

# Nocturnal Regurgitation after Esophagectomy Before and After Implementation of a Novel Sleep Assist Device

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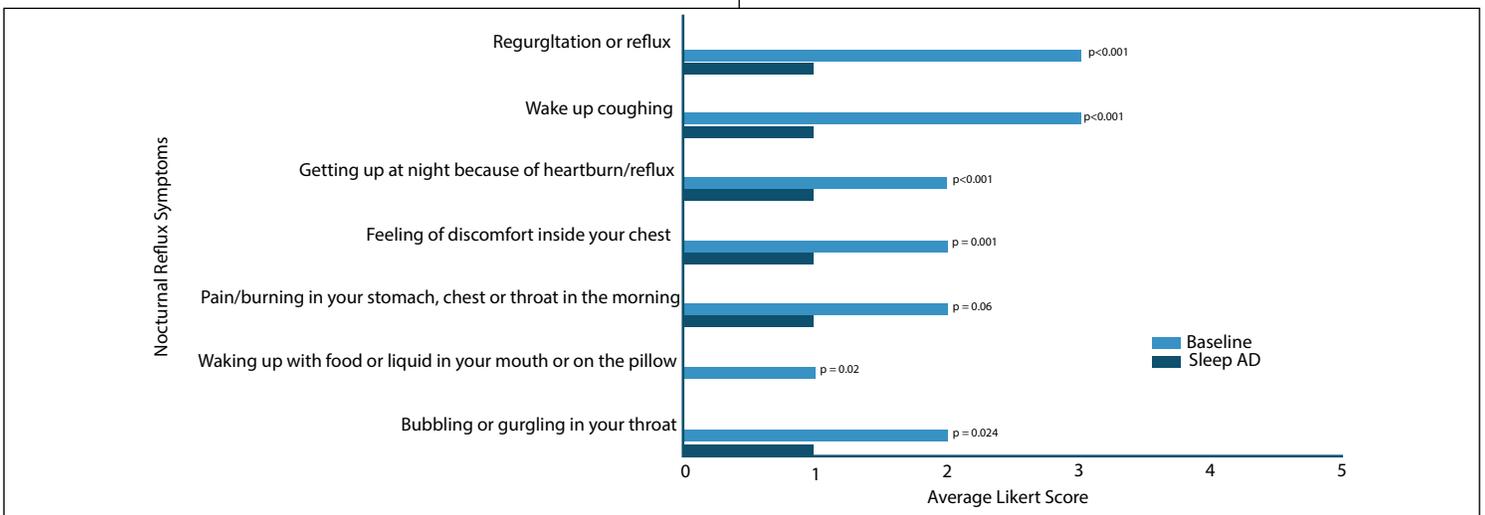
**Objective:** Nocturnal regurgitation and aspiration symptoms after esophagectomy impair quality of life and can lead to pneumonia and pulmonary fibrosis. Patients are instructed to elevate the head of the bed, but when using pillows or a wedge they often slide down or find them uncomfortable. A novel sleep assist device (AD) consisting of a combination wedge and special pillow has been introduced for patients with gastroesophageal reflux disease (GERD). The aim of this study was to evaluate the effectiveness of this device in patients post esophagectomy.

**Methods:** Patients with nocturnal regurgitation symptoms after esophagectomy were provided the Sleep AD (Amenity Health, Inc., San Diego, CA). All patients were questioned about their current sleep difficulties and completed a 20-item questionnaire specific for nocturnal reflux symptoms (N-GSSIQ) before and at least 14 days after using the Sleep AD. The validated N-GSSIQ uses a Likert scale to rate symptoms on a scale of 0-5 with higher scores indicating worse severity.

**Results:** There were 20 patients, 16 males (80%) and 4 females (20%) with a median age of 65 years (range 24-75). Reconstruction was with a gastric tube in 18 and a colon interposition in 2 patients. The median time since esophagectomy was 25 months (range 17-152). The median height of the patients was 68 inches and the

median BMI was 25. The most common symptoms in this group were nocturnal regurgitation in 14 (70%), chest or throat discomfort in 4 (20%) and cough in 2 patients (10%). At baseline 7 patients (35%) were using multiple pillows to elevate their head at night while 13 patients (65%) were using a wedge or hospital bed. Compared to baseline, 95% (19/20) of patients reported an overall improvement in how well they slept using the novel Sleep AD. Patients reported significantly less difficulty with sliding down at night (baseline 4.0 vs. 1.0 with Sleep AD,  $p < 0.001$ ), less morning tiredness (baseline 3.0 vs. 1.0 with Sleep AD,  $p < 0.001$ ) and more daytime energy ( $p = 0.002$ ). Further, there were significant improvements in nocturnal regurgitation symptoms with the use of the Sleep AD (see figure).

**Conclusion:** Post-esophagectomy nocturnal regurgitation and aspiration symptoms were significantly reduced with the use of a novel Sleep AD designed for patients with GERD. The device minimized problems with sliding down at night and allowed better quality sleep with the result that patients were less tired in the morning and had more energy throughout the day. Long-term these benefits may translate into an improved quality of life and a reduced frequency of pulmonary complications.



Disclosure: Positional therapy devices were provided to the patients by Amenity Health, the patients were not otherwise reimbursed for participation. No other financial support to patients was provided.