

PROA PEDIATRIC QUALITY INDICATOR: LONGITUDINAL ANALYSIS OF THE PRESCRIPTION OF CENTRAL VENOUS CATHETER SEALS WITH ANTIMICROBIALS.

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KEYWORDS

Antimicrobial lock therapy, central venous catheter, antimicrobial stewardship, paediatrics, resistance.

BACKGROUND AND IMPORTANCE

Central venous catheter (CVC) related infections are a common complication in paediatric patients, increasing morbidity and often leading to catheter removal. High-concentration antimicrobial lock solutions can be eradicate intraluminal biofilm.

AIM AND OBJECTIVES

This study aimed to evaluate, by the Antimicrobial Stewardship Program (ASP) team, the quality of antimicrobial lock therapy prescriptions and their adherence to the institutional protocol.

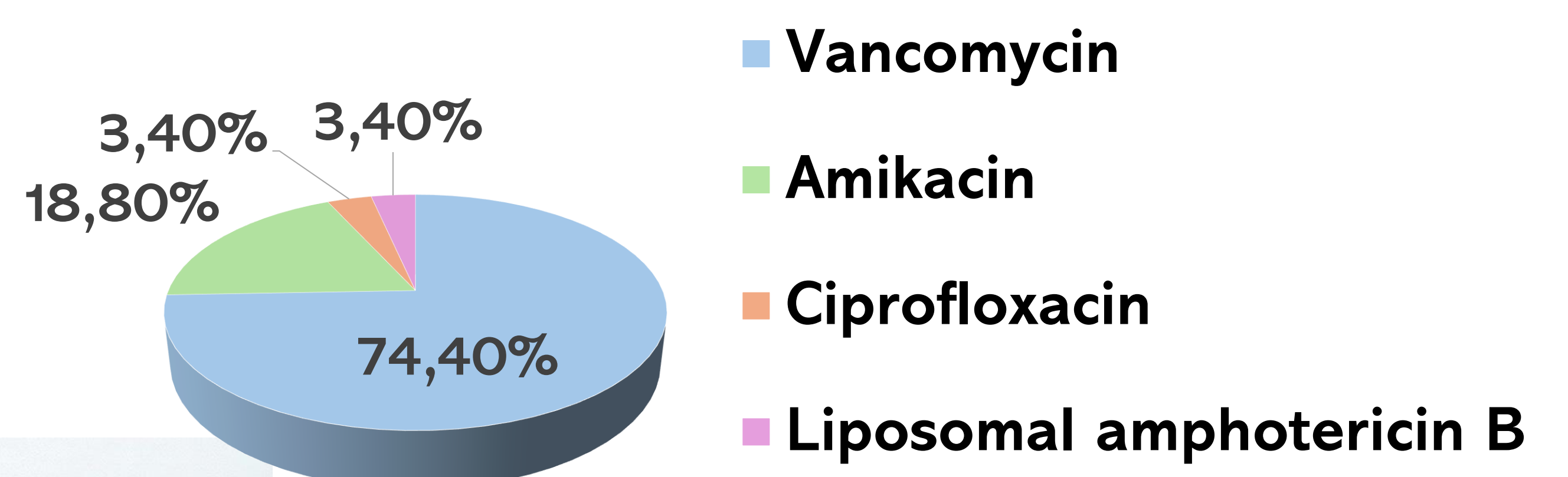
MATERIALS AND METHODS

- ✓ Retrospective observational study
- ✓ Tertiary paediatric hospital (0 – 18 years)
- ✓ January 2022 – December 2024
- ✓ Variables collected:
 - ✓ Antimicrobial agent used
 - ✓ Isolated microorganisms
 - ✓ Antimicrobial susceptibility
 - ✓ Modification according to antibiogram
 - ✓ Treatment duration
 - ✓ Reason of discontinuation

RESULTS

- ✓ 117 ALT prescriptions
- ✓ 89 patients (median age 6 years)
- ✓ Mean treatment duration was 7,4 days

AGENTS USED IN ALT PRESCRIPTIONS



Most Frequent Microorganisms Isolated

41.9%
Staphylococcus epidermidis
The most commonly identified pathogen in these CVC infections.

