INAPPROPRIATE PLASMA TRANSFUSION AT ACADEMIC HOSPITALS: AN AUDIT AND QUALITATIVE STUDY

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On behalf of Drs. Ilana Kopolovic, Chai Phua, James Kennedy, Jacob Pendergrast, Nadine Shehata, Yulia Lin, Katerina Pavenski, Lisa Hicks
Background

• Previous plasma use audits completed by ORBCoN report 30 to 50% of plasma use is inappropriate in Ontario\(^1,2\)

• Did not analyze the level of training of physicians that ordered plasma


Objectives

a) To characterize the appropriateness of plasma use at five teaching hospitals in Toronto

b) To explore healthcare workers’ perceptions on factors that contribute to inappropriate plasma transfusion and strategies to improve use
Methods: Audit

- Prospective cohort study in the summer of 2014
- 15-20 consecutive plasma orders were tracked from each of the five sites
- Charts were reviewed for demographics and indications for plasma
- Two adjudicators determined order appropriateness via the 2013 ORBCoN audit criteria

Methods: Interviews

• Semi-structured interviews conducted in Fall 2014 - Summer 2015
• Process mapping and typical case sampling identified key players in the transfusion process at each site
• Interviews were recorded, transcribed and anonymized
• Transcripts were coded and analyzed for themes
Results: Audit

- Appropriate: 46 (51%)
- Inappropriate: 37 (41%)
- Indeterminate: 7 (8%)

N = 90
Most Common Inappropriate Indications

37 (41%)

- INR < 1.5
- No contraindication to PCC
- Reversal of heparin/DOACs
- No bleeding or urgent procedure
<table>
<thead>
<tr>
<th>Category of Orders</th>
<th>% Inappropriate Orders in Category</th>
</tr>
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<tbody>
<tr>
<td><strong>Setting</strong></td>
<td></td>
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<tr>
<td>To Intensive Care Unit</td>
<td>46%</td>
</tr>
<tr>
<td>To Operating Room</td>
<td>31%</td>
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<tr>
<td><strong>Prescriber Discipline</strong></td>
<td></td>
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<tr>
<td>Anesthesiology</td>
<td>36%</td>
</tr>
<tr>
<td>Surgery</td>
<td>37%</td>
</tr>
<tr>
<td>Intensive Care</td>
<td>53%</td>
</tr>
<tr>
<td>General Internal Medicine</td>
<td>54%</td>
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<tr>
<td><strong>Prescriber Level of Training</strong></td>
<td></td>
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<tr>
<td>Staff Physician</td>
<td>36%</td>
</tr>
<tr>
<td>Trainee</td>
<td>47%</td>
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</tbody>
</table>
Results: Interviews

25 participants:
• 8 staff physicians
• 6 resident physicians
• 2 nurses
• 9 transfusion medicine staff
Factors Contributing to Inappropriate Use

<table>
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<tr>
<th>Knowledge gaps</th>
<th>“It has to do with a lack of familiarity with the indications for plasma.”</th>
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<tr>
<td>Time pressures</td>
<td>“There’s situations where there’s significant bleeding and people just don’t feel they have time to wait for coagulation tests.”</td>
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<tr>
<td>Action preferred to inaction</td>
<td>“You get the sense that plasma is often used to help the physician feel better.”</td>
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Contributing Factors to Inappropriate Use

The middle-man phenomenon
- “...radiology will just refuse to do the procedure [you ordered]. So what ends up happening is we just give [plasma] with the understanding it’s not going to lower [the INR].”

Barriers to interdisciplinary collaboration
- “Doctors don’t like to be told they can’t do what they want to do by someone who’s not caring for the patient.”
Plasma Use Improvement Strategies

**Education**
- “[People] haven’t seen [the transfusion institutional policy] at all or they’re not aware of things that are going on.”

**Timely access to tests or consultations**
- “This may end up influencing the decision to transfuse because you can reassure yourself faster, that you don’t need to transfuse plasma and so therefore not transfusing on spec.”
Plasma Use Improvement Strategies

Gatekeeping measures

• “I think it’s not unreasonable to say you’ve got to have consultation [to access plasma for unlisted indications].”

Reflective practice

• “I think if I knew my transfusion rates on my patients, I would be holding that up and saying, ‘I wonder what I’m doing with [plasma products].’”
Conclusions

• A large proportion of plasma use at participating academic hospitals in Toronto is inappropriate

• Setting, specialty and level of training do not impact appropriate plasma use

• Improving plasma transfusion practice likely needs a multidisciplinary, respectful, empowering approach that leverages transfusion laboratory expertise, order entry, feedback and other targeted interventions
Thank you!

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