotypic assay. Simultaneous production of ESBLs and AmpC beta-lactamases as well as the concomitant presence of blaCTX-M and blacMY genes was detected in one isolate. Prevalence of blaCTX-M and blacMY among isolates were ٣.٠% and ٣.٨%, respectively. Beta-lactam therapy can fail when beta-lactamase-hyper-producing organisms appear in an infection. The occurrence of isolates co-expressing many types of beta-lactamases can cause serious problems, regarding the treatment of infections caused by these pathogens.

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