

Table 1. Time from isophagectomy o functional recovery and length of hospital day.

	Direct oral feeding	Standard of care	p-value
Intention-to-treat analysis	N=84*	N=109**	
Functional recovery, days	7 [6-9]	9 [6-16]	< 0.001
Length of hospital stay, days	8 [7-10]	10 [7-18]	< 0.001
Per-protocol analysis	N=59	N=65	0.118
Functional recovery, days	6 [5-7]	7 [6-8]	0.037
Length of hospital stay, days	7 [6-9]	8 [7-9]	0.024

**Legend** Values are median [lower quartile - upper quartile]. \*One patient was discharged home with palliative care due to disease progression and did not meet functional recovery criteria. \*\*Two patients died during hospital admission (Clavien-Dindo grade V) and were therefore not able to achieve functional recovery.

**Results.** Baseline characteristics were similar in the intervention (n = 85) and control (n = 111) group. Median time to functional recovery was respectively 7 versus 9 days in the intervention and control group (p < 0.001). Median length of hospital stay was respectively 8 versus 10 days in the intervention and control group (p < 0.001). Thirty-day postoperative complications were significantly lower in the intervention group (p = 0.037). Anastomotic leakage and pneumonia rates did not differ between the intervention and control group (respectively 11.8% vs. 10.8%, p = 0.834; 27.1% vs. 33.3%, p = 0.651). Chyle leakage only occurred in the control group (18.9%, p < 0.001). All other postoperative complications were similar between groups.

Conclusion. Direct oral feeding in a center with a low postoperative complication rate after a MIE results in a reduced time to functional recovery and a shorter length of hospital stay. Importantly, the 30-day postoperative complication rate was significantly lower in patients directly starting oral feeding.

## 106 THE HYBRID POSITION IS SUPERIOR TO THE PRONE POSITION FOR THORACOSCOPIC ESOPHAGECTOMY WITH UPPER MEDIASTINAL LYMPHADENECTOMY

H Kikuchi<sup>1</sup> Y Hiramatsu<sup>2</sup> W Soneda<sup>1</sup> S Kawata<sup>1</sup> A Hirotsu<sup>1</sup> T Matsumoto<sup>1</sup> K Kamiya<sup>1</sup> H Takeuchi<sup>1</sup>

1.Department of Surgery, Hamamatsu University School of Medicine, Hamamatsu, Japan 2.Department Perioperative Functioning Care and Support, Hamamatsu University School of Medicine, Hamamatsu, Japan

Thoracoscopic esophagectomy (TE) is becoming a common surgical method for esophageal cancer. TE is performed with the patient the left lateral decubitus position, prone position, or hybrid position combining the left lateral decubitus and prone positions. However, only few studies have compared the clinical utility of these TE positions.

**Methods.** In our institute, we introduced TE in the prone position (prone TE) in 2014, and have performed TE in the hybrid position (hybrid TE) since March 2017. The present study compared the short-term outcomes of prone TE versus hybrid TE. One-hundred-and-three patients with esophageal or esophagogastric junction cancer who underwent TE between March 2014 and December 2019 were included. Patients were divided into those who underwent prone TE (prone TE group; n=43) and those who underwent hybrid TE (hybrid TE group; n=60). Clinicopathological data were retrospectively reviewed and compared between groups.

**Results.** There were no differences between groups in age, tumor histology, and tumor location. Compared with the hybrid TE group, the prone TE group had a smaller tumor depth (P < 0.001), lower grade of lymph node metastasis (P = 0.003), and less severe tumor stage (P = 0.001). The operation time for the thoracoscopic procedure was shorter in the hybrid TE group (318.9 vs 249.2 min, P = 0.002). The rate of recurrent laryngeal nerve paralysis (Clavien-Dindo grade I–III) was significantly lower in the hybrid TE group (41.9% vs 11.7%, P < 0.001), whereas there were no differences between groups in the rates of anastomotic leakage, atelectasis, or pneumonia.

**Conclusion.** The most significant differences between prone TE and hybrid TE involved the upper mediastinal procedures. In hybrid TE, the motion of the assistant's forceps causes less interference with the operative field, and the angle at which the operator's forceps approach the upper mediastinal lymph

nodes enables the maintenance of appropriate traction. These advantages of hybrid TE appeared to result in a shorter operation time and less recurrent laryngeal nerve paralysis compared with prone TE.

