The impact of standardizing preoperative insulin instruction and glucose optimization on postoperative patient outcomes.

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Introduction
- Hyperglycemia in the perioperative period is associated with increased perioperative complications.
- There is limited research regarding the relationship between standardization of pre-operative diabetic medications and rates of surgical outcome.
- In January 2019, the anesthesia preoperative center (APEC) at Penn State Hershey Medical Center implemented the standardization of preoperative diabetic medication instructions, for both oral hypoglycemics and insulin.
- The aim of this change was to improve perioperative glucose management on the day of surgery with the hope of decreasing complications in the perioperative period.

Methods
- A retrospective review was performed on patients:
  - who were on oral hypoglycemic or insulin medication for diabetes mellitus
  - were admitted for elective non-cardiac surgery
  - had been evaluated by APEC between 1/1/2018-12/31/2018 (pre-standardization) and 1/1/2019-12/31/2019 (post-standardization).
- The primary outcome measured was postoperative point of care glucose levels.
- The secondary outcomes measured were post-operative infections, rate of diabetes complications (DKA, HHS), 30-day hospital readmission rate, return to the operating room and postoperative surgical site infections.

Results
- A total of 917 patients were included. 454 were in the pre-standardization group, 463 were in the post-standardization group.

![Average Postoperative Glucose](chart)

<table>
<thead>
<tr>
<th>Pre-Standardization, N = 336</th>
<th>Post-Standardization, N = 331</th>
</tr>
</thead>
<tbody>
<tr>
<td>168.1</td>
<td>172.3</td>
</tr>
</tbody>
</table>

Instances of Secondary Outcomes, in Percentages

<table>
<thead>
<tr>
<th>Post-op Infection</th>
<th>Diabetes Complication</th>
<th>Readmission to the hospital</th>
<th>Return to the operating room</th>
<th>Post-op Surgical Site Infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 453</td>
<td>N = 460</td>
<td>N = 454</td>
<td>N = 459</td>
<td>N = 454</td>
</tr>
<tr>
<td>p = 0.37</td>
<td>p = 0.88</td>
<td>p = 0.76</td>
<td>p = 0.37</td>
<td>p = 0.37</td>
</tr>
<tr>
<td>16.8</td>
<td>10.1</td>
<td>8.9</td>
<td>6.8</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Conclusions
- There is no statistically significant difference in perioperative outcome before and after the standardization of preoperative diabetic medication instruction.
- This was most likely due to a low incidence of surgical complications in both populations.
- Future studies may include larger sample sizes to evaluate the efficacy of standardization on perioperative diabetes medication instructions and perioperative outcome measures.

Literature cited