PARACENTESIS PRACTICE ASSESSMENT:
IDENTIFYING PERI-PROCEDURAL VARIATIONS AND ADHERENCE TO MANDATED PROTOCOLS

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DISCLOSURE

- The authors have nothing to disclose
OUTLINE

• Purpose
• PDSA cycle
• Data collection
• Results
• Impact
• Conclusion
• References
WHY WE UNDERTOOK THIS PROJECT?

- Increase implementation of preprocedural pause
  - Increases communication
  - Reduces flow disruptions and delays

- Identify procedural variabilities and overall time required for paracentesis
  - More efficient and standardized procedure
  - More efficient scheduling

- Assessment of patient comfort during and after the procedure
PDSA CYCLE

- Creation of objectives (Plan)
- 5 weeks of observation (Do)
- 1 week educational intervention (Study/Act)
- 6 weeks of observation (Do... again)
- Distribution of final results (Study/Act)
INTERVENTION AFTER INITIAL OBSERVATION

- Each radiologist received an email of their own results and anonymized group means (and ranges)
- An educational PowerPoint was created and presented at our monthly divisional meeting
- Emailed PowerPoint and link to YouTube videos about
  - Sterile technique
  - Preprocedural pause
DATA COLLECTION

• Medical students observed paracenteses at a quaternary facility over a period of 3 months
<table>
<thead>
<tr>
<th>Yes/No</th>
<th>Risk of infection</th>
<th>Risk of damage to nearby structures</th>
<th>Risk of air embolism</th>
<th>Asked if patient questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/No</td>
<td>Blood loss</td>
<td>Blood loss in pregnant females</td>
<td>Blood loss in pregnant females</td>
<td>Blood loss in pregnant females</td>
</tr>
</tbody>
</table>

**Pre-Procedural Preparation:**
- Sterile gloves: Yes/No
- Mask: Yes/No
- Sterile technique used: Yes/No
- Sample sent for diagnostic purposes: Yes/No
- Post-procedure orders and medications: if applicable completed: Yes/No

**Complications:**
- Yes/No: Bleeding, Pain, Hypotension, Others

**Results:**
- Procedure performed: Yes/No
- Local anesthesia: Yes/No
- How many vials of local anesthesia? 1
- How many vials of local anesthesia: 1
- Local anesthesia given on ultrasound visualization: Yes/No
- Sequence of anesthesia steps (i.e., pre-anesthesia)
- Press down (2x): a cloth draped (gown) or no drapes
- Used ultrasound prior to guide insertion of catheter: Yes/No
- Used ultrasound to check for post-procedure complications: yes/no
- Grossly: Yes/No
- Color: Yes/No

**Sterile Technique:**
- Sterile technique used: Yes/No
- Sample sent for diagnostic purposes: Yes/No
- Post-procedure orders and medications: if applicable completed: Yes/No

**Complications:**
- Yes/No: Bleeding, Pain, Hypotension, Others

**Results:**
- Procedure performed: Yes/No
- Local anesthesia: Yes/No
- How many vials of local anesthesia? 1
- How many vials of local anesthesia: 1
- Local anesthesia given on ultrasound visualization: Yes/No
LIKERT PAIN SCALE FILLED OUT BY PATIENTS
# PRACTICE ASSESSMENT RESULTS

<table>
<thead>
<tr>
<th>Areas of Interest</th>
<th>Frequency Before Intervention (n)</th>
<th>Frequency After Intervention (n)</th>
<th>Significance (P-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outlined risk of damage to nearby structures</td>
<td>24% (n=8)</td>
<td>54% (n=14)</td>
<td>0.02*</td>
</tr>
<tr>
<td>Outlined risk of infection</td>
<td>82% (n=27)</td>
<td>100% (n=26)</td>
<td>0.022*</td>
</tr>
<tr>
<td>Outlined risk of bleeding</td>
<td>91% (n=30)</td>
<td>100% (n=26)</td>
<td>0.11</td>
</tr>
<tr>
<td>Inquired about patient allergies</td>
<td>36% (n=12)</td>
<td>54% (n=14)</td>
<td>0.18</td>
</tr>
<tr>
<td>Inquired about patient use of blood thinners</td>
<td>67% (n=22)</td>
<td>88% (n=23)</td>
<td>0.051*</td>
</tr>
<tr>
<td>Inquired about patient bloodwork</td>
<td>42% (n=14)</td>
<td>77% (n=20)</td>
<td>0.0078*</td>
</tr>
<tr>
<td>Gave patient the opportunity to ask questions</td>
<td>73% (n=24)</td>
<td>100% (n=26)</td>
<td>0.0038*</td>
</tr>
<tr>
<td>Performed pre-procedural pause</td>
<td>22% (n=6)</td>
<td>85% (n=22)</td>
<td>3.91E-07*</td>
</tr>
</tbody>
</table>
PRACTICE ASSESSMENT RESULTS

Time required for paracentesis

Av = 16 min

Av = 13 min

Pre-intervention

Post-intervention
PRACTICE ASSESSMENT RESULTS

Pain perceived by patients

Likert Scale

Pre-intervention

Post-intervention

Pre-procedure

Post-procedure

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IMPACT

- Successful implementation of institutionally mandated preprocedural pause
  - Allows for more robust communication
  - No effect on patient comfort (high overall)
  - Room for improvement

- Identification and improvement of variations in paracentesis procedures
  - Allows for a more efficient and standardized procedure

- Accurately determined the length of time required of a paracentesis
  - Allows for more efficient scheduling

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LIMITATIONS

• Variable radiologist scheduling

• Two students involved in practice assessment observations
  • Mitigated by meeting prior to starting
CONCLUSION

• Successful utilization of PDSA cycle to:
  • Improve implementation of preprocedural pause
  • Reduce peri-procedural variabilities
  • Determine time required for procedure
THANK YOU!
REFERENCES