8.6%
Klebsiella pneumoniae
The second most frequent single-organism isolate.

6.0%
Escherichia coli
A significant Gram-negative pathogen found in patients.

5.1%
Polymicrobial Infections
Cases where more than one microorganism was isolated.

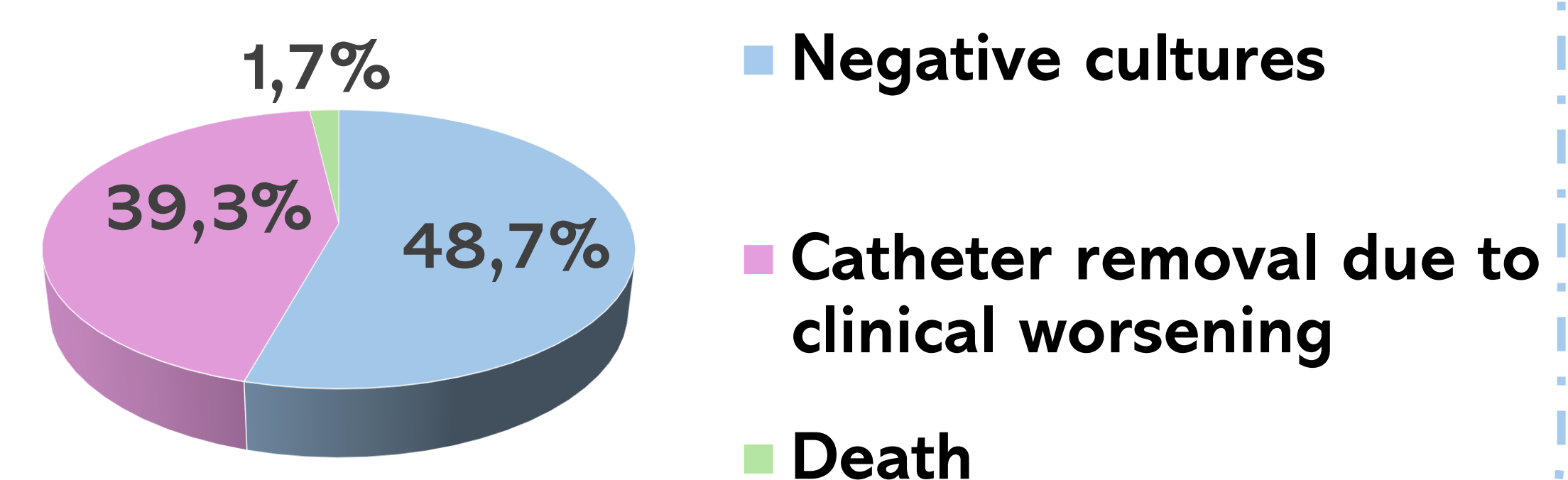
Key Resistance Profiles Observed

63.3%
Methicillin-Resistant *S. epidermidis* (MRSE)
A high rate of methicillin resistance was found among these isolates.

42.9%
ESBL-producing *E. coli*
A substantial portion of *E. coli* produced extended-spectrum β-lactamases.

40.0%
Carbapenemase-producing *K. pneumoniae*
Indicating a high level of resistance to carbapenem antibiotics.

REASONS FOR ALT DISCONTINUATION



CONCLUSION AND RELEVANCE

Most prescriptions were consistent with protocol recommendations, with **vancomycin** as the **most commonly used agent**. However, the more frequent use of amikacin over ciprofloxacin for suspected Gram-negative infections highlights an area for protocol review. **ALT was effective in over 90% of cases**, and continuous monitoring of antimicrobial lock prescriptions as an ASP quality indicator helps identify opportunities for improvement and **optimise antimicrobial use in paediatric CVC patients**.

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