

# Epidemiological features of XDR and PDR *Acinetobacter baumannii* bacteraemias from Greek ICUs: preliminary results from a multicenter registry

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## Introduction:

Bloodstream infections are a significant cause of morbidity and mortality in the intensive care unit (ICU) setting, particularly because of the increasing prevalence of Multi-Drug Resistant (MDR) pathogens. Infections caused by *Acinetobacter baumannii* have become a real therapeutic challenge, because of the paucity of antibiotics active against this pathogen.

## Objectives:

The aim of this study was to describe epidemiologic trends of ICU-acquired bloodstream infections (BSIs) by *Acinetobacter baumannii* (AB), in a geographic area with established high rates of antimicrobial resistance.

## Methods:

In a prospective observational study, first episodes of BSI were recorded in a registry, with the participation of 12 Greek ICUs. Bacteraemias with isolation of a coagulase-negative *Staphylococcus* were excluded. The observation period was the first half of 2012 and 2013. All treatment decisions were made by the treating physicians, without interference by the study investigators. Demographics, comorbidities, microbiology and treatment data were captured in an electronic database. Statistical analysis was performed with SPSS18; p values <0.05 were considered as significant. Student's t-test,  $\chi^2$  and Fischer's exact, and non-parametric tests were used, according to the variable distribution patterns.

## Results:

A total of 64 patients (71.9% male) with BSIs by AB were analyzed, 91.9% of them acquired in the ICU. Median (interquartile range) age was 65 years (53- 72), APACHE II, SOFA and SAPS scores were 19 (14-26), 8 (6-11) and 45 (38-57) respectively; prior use of antibiotics 13 days (7-24). Reason of ICU admission was surgical (39.7%, 88% of them or emergency), trauma (9.5%) and medical (50.8%). BSIs were classified as primary (38.7%), secondary (33.9%, most frequent source respiratory) or catheter related (CRBSI, 27.4%) and beard a crude ICU mortality of 25%. Attributable mortality was estimated at 9.4%. All but one isolates were extensively drug resistant (XDR), whereas colistin resistance (and pan-drug-resistance/PDR) was detected in 11.11%. In 28% AB was a copathogen (Figure 1), more frequently with a Gram positive coccus (16.1%, mostly *Staphylococcus* spp or *Enterococcus* spp) or another Gram-negative (8.1% mostly *Klebsiella pneumoniae*) without significant difference in survival compared to single AB BSI; CRBSIs with multiple pathogens were less frequent (p 0.036) compared to primary and secondary BSIs. All patients received combinations of colistin with tigecycline and/or a carbapenem, and/or an aminoglycoside as part of the definite antimicrobial regimen. Non-survival was associated with the number of comorbidities (p 0.005), colistin-resistance (p 0.003), age (p 0.003), severity of sepsis during the BSI episode (p 0.012) and higher severity scores SAPSII, SOFA and APACHEII (p 0.002, 0.012 and <0.001 respectively).

## Conclusion:

In a cohort of Greek ICU patients, bloodstream infections caused by XDR and PDR *Acinetobacter baumannii* strains were associated a crude mortality with of 25%. Factors found to be associated with crude mortality were the severity of illness plus colistin-resistance status, underlying the imperative need of new therapeutic approaches against these pathogens. Interestingly, in almost 30% of cases in this cohort, AB was part of polymicrobial, non-Catheter-Related BSIs.

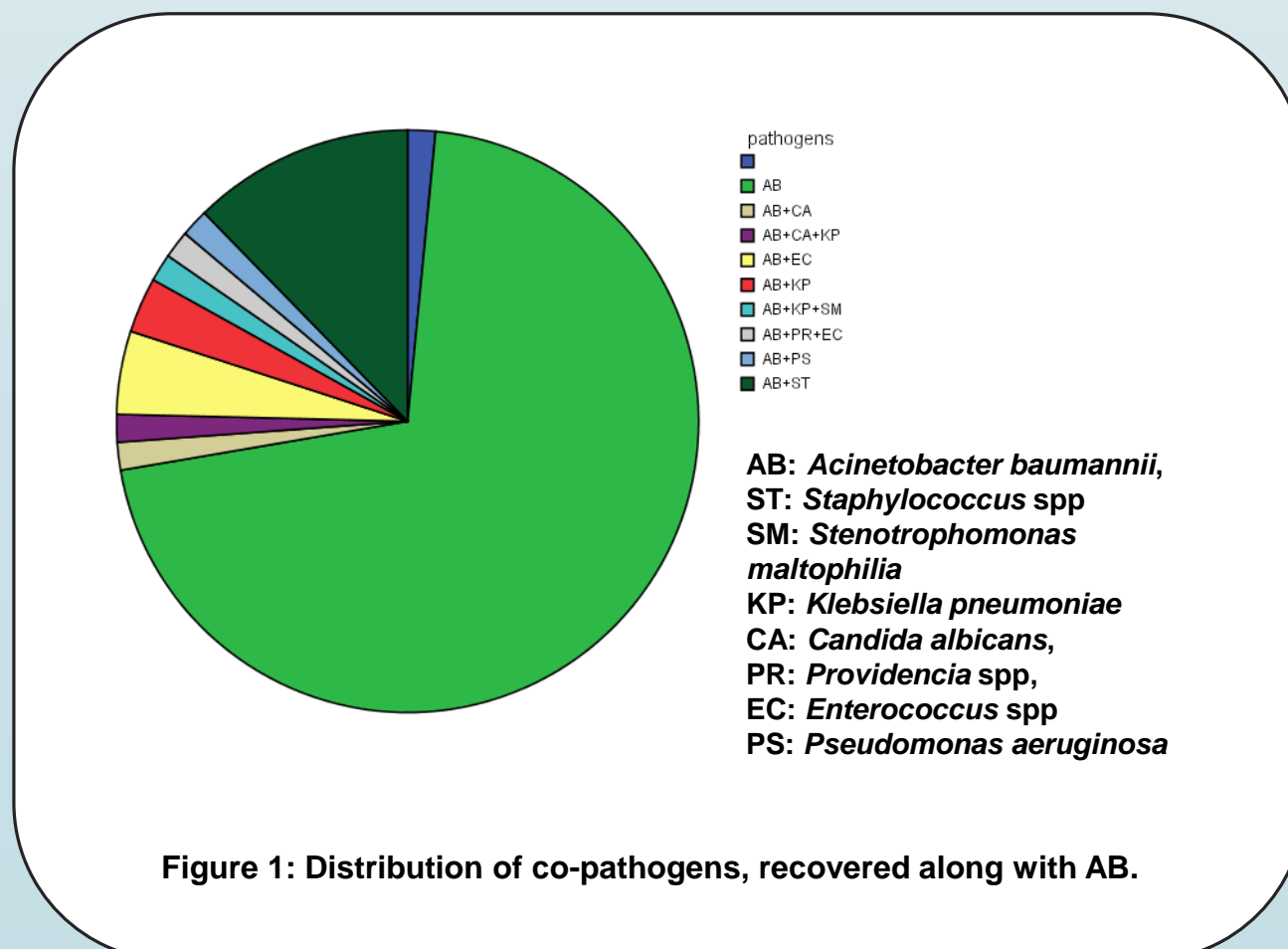


Figure 1: Distribution of co-pathogens, recovered along with AB.

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