Surgical Considerations For Kcentra In Acute Surgical Procedures

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Problem

• Cardiovascular disease and embolic events are on the rise in the United States.
• Warfarin is used to treat individuals who are at increased risk of thrombotic events. These patients are often older with other comorbidities, which places them at increased risk of perioperative bleeding. Kcentra can rapidly decrease INR levels minimizing large amounts of blood loss during urgent procedures

Methods

• This topic was addressed with student nurse anesthetists at AdventHealth University
• An extensive literature review was conducted on current, peer reviewed, evidence based research
• The data was compiled into an educational presentation, approved by the IRB
• Presentation was conveyed to 22 students
• Anonymous Pre-test given before educational presentation
• Post-test after education presentation
• Informed consent was obtained
• Statistical analysis was performed by a statistician and acquired results via a paired t-test

Efficacy

In 2 head-to-head trials, Kcentra demonstrated superiority to plasma in 3 of 4 efficacy endpoints

<table>
<thead>
<tr>
<th>Efficacy endpoint</th>
<th>Urgent Surgery/Invasive Procedures trial</th>
<th>Acute Major Bleeding trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective hemostasis</td>
<td>Kcentra superior</td>
<td>Kcentra and plasma equally effective</td>
</tr>
<tr>
<td>Early INR reduction</td>
<td>Kcentra superior</td>
<td>Kcentra superior</td>
</tr>
</tbody>
</table>

Literature Review

• Kcentra for urgent reversal of warfarin
• Pts who receive chronic anticoagulation therapy are at significant risk for complications when faced with acute surgery (Rafaai et al., 2015).
• Dosing is 25IU/Kg in an average volume of 90-100ml
• Chronic conditions in which Coumadin is used for:
  • A Fib
  • Heart Valve Replacement
  • DVT
  • Non Hemorrhagic stroke
• Kcentra is a prothrombin complex concentrate this is a relatively new anticoagulant reversal agent.
• Kcentra contains all vitamin K dependent factors (II, VII, IX, X) as well as protein C and S (Milling et al., 2016).
• Requires less volume than the standard practice of giving FFP.
• Effect of Kcentra last up to 24 hours
• Anesthesia implications with Kcentra
  • Kcentra's overall safety profile was comparable to FFP
  • Significant decrease in the number of fluid overload events compared to FFP (Milling et al., 2016).
  • ICU length of stay decreased 5.8 days when Kcentra was used (Song et al., 2014).
  • Can be used effectively for any blood type and can be produced in large quantities as needed.
  • Trali is increased by 40% with female multiparous donors.
• Risk of Kidney injury

Results

<table>
<thead>
<tr>
<th>Pair 1</th>
<th>VAR00001</th>
<th>VAR00002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>40.91%</td>
<td>90.45%</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>19.73855</td>
<td>10.45502</td>
</tr>
<tr>
<td>Std. Error Mean</td>
<td>4.20827</td>
<td>2.22902</td>
</tr>
</tbody>
</table>

Paired Samples Test

<table>
<thead>
<tr>
<th>Paired Samples Test</th>
<th>Paired Differences</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Std. Deviation</td>
<td>Std. Error Mean</td>
<td>95% Confidence Interval of the Difference</td>
<td>Lower</td>
</tr>
<tr>
<td>Pair 1</td>
<td>VAR00001 - VAR00002</td>
<td>-49.54545</td>
<td>25.35036</td>
<td>5.40471</td>
</tr>
</tbody>
</table>

Analysis and Conclusion

• Limitations: there was a small sample size (22), test was administered after a long strenuous clinical day
• The results did show a meaningful increase in average scores, from 40.9% to 90.5% with a P=0.001

Findings

• The researchers concluded that there was a significant knowledge increase after the presentation of the educational PowerPoint
• This will help guide new anesthetists in the management of this growing population

Acknowledgements

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References Available Upon Request