

TITLE: DIVERSITY OF VIRULENCE GENES IN KPC-PRODUCING *Klebsiella pneumoniae* ISOLATED IN A HOSPITAL TERTIARY

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ABSTRACT:

Klebsiella pneumoniae is one of the most important opportunistic pathogens causing serious infections in hospitalized patients, such as pneumonia, urinary tract infections, sepsis, meningitis, wound infections and pyogenic abscesses of the liver. In the last decades, acquisition of resistance to several antimicrobials made these infections difficult to treat, resulting in high rates of morbidity and mortality. The pathogenicity of *K. pneumoniae* is determined by a variety of virulence factors. Among them, the role of genes that can encode the capsule (*magA*, *k2A*, *wcaG*), hypermucoviscosity (*magA*, *rpmA*), fimbrial adhesins (*fimH*, *kpn*), cell wall lipopolysaccharides (*wabG*, *uge*, *ycfM*), iron acquisition system (*entB*) and other virulence factors (*allS*, *hly*, *cnf-1*) have been discussed. In this study, 91 strains of KPC-producing *K. pneumoniae* isolated in 2015 and 2016 from patients with urinary tract infections (UTI) admitted to a tertiary hospital located in São José do Rio Preto – SP, Brasil, were evaluated to determine the diversity of virulence genes. These bacteria were identified and evaluated for the antimicrobial susceptibility profile by the Vitek®2 Compact System (Biomerieux, France). Molecular typing was performed by PFGE (Pulsed Field Gel Electrophoresis), and the BioNumerics software was used for dendrogram construction and determination of the similarity among strains. Specific primers were used to detect the virulence genes *magA*, *k2A*, *wcaG*, *fimH*, *kpn*, *wabG*, *uge*, *ycfM*, *iutA*, *iroN*, *entB*, *allS*, *hly*, *cnf-1* was effected by PCR. The results showed the presence of *ycfM* (n = 91), *entB* (n = 90), *wabG* (n = 90), *fimH* (n = 87), *kpn* (n = 84), *uge* (n = 66) and *all* (n = 1). Molecular typing showed a wide diversity of PFGE patterns. These preliminary results show that several clones of KPC-producing *K. pneumoniae* are associated with UTI in the studied institution, and also that many virulence factors perform a role on the colonization and maintenance of these infections.

Keywords: Virulence, *Klebsiella pneumoniae*, KPC, Urinary tract infections

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