

SECOND GENERATION β -LACTAM/ β -LACTAMASE INHIBITOR COMBINATIONS: CEFTAZIDIME-AVIBACTAM AND CEFTOLOZANE-TAZOBACTAM: EXPERIENCE OF USE



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BACKGROUND

Ceftazidime-avibactam and ceftolozane-tazobactam new second generation cephalosporin/ β -lactamase inhibitor combinations. The antimicrobial spectrum of activity includes **multidrug-resistant gram-negative bacteria**, including *Pseudomonas aeruginosa*. Ceftazidime-avibactam is also active against carbapenem-resistant *Enterobacteriaceae* that produce *Klebsiella pneumoniae* carbapenemases.



Clinical indications:

- Complicated intra-abdominal infections (cIAs)
- Complicated urinary tract infections (cUTIs)
- Community acquired pneumonia (CAP)
- Ventilator-associated bacterial pneumonia (VABP)

AIM AND OBJECTIVES

To evaluate the use of ceftazidime-avibactam and ceftolozane-tazobactam from a spanish general hospital (400 beds).

MATERIAL AND METHODS



Prospective and descriptive study
October 2016 to September 2020

Variables collected:

- Demographic: age and sex
- Clinical: type of infection, microorganism isolated, duration of treatment, dose administered, clinical service and antibiotic tested in the antibiogram.



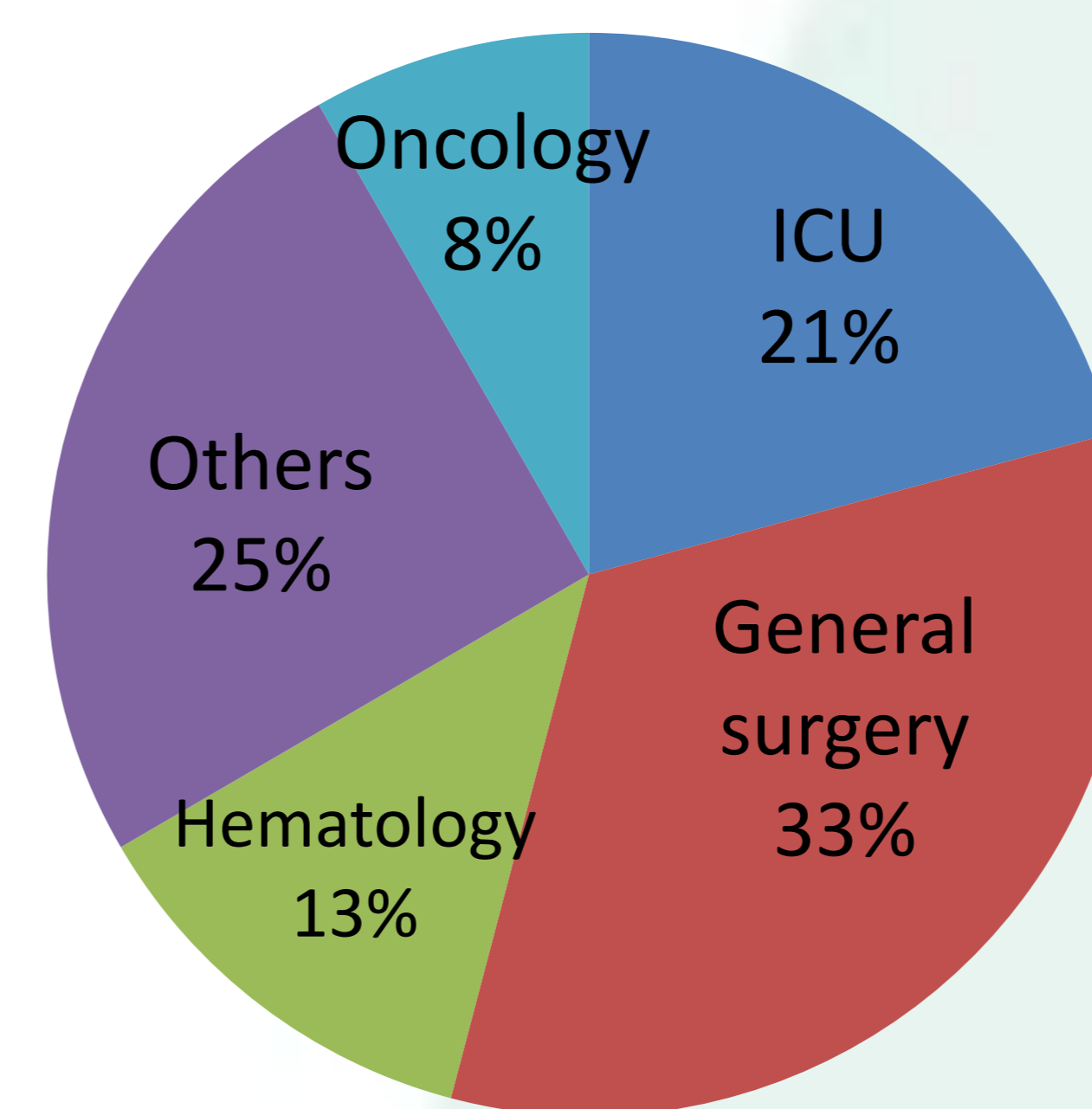
The effectiveness was assessed by the clinical and microbiological resolution of the infection

