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17 - 18 NOVEMBRE 2023 | PALAIS DES CONGRÈS DE PARIS FRANCE

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Epidemiological profile and antibiotic susceptibility of *Acinetobacter baumannii* isolates in trauma and burn center of Ben Arous, Tunisia(2012-2022)

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JIB2300178

Introduction and aim

- ✓ *Acinetobacter baumannii (A.baumannii)* is a gram-negative opportunistic bacteria that has gained several drug resistance mechanisms over the last decades.

- ✓ Analysis of *A.baumannii*'s resistance profile helps to establish a prompt control and a prevention program.

- ✓ The aim of this study was to evaluate the epidemiology and antimicrobial resistance of *A.baumannii* isolates in the Trauma and burn Center of Ben Arous, Tunisia.

Material and methods

- ✓ Retrospectively, we studied all strains of *A. baumannii* isolated over a ten-year period (from January 2012 to December 2022).

- ✓ Conventional methods were used for identification.

- ✓ Antimicrobial susceptibility testing was performed with the disk diffusion method, and susceptibility results were interpreted using clinical breakpoints according to CA-SFM guidelines.

- ✓ Data were analysed using the SIR-system.

- ✓ Minimum inhibitory concentration (MIC) of colistin was determined using the EUCAST broth micro-dilution method (UMIC, Biocentric®) from may 2017.

Results and discussion

- ✓ During the study period, 2087 non-repetitive strains of *A.baumannii* were isolated representing 9,3% of all isolates.

- ✓ In our center, infections due to *A. baumannii* were endemic with epidemic peaks.

- ✓ *A.baumannii* was mainly isolated from burn intensive care unit (65,8%) and anesthesiology department (19.7%). This result was in concordance with two other studies performed in Iran and Kenya [1,2].

- ✓ The most frequent site of isolation in our center were blood cultures (28%), catheters (14,6%), cutaneous samples (12,8%), respiratory specimens (11.6%). (figure1)

- ✓ Others studies showed also that blood culture was the main site of isolation of *A.baumannii* [1,3].

- ✓ The survey of antibiotic susceptibility showed that the strains were multi-drug resistant with high percentages of resistance to the different antibiotics : 90% to ceftazidime, 89.8% to imipinem, 88.7% to piperacillin-tazobactam , 87.2% to amikacin and 91.7% to ciprofloxacin.

- ✓ These rates are similar to those found in a moroccan and south african studies [3,4].

- ✓ *A.baumannii* strains gained resistance to imipinem, ceftazidim and ciproflaxin over the years (from 78.7% in 2012 to 91.1% in 2022 and from 83.4% in 2012 to 93.7% in 2022 and from 86.1% to 96%, respectively).

- ✓ Amikacin resistance rate was stable all over the study period. (figure 2)

- ✓ Fourteen strains were resistant to colistin, these strains were isolated between 2017 and 2022, mainly from anesthesiology department and burn intensive care unit.
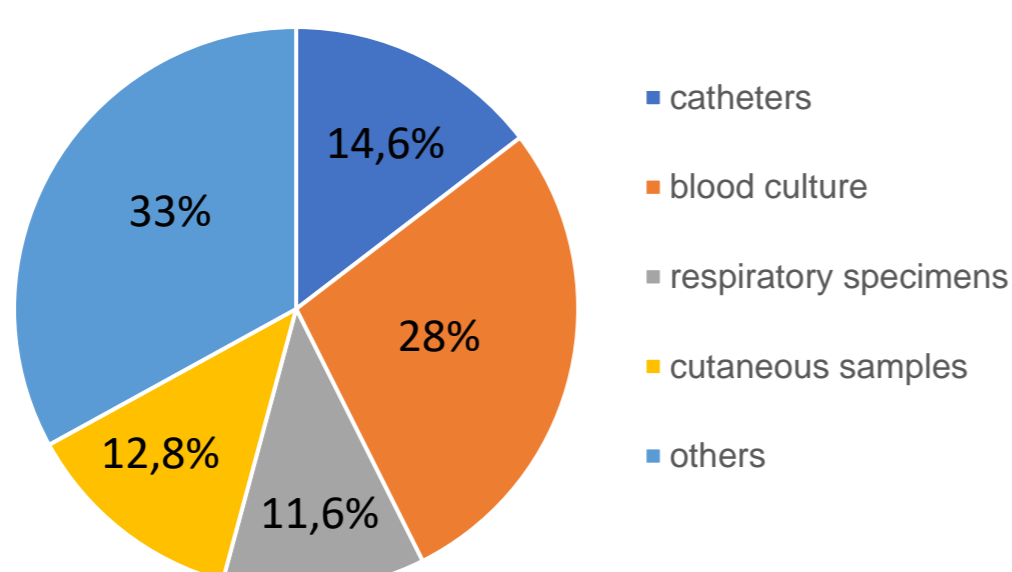

