Epidemiology of *Acinetobacter calcoaceticus – Acinetobacter baumannii* (ACB) complex species associated with bacteremia in Angers hospital, France, between 2010 and 2014

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INTRODUCTION

In the *Acinetobacter* genus the species *A. baumannii* (*Ab*), *A. pittii* (*Ap*) and *A. nosocomialis* (*An*) are the most frequently isolated in clinical samples. However, they are hardly distinguishable by conventional phenotypic methods therefore they have been classified in the ACB complex.

To overcome these shortcomings, the laboratory of bacteriology of the University Hospital of Angers, France, has recently implemented the RUO (Research Use Only) database of the MALDI-TOF mass spectrometer VITEK MS (bioMérieux) to identify Ab, Ap and An at a species level[1]. The aim of the present study was to analyze the prevalence of these species within ACB isolated in blood cultures and catheters in the laboratory between 2010 and 2014.

METHODS

All isolates identified as ACB and isolated between 2010 and 2014 from blood cultures and catheters were included in this study.

These isolates were initially identified by VITEK2 (2010-2012) or by MALDI-TOF mass spectrometer VITEK MS with the In Vitro Diagnosis system (2012-2014).

All those isolates were identified at a species level by MALDI-TOF RUO system, with the database « *Acinetobacter* » optimized in the laboratory.

RESULTS

A total of 177 ACB were isolated from blood cultures and catheters, corresponding to 106 patients.

Among these patients, there were 42 women and 64 men, aged from 4 to 94 years old (average age : 66 years old, median age : 68 years old).

61 patients (57,5%) had positive blood cultures, 32 (30,2%) had positive catheters and 13 (12,3%) had both positive blood cultures and catheters.

Ap was predominant in patients with positive blood cultures (73,8%) while *Ab* was isolated in only 26,2% of them. *An* was isolated in 2 patients. Concerning patients who had both positive blood cultures and catheters, *Ap* and *Ab* were present in equal proportions.
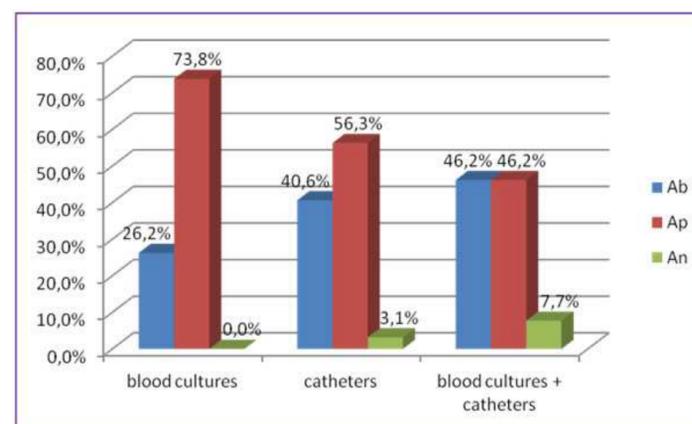
16 patients (15,1%) also had ACB complex species isolated in samples from other anatomical sites : 5 ACB were isolated in brochoalveolar lavages, 3 in urine, 4 in rectal swabs, 1 in an abscess, 1 in a wound and 2 in an implantable chamber.

For most of them, the results of the species level identification were identical to those in blood cultures and catheters. Only 2 strains remained unidentified at a species level.

It is noteworthy that 17 of the 106 patients were hospitalized in medical or surgical intensive care units. In these patients, *Ab* was predominant (76,5%).
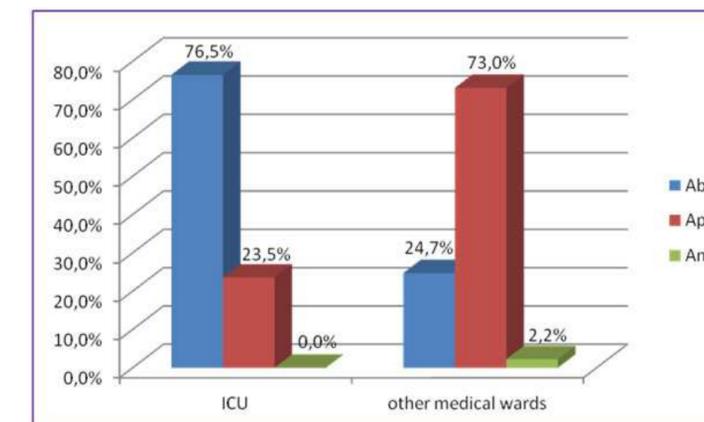

Figure 1 : Distribution of patients with positive blood cultures and/or catheters

Figure 2 : Distribution of ACB isolates in blood cultures and catheters within ICU and other medical wards patients

CONCLUSION

In this study, a high prevalence of *Ap* was recorded in patients with bacteremia, especially in those who had positive blood cultures only. These results are contradictory with those of previous studies that identified *Ab* as the most frequent *Acinetobacter* species isolated during bacteremia[2].

In our study, we showed that *Ab* was only predominant in patients hospitalized in intensive care units. Since *Ab* seemed to be associated with bacteremia of higher gravity, as reported in literature, it is important to identify at a species level the bacteria belonging to the ACB complex.

REFERENCES

[1] Pailhoriès *et al.*, Diagn Microbiol Infect Dis 2015
[2] Fitzpatrick *et al*, J Infect 2015