RESULTS

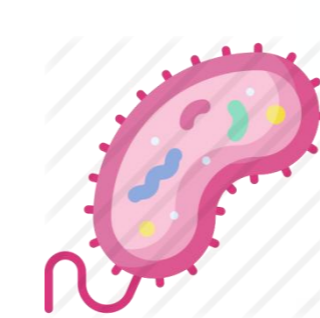
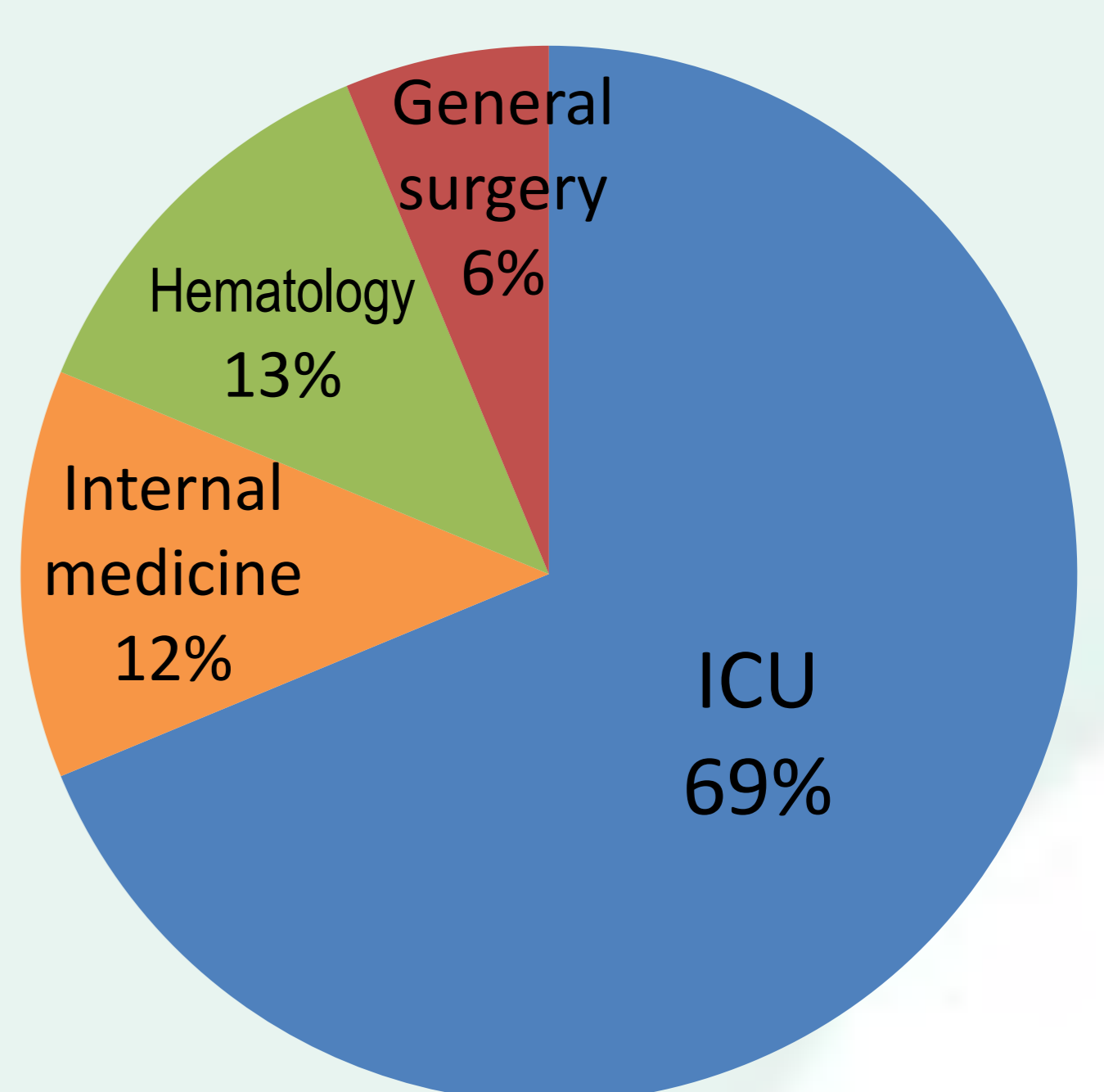
Table 1.	Ceftazidime-avibactam	Ceftolozane-tazobactam
Patients (n)	24	16
Demographic variables		
Age (median of years)	68.5 (IQR 63.5-75)	67 (IQR 57.5-73.7)
Sex	58.3% men	56.2% men
Type of infection (%)		
cUTIs	12.5	0
cIAs	41.7	31.25
CAP and VABP	20.8	37.5
Bacteremia	12.5	25
Others	12.5	6.25
Microorganisms isolated (%)	100	93.75
<i>P.aeruginosa multiresistant</i>	20.8	68.7
<i>K. pneumoniae</i>	70.8	0
<i>E.coli</i> BLEE	4.2	12.5
Others	4.2	12.5
Duration of treatment (median of days)	11.5 (IQR 6.5-16.5)	12.5 (IQR 8-17.75)

