Effect of Preoperative Functional and Nutritional Status on Surgical Outcomes for esophageal cancers

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Introduction
The importance of cancer-associated malnutrition has been studied over the last 40 years to decrease adverse outcomes, length of hospital stay, and ultimately leading to lower healthcare cost.1,2 Studies shown that a multimodal approach to prehabilitation (physical, nutritional, and psychological) can lead to a 51% reduction in postoperative complications and protein supplementation before surgery can significantly decrease the hospital LOS by 2 days.3,4 However, there’s not a single functional and nutritional assessment tool available that can adequately assess a patient and predict outcome.5

Methods
A qualitative and quantitative retrospective chart review was performed based on the esophagectomy case series of 405 patients from 2004 to 2019 maintained by the surgical oncology department at Ochsner
3 different surgeons were used for data collection, with the vast majority performed by a single surgeon
Data is being collected from electronic medical records and entered into a RedCap database.
Complications are being recorded in accordance with standards established by the ECCG and relevant tracking data we have established.
Patients are included if they received an esophagectomy for malignancy at our center and have at least detailed post-op inpatient data until discharge or until the time of death

Table 1: Summary

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Albumin &lt; 3.4</th>
<th>Albumin ≥ 3.4</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>118</td>
<td>242</td>
<td>0.04</td>
</tr>
<tr>
<td>Gastrointestinal bleed</td>
<td>2.6%</td>
<td>0%</td>
<td>0.04</td>
</tr>
<tr>
<td>Thoracic wound dehiscence</td>
<td>2.6%</td>
<td>0%</td>
<td>0.04</td>
</tr>
<tr>
<td>Central line infection</td>
<td>2.6%</td>
<td>0%</td>
<td>0.04</td>
</tr>
<tr>
<td>Prealbumin &lt; 15</td>
<td>22</td>
<td>143</td>
<td>0.01</td>
</tr>
<tr>
<td>Deep vein thrombosis</td>
<td>4.5%</td>
<td>0%</td>
<td>0.01</td>
</tr>
<tr>
<td>Cerebral vascular accident</td>
<td>4.5%</td>
<td>0%</td>
<td>0.01</td>
</tr>
<tr>
<td>Other non-specified complications</td>
<td>31.8%</td>
<td>12.6%</td>
<td>0.02</td>
</tr>
<tr>
<td>Prehabilitation</td>
<td>21</td>
<td>384</td>
<td>0.02</td>
</tr>
<tr>
<td>ICU admission</td>
<td>14.3%</td>
<td>40.6%</td>
<td></td>
</tr>
</tbody>
</table>

Discussion & Conclusion
This data further demonstrates the importance of emphasizing and optimizing nutritional status preoperatively.
The data also highlights the potential benefits of prehabilitation on surgical outcomes, specifically esophagectomy.
In oncological patients, delaying surgery for up to 12 weeks to allow time for prehabilitation does not have an impact on overall long-term survival.6
Some studies have used the 6-min walk distance, grip strength, 10-meter walk speed, muscle-to-fat ratio, BMI, albumin, and prognostic nutritional index.7
The current ERAS guideline advise surgeons to choose one of the existing tools according to hospital feasibility.8
Further studies needed to establish a more consistent prehabilitation assessment protocol to optimize patient enrollment.

References

Improvement in patients after undergoing prehabilitation:
- Get up and go time improved from 13.79 seconds to 10.07 seconds
- Right grip strength improved from 25.1kg to 29.6kg
- Left grip strength improved from 25.5kg to 28.8kg
- Frailty score improved from 4.0 to 2.7