Infection by Raoultella ornithinolytica: pathogenesis and clinical aspects.

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Abstract
The Raoultella ornithinolytica is a rare histamine producing bacteria in fish, leading to food poisoning after consumption. There are other pathogenic mechanisms disclosed in the literature. These lead to different clinical manifestations in humans such as sweating, diarrhea, vomiting, urinary tract infection and neurological involvements. Thus, there is an importance in obtaining the knowledge of infection caused by R. ornithinolytica, by health professionals. The aim of this study was to conduct a literature review regarding the etiology and pathogenesis of Raoultella ornithinolytica, and clinical manifestations caused as a result of their infection.

Introduction
The Raoultella ornithinolytica is encapsulated bacteria belonging to the Enterobacteriaceae family, classified as non-mobile aerobic gram-negative bacillus found in the aquatic environment. Moreover, it has the ability to maintain a temperature of 4 °C. The R. ornithinolytica has an exhaust system in addition to the pathogenesis mechanisms, the BLA gene. Although there is a good response to treatment with broad-spectrum antibiotics such as Penicillin and Ciprofloxacin, it was shown that this gene is related to a resistance tool known as beta-lactamases, with fatal outcome in these cases.

Although few reports of human infection, Raoultella ornithinolytica is known for its conversion capacity of histidine in histamine in fish, causing poisoning after his consume. It’s also associated with infection by invasive procedures such as the implantation of orthopedic devices, intravenous catheters or intravascular prostheses. Being found in specific cases of food or hospital infection this disease is considered rare.

It is a underestimated bacteria due to its reduced description in the literature, resulting in great ignorance on part of health professionals. It was first described a case of sepsis in immunocompetent individual caused by R. ornithinolytica. That is, the lack of knowledge can worsen the health status of a patient, causing him to death, in addition to increasing the risk of contamination in hospital equipment.

Material and Methods
This study consists of a review of specialized bibliographic literature. The papers were selected through search in PubMed and Medline database.
**Discussion and Conclusion**

The pathogenesis of Raoultella ornithinolytica, a gram-negative aerobic bacillus, is directly linked to the conversion mechanisms of histidine to histamine. The action of histamine occurs through the connection between epithelial, cardiovascular, respiratory, gastrointestinal and immunologic cell receptors. Histamine has psychoactive and vasoactive properties of very toxic and pharmacological characteristics, which presents a brief period of incubation and duration and can be evidenced by skin hyperemia such as in the diabetic foot.1

When compared with other bacteria of the family Enterobacteriaceae, Raoultella ornithinolytica has similar capacity to adhere to human tissues. That explains its action in places like the gastrointestinal tract, for example.

Raoultella ornithinolytica also has the ability to form biofilms which are communities of bacteria enclosed by elements. Among these elements are the carbohydrates that are synthetized by the own bacteria. Biofilm protects the population of bacteria against various types of attacks that it may suffer, such as the lack of supplies, use of bactericides, and other attacks. Naturally, biofilm provides an ability of resistance in inanimate environments for Raoultella ornithinolytica.6

There is an imminent need for studies and researches that address infections by Raoultella ornithinolytica in human beings. Unfortunately, this is an underestimated issue since the bacterium is difficult to identify from the use of phenotypic methods. This bacterium represents a serious risk to health and should not be neglected.

**References**