Prescribing clinical services:

- Ceftazidime-avibactam:



Ceftolozane-tazobactam:



Both antibiotics were susceptible in **75%** of patients. Clinical and microbiological resolution of the infection: **75%** ceftazidime-avibactam **70%** for ceftolozane-tazobactam



Most common dosage:

- Ceftazidime-avibactam: 2 g every 8 hours.
- Ceftolozane-tazobactam: 1 g every 8 hours.



17.5% died during the hospitalization because their clinical situation

CONCLUSIONS



❖ Both patient populations were **demographically similar** but the use of ceftazidime-avibactam was more frequent.



❖ **cIAs and pneumonias** were the most common infections treated. Mostly, ceftazidime-avibactam was used for carbapenemase-producing *K. pneumoniae* and ceftolozano/tazobactam for *P. aeruginosa multiresistant*.



❖ ICU and general surgery were the most experienced clinical services.

❖ Both antibiotics **were tested** in the antibiogram in most of the cases.

REFERENCES

Van Duin D, Bonomo RA. Ceftazidime/Avibactam and Ceftolozane/Tazobactam: Second-generation β -Lactam/ β -Lactamase Inhibitor Combinations. Clin Infect Dis. 2016 Jul 15;63(2):234-41. doi: 10.1093/cid/ciw243. Epub 2016 Apr 20. PMID: 27098166; PMCID: PMC4928383.

No conflict of interest



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