## 114 VATS ESOPHAGECTOMY: DOES PATIENT OPERATIVE POSITION DURING THORACOSCOPIC MOBILISATION INFLUENCE OUTCOMES? A PROSPECTIVE COMPARATIVE STUDY

Y Choudhary H Pokharkar A Patil R Mistry

Kokilaben Dhirubhai Ambani Hospital, Andheri West, India

VATS esophagectomy can be done in lateral, prone and semiprone positions. Present evidence available comparing semiprone with lateral position is retrospective. We have conducted this study to provide prospective data on perioperative outcomes in patients undergoing Video Assissted Thoracoscopic (VATS) esophagectomy in Semiprone (SP) and Lateral decubitus position (LP) in a single centre.

**Methods.** 48 patients (SP =24 & LP =24) undergoing VATS esophagectomy (2017 to 2019) were analysed. Preoperative details (tumor characteristics, preoperative treatment and pulmonary function test), intraoperative details [operative time, blood loss, mean EtCO2, arterial blood gas analysis (ABG) at the end of one lung ventilation(OLV), number of ports used, need for lung reinflation and retraction] and postoperative details [duration of ICU stay, cardiovascular and respiratory complications, pain scores (VAS) and tidal volume improvement (spirometry reading) on first five postoperative days, circumferential resection margin (CRM) status, total and recurrent laryngeal nerve (RLN) nodal yield were noted.

**Results.** Preoperative data in both arms were comparable. Ports used (5 vs 3, p < 0.0001), need for lung retraction (22 vs 4patients, p < 0.0001), duration of ICU stay (2 days vs 1 day, p = 0.0327), spirometry readings for POD 1st-5th (p < 0.05) and pain scores (p < 0.05) for POD 1st-5th was significantly less in SP group. There were fewer respiratory complications in SP group (10 vs 4, p = 0.110). LP group had shorter duration of surgery (3.7 vs 4.2 hours, p = 0.0398). There were no differences in tumor characteristics, blood loss, ABG at the end of OLV, mean EtCO2, lung reinflation rate, cardiovascular complications, CRM involvement, total and RLN nodal yield.

**Conclusion.** Similar oncological clearance was achieved by both techniques of esophageal mobilization. Semiprone position is associated with lesser postoperative pain and better preservation of respiratory function.

# 120 LYMPHADENECTOMY ALONG THE LEFT RECURRENT LARYNGEAL NERVE AFTER ESOPHAGEAL STRIPPING. H Makino<sup>1</sup> S Nomura<sup>1</sup> H Maruyama<sup>1</sup> T Yokoyama<sup>1</sup> A Hirakata<sup>1</sup> H Takata<sup>1</sup> H Kogo<sup>1</sup> T Iwai<sup>1</sup> M Yoshioka<sup>1</sup> H Yoshida<sup>2</sup>

1. Department of Surgery, Nippon Medical School, Tama Nagayama Hospital, Tokyo, Japan 2. Department of Gastrointestinal and Hepato-Biliary-Pancreatic Surgery, Nippon Medical School, Tokyo, Japan

The working space in the upper mediastinum is limited and lymphadenectomy along the left recurrent laryngeal nerve is difficult and anastomosis by a circular stapler in the narrow neck field is also difficult in VATS-E. We report our technique of the lymphadenectomy along the left recurrent laryngeal nerve.

### ISDE

#### Methods.

(1) Patients.

One hundred forty seven patients with esophageal carcinomas underwent VATS-E.

(2) Methods.

i) VATS-E in prone position.

Esophagectomy is performed in prone position with 5 ports those are used at the intercostal space (ICS) and pneumothorax by maintaining CO2 insufflation.

ii) Lymphadenectomy around left recurrent laryngeal nerve.

Working space at the left upper mediastinal area for lymphadenectomy around the recurrent laryngeal nerve is limited in prone position. To obtain the space the residual esophagus is stripped in the reverse direction and retracted toward the neck after the stomach tube is removed through the nose.

Results. 1. The rate of permanent and transient recurrent laryngeal nerve paralysis were 2.6% and 20%, respectively.

2. The rate of anastomotic leak and postoperative pneumonia was 3.9% and

Conclusion. Lymphadenectomy along the left recurrent laryngeal nerve after esophageal stripping is available in prone position of VATS-E.

#### 132 ANTI-REFLUX SURGERY FOR CONTROLLING RESPIRATORY SYMPTOMS OF GASTRO-ESOPHAGEAL REFLUX DISEASE; A SYS-TEMATIC REVIEW AND META-ANALYSIS.

