Antibiotic-Induced Thrombocytopenia in the ICU: Case Report of a Diagnostic Challenge

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Thrombocytopenia is the most common coagulation problem in ICU patients and is an independent predictor of death among critically ill patients. Thrombocytopenia is generally defined as a platelet count below 100,000/μL. The causation is frequently multi-factorial and driven by six distinct mechanisms: increased consumption, hemodilution, decreased production, sequestration, pseudo-thrombocytopenia, and increased destruction. The differential diagnosis of acute thrombocytopenia in an ICU patient is extensive. After eliminating the more common etiologies, drug-induced thrombocytopenia (DITP) should be considered as an often overlooked yet easily reversible cause of thrombocytopenia due to a lack of distinguishing clinical features and numerous other possible etiologies.

Criteria for evaluating a causal relationship between a drug and thrombocytopenia:
1. Suspected drug administration preceded thrombocytopenia. Complete and sustained resolution of thrombocytopenia after suspected drug discontinued.
2. Platelet count remained normal after discontinuation of suspected drug despite the resumption or continuation of other drugs.
3. Alternative etiologies of thrombocytopenia were excluded.
4. Re-exposure to the suspected drug was followed by thrombocytopenia.

Criteria

1. Vancomycin (vanco) and piperacillin (pipo) induced thrombocytopenia resolved after the discontinuation of vancomycin and piperacillin; hct stable during thrombocytopenia; absence of anemia, hct stable during thrombocytopenia.
2. Two year period with COPD exacerbation and suspected pneumonia. On each of the two admissions platelets continued to fall after vanco was stopped and only recovered when pip-tazo was discontinued.

Admission Notes

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<tr>
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</thead>
<tbody>
<tr>
<td>Platelet Count (x10³/mm³)</td>
<td>150</td>
<td>280</td>
<td>168</td>
<td>289</td>
</tr>
<tr>
<td>Days to nadir following vanco</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Days to recovery following pip-tazo</td>
<td>15</td>
<td>&gt;15</td>
<td>&gt;15</td>
<td>&gt;7</td>
</tr>
</tbody>
</table>

Potential Etiology

Heparin-induced thrombocytopenia

Heparin-induced thrombocytopenia is characterized by a 50% drop in platelet count in the absence of anemia, hct stable during thrombocytopenia. Platelet drop likely too rapid to be explained by bone marrow suppression. No leukopenia or anemia on any admission.

References