PATTERN OF ANTIMICROBIAL USE IN NEONATAL PATIENTS IN GREECE

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BACKGROUND

Knowledge of antimicrobial prescribing patterns and trends, especially in hospitalized neonates, is vital for implementing antimicrobial stewardship programs.

However, there is an absence of a standardized and feasible metric of antimicrobial consumption in neonatology departments, such as Defined Daily Doses (DDDs), which is currently used only for adults.

Point Prevalence surveys have been used both in children and neonates providing useful data on antimicrobial prescription patterns

AIM

The aim of this analysis was to assess the pattern of antimicrobial prescriptions in hospitalized neonates in 4 Greek hospitals.

METHODS

Study design: One-day, cross-sectional, hospital based, point-prevalence survey. This study was part of Global Antibiotic Resistance, Prescribing and Efficacy in Neonates and Children (GARPEC) project.

Time period: This study was conducted in three consecutive semesters in 2016-2017.

Study setting: Five tertiary level hospitals in 4 Greek cities (Athens, Thessaloniki, Larissa and Patras) participated.

Eligible patients: Neonates were enrolled if they were on antimicrobial treatment at 08:00 am of the day of survey

RESULTS

A total of 108 antimicrobial courses (207 prescriptions, ranging from 11 to 99 among the hospitals) were studied. Antimicrobials were given intravenously in all but one case.

Combinations of two antimicrobials were given in 77.8%, whereas **monotherapy** in 17.6%. When monotherapy was used, 9 different antimicrobials were used: ampicillin (29%), ampicillin (25%), vancomycin (17%), cefepime (8%), cefotaxime (4%), meropenem (4%), piperacillin- tazobactam (4%), cefaclor (4%), ceforanide (4%).

Sepsis was the **predominant diagnosis**, followed by prophylaxis due to maternal/newborn risk factors, gastrointestinal (GI) infections, bacterial lower respiratory tract infections (BLRTI) and probable or proven catheter-related bloodstream infections (CRBSI, Figure 1).

Figure 1: Diagnosis for antimicrobial prescription

The most frequently used antimicrobials were ampicillin (**AM**), and aminoglycosides (**AMG**) followed by glycopeptides (**GLY**), 3rd/4th generation cephalosporins (**3/4GC**), and carbapenems (**CAR**, Figure 2). Other less frequently used antimicrobials were ciprofloxacin, colistin, clindamycin and linezolid.

Figure 2: Diagnosis for antimicrobial prescription

In 20 episodes of **community-acquired sepsis**, ampicillin and aminoglycosides were used in 90%.

In 21 cases of **hospital-acquired sepsis**, 10 different antimicrobial regimens were used. Combination of carbapenem/glycopeptide was used in 28.6% and cephalosporin/glycopeptide in 14.3%.

For prophylaxis due to **maternal/newborn risk factors** combination of two antimicrobials was used in 65.6% (ampicillin plus aminoglycoside) and monotherapy in 34.4% (82% aminoglycoside, 18% ampicillin).

CONCLUSIONS

- **Ampicillin combined with aminoglycoside constitutes the most commonly used antimicrobial regimen in neonates.**
- **Relatively high glycopeptide and meropenem use is of concern.**
- **Existence of diverse combinations of antimicrobials constitutes an appropriate target for antimicrobial stewardship programs.**

REFERENCES

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