Evaluation of VTE Prophylaxis with Immunomodulatory Drug Use in Patients with Multiple Myeloma at a Community Teaching Hospital
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BACKGROUND
• Thalidomide and its derivatives lenalidomide and pomalidomide are immunomodulatory drugs (IMiDs) used in the primary treatment of multiple myeloma often in combination with dexamethasone and a proteasome inhibitor.
• NCCN guidelines recommend venous thromboembolism (VTE) prophylaxis based on risk stratification using SAVED and IMPEDE VTE scores.
• Guidelines changed in 2020, and it is unknown if these new recommendations have been integrated into practice.

OBJECTIVES
• Determine the percent of patients with multiple myeloma who received IMiD therapy with appropriate concurrent VTE prophylaxis.
• Determine the percent of patients with multiple myeloma who experienced a VTE while receiving IMiD therapy.

METHODS
Study Design:
• Retrospective chart review
Data Source:
• Epic/Electronic medical record
Study Population:
• Adults aged 18 years old or older who were diagnosed with multiple myeloma and received IMiD therapy through Mercy Oncology (St. Louis)

Study Measures: SAVED Score for Patients Treated with IMiDs:
- Thalidomide and its derivatives lenalidomide and pomalidomide are immunomodulatory drugs (IMiDs) used in the primary treatment of multiple myeloma often in combination with dexamethasone and a proteasome inhibitor.
- NCCN guidelines recommend venous thromboembolism (VTE) prophylaxis based on risk stratification using SAVED and IMPEDE VTE scores.
- Guidelines changed in 2020, and it is unknown if these new recommendations have been integrated into practice.

RESULTS
Study Measures: IMPEDE VTE Score:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Point Score</th>
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</thead>
<tbody>
<tr>
<td>IMD therapy</td>
<td>+4</td>
</tr>
<tr>
<td>BMI &gt;25 kg/m²</td>
<td>+1</td>
</tr>
<tr>
<td>Pelvic, hip, or femur fracture</td>
<td>+4</td>
</tr>
<tr>
<td>Erythropoiesis stimulating agent</td>
<td>+1</td>
</tr>
<tr>
<td>Dexamethasone dose:</td>
<td></td>
</tr>
<tr>
<td>Low: ≤160 mg/month</td>
<td>+2</td>
</tr>
<tr>
<td>High: &gt;160 mg/month</td>
<td>+4</td>
</tr>
<tr>
<td>Doxorubicin use</td>
<td>+3</td>
</tr>
<tr>
<td>Ethnicity/race = Asian or Pacific Islander</td>
<td>-3</td>
</tr>
<tr>
<td>VTE history</td>
<td>+5</td>
</tr>
<tr>
<td>Tunnelled line or CVC</td>
<td>+2</td>
</tr>
<tr>
<td>Prophylactic LMWH or warfarin</td>
<td>-4</td>
</tr>
<tr>
<td>Therapeutic LMWH or warfarin</td>
<td>-3</td>
</tr>
</tbody>
</table>

Low risk ≤3 points
High risk >3 points

Recommended Prophylaxis Options:
- Low Risk
  - No Intervention
  - Aspirin
- High Risk
  - Enoxaparin
  - Dalteparin
  - Warfarin
  - Alphabulin

Analytical Strategy:
- SAVED and IMPEDE VTE scores were calculated for each subject and used to classify as low or high risk, then determine recommended prophylaxis.
- Recommended prophylaxis was compared to actual prophylaxis received = “appropriateness”
- Descriptive statistics including percentages, medians, and means were used to evaluate the rates of appropriate prophylaxis using both SAVED and IMPEDE VTE scoring tools.

Study Population Flowchart:

IMPEDE VTE Score Results:
- Mean score: 7.2
- Median score: 7
- Standard deviation: 2.75
- Low risk patients: 2 (5%)
- High risk patients: 36 (95%)
- Overall – patients receiving appropriate prophylaxis: 8 (21%)
- High risk – patients receiving appropriate prophylaxis: 2 (100%)
- Patients who experienced a VTE receiving appropriate prophylaxis: 2 (50%)

SAVED Score Results:
- Mean score: 1.3
- Median score: 1
- Standard deviation: 1.09
- Low risk patients: 2 (100%)
- High risk patients: 2 (50%)

SAVED Recommendation: Recommended prophylaxis was compared to actual prophylaxis received = “appropriateness”

Total study population (N=38)

Efficacy/Safety Results:
- 11% (4/38) of patients who received an IMiD experienced a VTE
- 0% of patients experienced a major bleed with prophylaxis per Epic records
- Low rates of appropriate VTE prophylaxis suggest that practice patterns at Mercy St. Louis hospital have not adapted to new NCCN recommendations.
- There is a large discrepancy in risk stratification as well as rates of appropriate prophylaxis when comparing SAVED and IMPEDE VTE tools.

CONCLUSION
- Low rates of appropriate VTE prophylaxis suggest that practice patterns at Mercy St. Louis hospital have not adapted to new NCCN recommendations.
- There is a large discrepancy in risk stratification as well as rates of appropriate prophylaxis when comparing SAVED and IMPEDE VTE tools.
- Low-dose dexamethasone was a risk factor present in all patients who experienced a VTE.