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LINEZOLID-ASSOCIATED THROMBOCYTOPENIA IN CHILDREN WITH RENAL IMPAIRMENT

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ABSTRACT

To evaluate and compare the rates of linezolid-associated thrombocytopenia in pediatric patients with and without renal impairment

BACKGROUND

• Linezolid (LZD) is an alternative to vancomycin for treatment of methicillin-resistant Staphylococcus aureus and Vancomycin-resistant Enterococcus faecium
• Pediatric pharmacokinetics:
  • Primary hepatic metabolism
  • 30% excreted as unchanged drug in urine
• Age-related changes in clearance
• Linezolid-associated thrombocytopenia (LAT) complicates therapy
• Pediatric incidence and related factors not well defined

METHODS

• Retrospective, single center cohort
• Academic, free-standing children’s hospital
• 170 children included

RESULTS

• Infection resolution occurred in 94% overall
• Renal impairment at LZD initiation present in 22% overall
• TCP incidence evaluable in 161 patients
• Developed in 29.2% (n = 47) overall

CONCLUSIONS

• Overall 29% thrombocytopenia in children receiving LZD in this pediatric cohort
• LAT appears to be an important adverse effect in children and adults
• The following variables at LZD initiation may be related to pediatric LAT:
  • Platelet value < 100 X 10^3 platelets/mm^3
  • Renal impairment: CrCl ≤ 60 mL/min/1.73m^2

Table 3. Characteristics in children with and without TCP

<table>
<thead>
<tr>
<th>Variable</th>
<th>No TCP (n = 14)</th>
<th>TCP (n = 47)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>40.4%</td>
<td>56.3%</td>
<td>0.063</td>
</tr>
<tr>
<td>Age (years)</td>
<td>8.8 (3.1 – 14.7)</td>
<td>6.4 (1.1 – 12.8)</td>
<td>0.146</td>
</tr>
<tr>
<td>LZD Dose (mg/kg/day)</td>
<td>25.6 (6.2)</td>
<td>26.6 (7.7)</td>
<td>0.444</td>
</tr>
<tr>
<td>LZD Duration (days)</td>
<td>7 (3 – 11.3)</td>
<td>9 (4 – 21)</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>Baseline CrCl [ml/min/1.73m^2]</td>
<td>105 (78 – 130)</td>
<td>66 (39 – 125)</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>Baseline renal impairment</td>
<td>14%</td>
<td>43.8%</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>Low baseline platelet</td>
<td>9.7%</td>
<td>70.2%</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>TCP risk factors</td>
<td>96.5%</td>
<td>97.9%</td>
<td>0.632</td>
</tr>
</tbody>
</table>

a = Data reported as median (IQR); b = data reported as mean (SD)