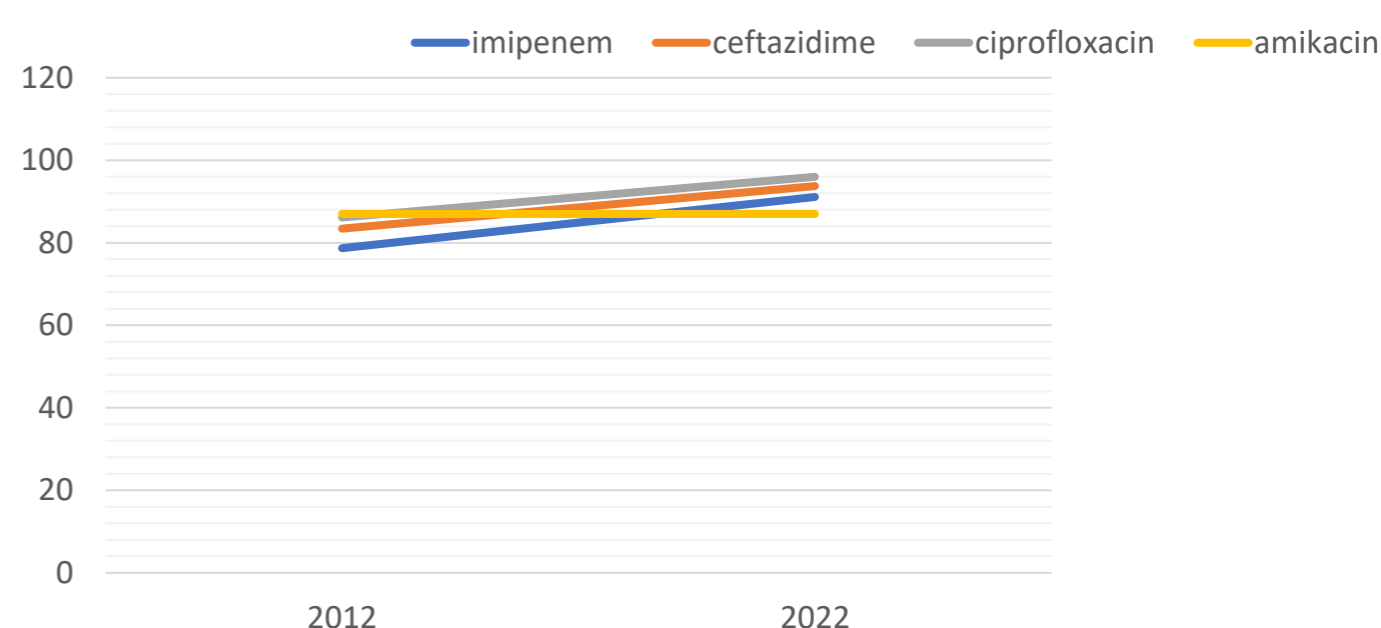**Figure1:**Distribution of *A.baumannii* strains depending on the nature of the sample

Figure 2 : Evolution of *A.baumannii* resistance rates

Conclusion

- ✓ The dissemination of *A.baumannii* multi-drug resistant strains in our center must be contained by the implementation of strict isolation methods and better hygienic procedures.

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