CLINICAL PHARMACOKINETICS OF VANCOMYCIN IN NEUTROPENIC PATIENTS

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OBJECTIVES

Vancomycin dosage should be a 25% higher than standard dosage in neutropenic-patients due to increased clearance of vancomycin in this population. Renal hyperfiltration is considered as a possible mechanism.

- Prevalence of sub-therapeutic drug exposure under Therapeutic Drug Monitoring (TDM)
- TDM-dosage-adjustments.

MATERIALS and METHODS

Retrospective and descriptive study 2010-2019

Hematological disease patients with neutropenia and vancomycin TDM by pharmacist

- CrCl (Cockcroft-Gault formula)
- Initial dose
- Dose adjustments
- First two trough levels

We considered:

RENA L IMPAIRMENT → CrCl < 60 ml/min
OPTIMAL DOSE → 15-20 mg/kg/dose
OPTIMAL TROUGH LEVEL → 10-20 mcg/mL

RESULTS

N: 41 patients → 58.5% Males; Age: 62.9 (IQR 19 – 48)

CICr <60 ml/min: 20%

BEFORE TDM DOSAGE ADJUSTMENTS

<table>
<thead>
<tr>
<th>Initial Therapeutic levels</th>
<th>Optimal dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES 35,1%</td>
<td>YES 22,2%</td>
</tr>
<tr>
<td>NO 65,9%</td>
<td>NO 77,80%</td>
</tr>
</tbody>
</table>

TDM DOSAGE ADJUSTMENTS

<table>
<thead>
<tr>
<th>Optimal dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
</tr>
<tr>
<td>77%</td>
</tr>
</tbody>
</table>

More than a half of patients obtained sub-therapeutic vancomycin levels due to initial underdosage.

Nevertheless, 22.2% required ≥25% increase dose to achieve target drug-concentration despite of an initial therapeutic regimen.

CONCLUSIONS

- More than a half of patients obtained sub-therapeutic vancomycin levels due to initial underdosage.

- Nevertheless, 22.2% required ≥25% increase dose to achieve target drug-concentration despite of an initial therapeutic regimen.

Conflict of interest: nothing to disclose

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