TITLE: EVALUATION OF THE PREVALENCE OF VIRULENCE GENES IN *Morganella morganii* HOSPITAL ISOLATES FROM A HOSPITAL IN LONDRINA-PR, BRAZIL.

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ABSTRACT:

The ability to adapt to the environment is essential for the maintenance of bacterial species. Most of these adaptations are due to the presence of virulence genes, which help and enable its colonization and transmission between hosts. The enterobacterium *Morganella morganii*, despite being present in the normal intestinal microbiota, has the ability to cause a wide range of pathologies and, as it is an opportunistic pathogen, several risk factors may be involved in infection by *M. morganii*, such as for example, hospitalization and post-surgical procedures. Thus, the present study aims to verify the presence and prevalence of virulence genes in *M. morganii* isolates from a hospital in Londrina/PR, in a period from 2015 to 2019. For this, 68 hospital isolates from different sources such as urinary tract infections (UTI), eye swab, bone fragments, bronchial aspirate, blood, wounds and tracheal secretion were used. To verify the presence of virulence genes, the polymerase chain reaction (PCR) was performed for the genes *hlyA*, *zapA, invA, tibA, mrpA, iutA, shlA, fimH* and *ireA*. The results showed that of the 68 isolates, 4 (5.88%) presented the *tibA* gene, 6 (8.82%) for *invA*, 11 (16.17%) for *hlyA*, 21 (30.88%) for *shlA*, 63 (92.64%) for *mrpA*, 64 (94.11%) for *ireA*, and 65 (95.58%) for the *zapA, iutA* and *fimH* genes. The most prevalent virulence genes in the studied isolates were, respectively, *zapA*, a metalloprotease capable of degrading immunoglobulins, the siderophore *iutA*, helping the acquisition of iron for its survival, and the *fimH* fimbriae, highly involved with the ability to attach to surfaces, formation of biofilms and evasion of the host's immune system. The least prevalent genes among the *M. morganii* isolates studied were the *tibA* and *invA* invasins. It is therefore concluded that the presence of virulence genes favors host colonization. Therefore, the presence of large amounts of *M. morganii* virulence factors involved in host colonization can be highly dangerous and should not be neglected, especially in a hospital environment.

KEYWORDS: Infections, *Morganella morganii*, pathogenicity, UTI, virulence

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