Post-Operative Day One (POD1)
Laboratory Testing: A Routine Practice Needing Re-examination

William C Sherrill III MD
Bradley W. Thomas MD,
Caroline Reinke MD,
Ryan Decamp BS,
Kathy E. Sing MHA,
Cynthia Lauer MD,
Ronald F. Sing DO.

Reasons for Study
• US Healthcare spending continues to grow, including a 4.3% increase in 2016 reaching 3.3 Trillion Dollars (10,348 dollars per person)
• Though a large majority of healthcare cost are out of physician control, it is our duty to find ways we can ease this crisis through our daily practice.
• Our study was preformed in order to determine how frequently laboratory tests were being ordered and how often their results lead to an intervention.

Background
• According to H-CUP (Healthcare Cost and Utilization Project), the number of Appendectomies and Cholecystectomies preformed in 2012 were
  • 6. Cholecystectomy 406,300
  • 11. Appendectomy 293,000
• Since implementation of Electronic Health Records, there has been a measurable increase in the number of laboratory tests that have been ordered.
• Previous research has shown that residents are far more likely to order routine post-operative labs when compared to their supervising attendings.

Methods
• Prospective Study of 125 patients requiring one of the following procedures, from one of two emergency general surgery services at Atrium Health
  • Cholecystectomy
  • Appendectomy
  • Incision and Drainage
  • Combination of the above
• Patients were then followed post-operatively for interventions as a result of laboratory testing

Results

<table>
<thead>
<tr>
<th>Type of Procedure</th>
<th>Number</th>
<th>Post-Operative Labs Ordered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laparoscopic Appendectomy</td>
<td>35</td>
<td>18 (51.4%)</td>
</tr>
<tr>
<td>Laparoscopic Cholecystectomy</td>
<td>53</td>
<td>41 (77.4%)</td>
</tr>
<tr>
<td>Laparoscopic Cholecystectomy w/IUC</td>
<td>6</td>
<td>4 (66.7%)</td>
</tr>
<tr>
<td>Open Cholecystectomy</td>
<td>1</td>
<td>1 (100%)</td>
</tr>
<tr>
<td>Laparoscopic Appendectomy and Cholecystectomy</td>
<td>1</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Incision and Drainage of Abscess</td>
<td>29</td>
<td>19 (65.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>125</td>
<td>83 (66.4%)</td>
</tr>
</tbody>
</table>

Table 1.1: Frequency of each procedure performed combined with the percentage of them that had postoperative labs ordered.
Results

<table>
<thead>
<tr>
<th>Type of Intervention</th>
<th>Frequency</th>
<th>Range of Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Replacement</td>
<td>8</td>
<td>3.2-3.8</td>
</tr>
<tr>
<td>HTN</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Blood Glucose</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ERCP</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Table 1.2: Interventions order from the data obtained from labs

Summary

- 83/125 (66.4%) of these cases we found to have POD 1 labs (CBC and BMP) ordered
- 12/83 (14.5%) received interventions that were from results of the labs
- 8 (Potassium Repletion) no potassium was below 3.2, no one with IV fluids in post operative fluids
- 2 (Magnesium Repletion), though no labs were checked
- 1 ERCP
- Additionally no patients required transfusion from their CBC results

Conclusions

- The routine practice of ordering post-operative labs is costly and rarely affects the treatment decision of the patients. We are evolving a standard practice with greater focus on clinical signs and patient examination to carefully select those who would benefit from laboratory studies.

Future Directions

- Resident education into cost saving measures
- Comparisons of frequency of post op day 1 labs at a institution with residents versus attendings.
- Investigation on of clinical findings that should prompt evaluation of patient with routine lab testing.

Sources


Questions