EMERGING ROLE OF RAOULTELLA ORNITHINOLYTICA IN HUMAN INFECTIONS, MARSEILLE, FRANCE.

Piseth Seng*, Boushah Mohamed Boushah, Frédérique Gouriet, Fanny Romain, Nicolas Bruder, Claude Martin, Franck Paganelli, Emmanuelle Bernit, Yves Patrice Le Trouet, Pascal Thomas, Laurent Papazian, Didier Raoult and Andreas Stein

Service des Maladies Infectieuses, Hôpital de la Conception, URMITE, CNRS UMR 6236, Faculté de Médecine, 27 Bd Jean Moulin, 13385 Marseille Cedex 05, France

BACKGROUND

Raoultella ornithinolytica (formerly Klebsiella ornithinolytica) is known to inhabit aquatic environments and has been reported to survive commensally in human saliva. However, its significance as a clinical pathogen remains disregarded.

MATERIALS AND METHODS

We performed a review of 112 cases of R. ornithinolytica that were encountered in our centers from 2001 to 2013. From 2002 January to 2009 August, R. ornithinolytica isolate were identified with routine phenotypic i.e. semi-automated Gram staining (Aerospray Wiescer; Eltech) and Vitek 2 system (BioMérieux), with 330 microorganism strains as references. Correct identification of R. ornithinolytica was done when the T index was > 0.25. All of R. ornithinolytica isolates were identified with certainty using molecular identification using 16S rRNA. From 2009 September to 2013 December, R. ornithinolytica isolate were exclusively identified with MALDI-TOF MS. We have also reviewed the 23 cases in the literature.

RESULTS

During the study period, 225 isolates were identified i.e. 121 isolates with conventional phenotypic identification and molecular identification and 104 isolates with MALDI-TOF MS. Among the 187 R. ornithinolytica isolates identified with clinical information, 71 isolates were considered as colonized and 116 isolates were pathogen. (Table 1)

We have identified a total of 112 cases of R. ornithinolytica infections. Urinary tract infection, gastrointestinal infections, wounds and skin infections, and bacteremia were observed in 36%, 14%, 13% and 5% of cases, respectively. Associated infections that have never been reported, such as respiratory infections i.e. pneumonia and pleural effusion, were observed in 24% of cases. Additional diseases reported for the first time in this study include bone and joint infections, meningitis, cerebral abscess, mediastinitis, pericarditis, conjunctivitis and otitis. (Table 2)

Resistance to ceftriaxone, quinolone and ciprofloxacin was observed in 4%, 5% and 9% of cases, respectively. 92% of cases were discharged, and 8% of cases were died i.e. 6 cases for septic shock and 3 cases for cancer. The number of R. ornithinolytica isolate identification has increased from 16 isolates to 24 isolates yearly identified after arriving of MALDI-TOF MS in our laboratory, which is proportional to increasing of global number of bacterial identification in our laboratory. Nevertheless, the identification of R. ornithinolytica isolate become easy without the confirmation by molecular procedure. (Fig. 1)

DISCUSSION & CONCLUSION

We reported 112 cases R. ornithinolytica human infections that were managed in our centers over the last 12 years. To our knowledge, 23 cases of R. ornithinolytica infection have been reported in the literature.

Previously described comorbidities and risk factors reported in the literature such as solid cancer, post-urethra trauma and post invasive procedures have been observed in our study. Moreover, we found that one third of our patients have diabetes mellitus and immunodeficiency. Among invasive procedures, the number of infection cases involving urinary catheters was high (34 cases), and new infection cases involving mechanical ventilation and/or port catheters have been observed in our study. The relationship of R. ornithinolytica infection with invasive procedures has not been frequently mentioned in the literature.

Table 1. Distribution of the sources of clinical samples for R. ornithinolytica isolates identified in our laboratory during the 12-year study period.

Table 2. Clinical relevance of the 112 R. ornithinolytica infection cases in our study.

REFERENCES


*Corresponding author: Piseth Seng, E-mail: sengpiseth@yahoo.fr