DIFFERENCES BETWEEN PHARMACEUTICAL INTERVENTIONS ACCORDING TO ANTIMICROBIAL TYPE

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BACKGROUND AND IMPORTANCE
The increasing in-hospital use of antimicrobials requires pharmacists’ involvement in multidisciplinary teams. Pharmaceutical interventions (PI) are essential to optimize antimicrobials’ effectiveness and safety.

AIM AND OBJECTIVES
➢ To describe PI performed on antimicrobials.
➢ To determine existing differences between PI and clinical variables according to antimicrobial types.

MATERIALS AND METHODS
Retrospective observational study in a 750-bed University Hospital. PI on antimicrobials registered from October 2020 to March 2021 were analyzed.
Registered variables: PI type, age, service, length of stay (LOS), mortality and ATC classification.
Statistical analysis: Kruskal-Wallis test for quantitative variables; Chi-Square test for qualitative variables.

RESULTS
Total PI performed 16913, 3145 (18.6%) on antimicrobials.
PI according to ATC: J01-antibacterial, 2741 (87.2%); J05-antivirals, 267 (8.5%); J02-antifungal, 69 (2.2%); J04-antimycobacterial, 26 (0.8%); J06-immunoglobulins, 24 (0.8%); J07-vaccines, 18 (0.6%).

<table>
<thead>
<tr>
<th>Optimization of treatment effectiveness</th>
<th>Toxicity prevention</th>
<th>Administration enabling and/or information</th>
<th>Pharmacotherapy monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>540 (17.2%)</td>
<td>835 (26.6%)</td>
<td>1029 (32.7%)</td>
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<tr>
<td>J01</td>
<td>458 (16.7%)</td>
<td>782 (28.5%)</td>
<td>784 (28.6%)</td>
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<tr>
<td>J05</td>
<td>45 (16.9%)</td>
<td>23 (8.6%)</td>
<td>186 (69.7%)</td>
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<tr>
<td>J02</td>
<td>18 (26.1%)</td>
<td>19 (27.5%)</td>
<td>22 (31.9%)</td>
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<tr>
<td>p²</td>
<td>p=0.122</td>
<td>p&lt;0.001</td>
<td>p&lt;0.001</td>
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</tbody>
</table>

*comparing only ATC groups

Antimicrobials with more PI
- Daptomycin/linezolid/ Fosfomycin 5.8%
- Penicillins 25.8%
- Glycopeptides 19.4%
- Quinolones 9.9%
- Carbapenems 9.2%
- Cephalosporins 7.1%

Main PI according to antimicrobial
- Penicillins 272 (33.5%)
- Cephalosporins 200 (32.8%)
- Carbapenems 119 (38.1%)
- Quinolones 86 (29.7%)
- Daptomycin/linezolid/fosfomycin 107 (48.2%)
- Glycopeptides 88 (48.1%)

Age, 75 (63-85) years-old; LOS, 16 (8-29) days; mortality, 475 (15.6%).
Clinical variables J01 vs J05 vs J02: age, 76 (64-86) vs 67 (56-78) vs 66 (56.5-78) p<0.001; LOS, 16 (9-29) vs 14 (7.5-25) vs 30 (18-64) p<0.001; mortality, 399 (15.0%) vs 41 (15.5%) vs 45 (35.3%) p<0.001.

CONCLUSION AND RELEVANCE
➢ The objective of most PI is to adequate antimicrobials administration, particularly for antivirals.
➢ Most PI are performed on antibacterials, being monitoring and toxicity avoidance (with antifungals) the most common ones.
➢ PI for toxicity prevention are the most performed in β-lactams and quinolones.
➢ PI on pharmacotherapy monitoring are mainly performed to adjust empiric carbapenems treatment and glycopeptides pharmacokinetics monitoring.
➢ Patients receiving PI on antifungals and antivirals are younger.
➢ Due to infections’ severity, patients requiring PI on antifungals display higher LOS and mortality.