Tranexamic acid use in hip fracture surgery

September 18, 2020
Problem Definition

• Bleeding associated with a hip fracture and subsequent surgery may contribute to postoperative morbidity and mortality

• Blood transfusion has been associated with poorer outcomes after surgery such as longer length of stay, increased infections and mortality\(^1\)

• TXA can reduce the likelihood of postoperative transfusion by:
  - 30% (RR: 0.70 95%CI 0.52 – 0.94)\(^2\)
  - while other meta-analyses report even greater reductions (OR 0.37; 95% CI, 0.26-0.53; p<0.00001)\(^3\)

• TXA is widely used in general trauma and elective orthopedic procedures, yet it has not yet become the standard of care\(^4\)
What were we looking to accomplish?

Goal:

- Reduce post-operative bleeding
  - Reduce transfusion rates
  - Increase utilization rates of TXA for hip fracture procedures and align dosing to recommendations

Proposed Intervention - Audit and Feedback:

- Provide baseline data
  - Personal data on TXA use and patient outcomes for hip fracture and arthroplasty procedures
- Provide an opportunity to discuss potential improvements with your colleagues
- Provide follow-up data

Potential Impact:

- Meta-analyses report TXA reduces total blood loss and transfusion requirements, with no increased risk of DVT or thromboembolic events.\(^5\)
- Improve patient outcomes while simultaneously enhancing cost-effectiveness

Note: An Ontario patient blood management programs estimate that the cost per transfusion episode (including the cost of RBC unit, increased LOS and adverse events) is approx. $1,400 CAD\(^6\)
Background

• Previous PLP project on TXA use in hip and knee arthroplasty at South Health Campus

Clinical Question:

Does the use of IV TXA during total hip and knee replacement procedures affect blood transfusion rates in the 72 hours following surgery?

<table>
<thead>
<tr>
<th>IV TXA Use</th>
<th>Pre-feedback (n=2298)</th>
<th>Post-feedback (n=722)</th>
<th>Absolute Change</th>
<th>Relative Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Hip Arthroplasty</td>
<td>67%</td>
<td>74%</td>
<td>↑ 7%</td>
<td>↑ 10.4%</td>
</tr>
<tr>
<td>Total Knee Arthroplasty</td>
<td>62%</td>
<td>82%</td>
<td>↑ 20%</td>
<td>↑ 32.3%</td>
</tr>
</tbody>
</table>
Baseline period
Jan 2014 – Jun 2015

First feedback session hosted on Oct 14, 2016 on data collected from Jan 1, 2014 to June 30, 2015

Intervention Period
Oct 2016 – Oct 2017

Anesthesia-Surgery Grand Rounds update on TXA use (multi-disciplinary session) on Jan 2017

Second feedback session in May 2018
TXA use in hip arthroplasty

A. Intervention site, hip arthroplasty

**Solid black line** | % use baseline period
---|---
**Dashed black line** | % use intervention period
**Vertical red line** | Intervention date (Oct. 14, 2016)
TXA use in knee arthroplasty

B. Intervention site, knee arthroplasty

- **Solid black line**: % use baseline period
- **Dashed black line**: % use intervention period
- **Vertical red line**: Intervention date (Oct. 14, 2016)
Blood transfusions

<table>
<thead>
<tr>
<th></th>
<th>Pre-feedback (n=2298)</th>
<th>Post-feedback (n=722)</th>
<th>Absolute Change</th>
<th>Relative Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Hip Arthroplasty</strong></td>
<td>5.2%</td>
<td>3.3%</td>
<td>↓ 1.9%</td>
<td>↓ 36.5%</td>
</tr>
<tr>
<td><strong>Total Knee Arthroplasty</strong></td>
<td>2.5%</td>
<td>0.6%</td>
<td>↓ 1.9%</td>
<td>↓ 76.0%</td>
</tr>
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