INTRO:
- Patients with cancer (intermediate-to-high risk VTE (Khorana score, ≥2), beginning chemotherapy), benefit from thromboprophylaxis
- However, this has not been adopted into routine clinical practice
- Concerns regarding “real world” benefits

AIM:
- To determine if a single institution rural cohort had similar rates of clotting and bleeding as the control group of the AVERT study.

METHODS:
- Retrospective review of adult patients with hematologic or solid tumor malignancies (excluding multiple myeloma) starting a new course of chemotherapy (01/2016 – 12/2018)
- Treatment received at Gundersen Health System (GHS), an independent academic medical center in rural western Wisconsin.
- VTE and bleeding events were recorded from chemotherapy start through 180 days.

RESULTS:
- Demographics (Table 1, n=1025) with comparisons to the AVERT study population.
- 35% (n=360) had a Khorana score of ≥2 and would have been eligible for prophylaxis (PPX) based on the AVERT study.
- 113 total patients received PPX (int/high risk KRS n=45, low risk KRS n=68), primarily with enoxaparin (88%).
- KRS ≥2 was associated with shorter VTE-free survival (Figure 1).
- In patients with KRS ≥2, without prophylaxis, the probability of VTE (10%) and bleeding event rate (2.4%) was nearly identical to that seen in the AVERT trial control arm (10.2% and 1.8%).

CONCLUSION AND FUTURE AIMS:
- Our patients are not significantly different from those that benefited from prophylaxis in the clinical trial.
- Given the published number needed to treat (17) and number needed to harm (100) with apixaban prophylaxis, widespread application of a prophylactic strategy to our patient population may have prevented 21 VTEs and led to 4 additional bleeding events. This risk to benefit ratio appears favorable.
- Develop a KRS-based risk stratification approach to VTE prophylaxis.

REFERENCE

Table 1. Demographic and Clinical Characteristics of the Patients at Baseline.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>GHS PPX (n=113)</th>
<th>AVERT PPX* (n=291)</th>
<th>GHS non-PPX (n=912)</th>
<th>AVERT non-PPX (n=283)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age-yr</td>
<td>64±11.9</td>
<td>61±12.4</td>
<td>61±12.9</td>
<td>61±13.1</td>
</tr>
<tr>
<td>Male sex - no. (%)</td>
<td>53 (46.9)</td>
<td>121 (41.6)</td>
<td>435 (47.7)</td>
<td>119 (42.0)</td>
</tr>
<tr>
<td>Weight - kg</td>
<td>82.3±22.2</td>
<td>80.0±22.3</td>
<td>80.8±22.2</td>
<td>82.6±21.4</td>
</tr>
<tr>
<td>Tumor type - no. (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brain</td>
<td>3 (2.6)</td>
<td>14 (4.8)</td>
<td>35 (3.8)</td>
<td>10 (3.5)</td>
</tr>
<tr>
<td>Bladder</td>
<td>0 (0.0)</td>
<td>1 (0.3)</td>
<td>21 (2.3)</td>
<td>4 (1.4)</td>
</tr>
<tr>
<td>Lung</td>
<td>6 (7.0)</td>
<td>31 (10.7)</td>
<td>209 (22.9)</td>
<td>283 (99.3)</td>
</tr>
<tr>
<td>Testicular</td>
<td>0 (0.0)</td>
<td>2 (0.7)</td>
<td>5 (0.5)</td>
<td>10 (3.4)</td>
</tr>
<tr>
<td>Stomach</td>
<td>0 (0.0)</td>
<td>25 (8.6)</td>
<td>7 (0.8)</td>
<td>19 (6.7)</td>
</tr>
<tr>
<td>Pancreatic</td>
<td>13 (11.5)</td>
<td>37 (12.7)</td>
<td>41 (4.5)</td>
<td>41 (14.5)</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>6 (5.3)</td>
<td>76 (26.1)</td>
<td>78 (8.5)</td>
<td>60 (24.4)</td>
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<tr>
<td>Gynecologic</td>
<td>21 (18.6)</td>
<td>74 (25.4)</td>
<td>52 (5.7)</td>
<td>74 (26.1)</td>
</tr>
<tr>
<td>Color Realignment</td>
<td>41 (36.9)</td>
<td>8 (3.1)</td>
<td>31 (3.4)</td>
<td>8 (2.8)</td>
</tr>
<tr>
<td>Prostate</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
<td>21 (2.3)</td>
<td>10 (3.4)</td>
</tr>
<tr>
<td>Other (Breast, Esophagus, GI, Head-Neck, Leukemia)</td>
<td>20 (17.7)</td>
<td>28 (9.6)</td>
<td>365 (40.0)</td>
<td>28 (9.8)</td>
</tr>
</tbody>
</table>

Khorana score - no. (%) 0 31(27.4) 0 257 (28.2) 0
1 37 (32.7) 0 340 (37.3) 0
2 30 (26.5) 186 (65.9) 212 (22.3) 160 (57.1)
3 9 (7.8) 78 (26.8) 87 (9.6) 66 (24.5)
4 6 (5.3) 26 (9.0) 13 (1.4) 24 (8.5)
5 0 3 (1.0) 3 (0.3) 10 (3.4)
6 0 0 0 0

Components of the Khorana score besides tumor type - no. (%) 0.0
Prechemotherapy leukocyte count >11,000/mm3 3 25 (22.1) 83 (28.5) 183 (20.0) 102 (36.0)
Hemoglobin <10g/dl or use of red-cell growth factors 16 (14.2) 66 (22.7) 154 (17.1) 50 (17.7)
Prechemotherapy platelet count ≥350,000/mm3 35 (31.0) 119 (40.9) 155 (17.0) 126 (44.5)
Body-mass index ≥35 14 (12.4) 72 (24.7) 166 (18.2) 67 (23.7)
ECOG performance-status score - no./total no. (%) 0 or 1 83/90 (92.2) 163/218 (75.0) 188/217 (86.6) 206/217 (95.3)
≥2 7/90 (7.8) 32/218 (14.7) 35/791 (4.4) 29/217 (13.4)

Table 1. Demographic and Clinical Characteristics of the Patients at Baseline.

Figure 1.

Patients receiving treatment for cancer at a rural practice had similar rates of DVT and bleeding as the control group of the AVERT study, and thus should benefit from preventative anticoagulation.