F Tustumi W Bernardo J Rocha da S Szachnowicz F Seguro E Bianchi F Takeda A Miranda Neto de R Sallum I Cecconello

USP, São Paulo, Brazil

Gastro-esophageal reflux disease (GERD) patients have a higher prevalence of airway symptoms, such as chronic cough, wheezing, and hoarseness. The therapeutic management of patients with these symptoms is controversial. Therefore, this study aims to perform a systematic review and meta-analysis evaluating the efficacy of anti-reflux surgery for controlling respiratory symptoms related to GERD.

Methods. A systematic review and meta-analysis was performed. Extraction of the data concerning proportions of participants who were not free of respiratory symptoms related to GERD (cough, wheezing, hoarseness) or not substantially improved at follow-ups (failure to cure) was performed.

Results. Of the screened articles, 61 were included for meta-analysis, with a cumulative sample size of 3,869 patients. Of all the included patients, after anti-reflux surgery, the general symptoms improvement was 80% (95% CI 75.2-84%). The numbers needed to harm (NNH) and the numbers needed to treat (NNT) were 15.21 and 1.23, respectively. Of the included patients, 83.4% (95% CI 78.3-87.5%) patients reported improvement in cough symptoms after surgery. For the wheezing symptom, 71.5% (95% CI 62.9-78.8%) reported improvement after surgery. Moreover, surgery presented better results in improving respiratory symptoms than medical therapy (risk difference: -0.46; 95% CI -0.77, -0.16).

Conclusion. Physicians should strongly consider surgical anti-reflux procedures for controlling respiratory symptoms in GERD patients after proper patient selection. Anti-reflux surgery has shown high efficacy in improving respiratory symptoms related to GERD, even when compared to medical

#### 133 SURGICAL MANAGEMENT OF ESOPHAGEAL STENOSIS DUE TO CORROSIVE SUBSTANCES

F Tustumi F Seguro S Szachnowicz E Bianchi A Morrell M Silva da A Duarte J Sousa de G Laureano J Rocha da R Sallum I Cecconello

USP. São Paulo, Brazil

Corrosive ingestion is a significant challenge for healthcare support. Limited data is available regarding the best treatment, and there is still a lack of consensus about the optimal surgical approach and its outcomes. This study aims to show a single-institution experience of surgical treatment of esophageal stenosis due to corrosive substance ingestion and review the current literature.

Methods. A retrospective review, including demographics, psychiatric profile, surgical procedures, and outcomes, is described. A systematic review of the literature was performed in PubMed.

Results. In total, 27 surgical procedures for esophageal stenosis due to corrosive substances ingestion were performed from 2010 to 2019. Depression and drug abuse were diagnosed in 30% and 22% of the included patients, respectively. The incidence rate of cancer in patients with corrosive esophageal stenosis is 701.7-874.1 per 1,000,000 person-years, and the cancer latency between corrosion ingestion to carcinoma is 10-58 years. Esophagectomy and esophageal bypass were performed in 13 and 14 patients, respectively. No 30-day mortality was recorded.

Conclusion. The surgical intervention either by esophagectomy or esophageal bypass seems to show a high success rate. However, the outcomes depend on a high-quality multidisciplinary network of esophageal and thoracic surgeons. intensivists, psychologists, psychiatrists, and nutritional teams.

#### 135 ACCURACY OF ACHALSIA QUALITY OF LIFE AND ECKARDT SCORES FOR ASSESSMENT OF CLINICAL IMPROVEMENT POST TREATMENT FOR ACHALASIA

S Slone J Richter A Kumar V Velanovich J Jacobs

University Of South Florida, Tampa, United States

Achalasia Quality of Life (ASQ) and Eckardt scores are two patient-reported instruments used to assess symptom severity in achalasia patients. ASQ is validated and reliable. Although Eckardt is commonly used, it has not been assessed for validity or reliability. Our aims were to evaluate 1) the accuracy of both instruments for assessing improvement post-treatment (predictive validity) with pneumatic dilatation versus surgical myotomy and 2) convergent validity of both tools.

Methods. Patients with achalasia treated between 2011-2018 were eligible. Both instruments were administered by telephone. Treatment failure was determined by review of medical records by two clinicians. The predictive ability of ASQ and Eckardt instruments in identifying treatment successes and failures was determined using receiver operating characteristics analysis and summarized as Area Under the Curve (AUC).

Results. 106 patients met inclusion criteria with 44 PD, 52 Heller Myotomy, and 10 per-oral endoscopic myotomy. A review of medical records and esophageal testing defined 13 failures (13%). AUC for Eckardt was 0.96 [95% CI 0.87-0.99] and ASQ 0.97 [95% CI 0.92-0.99]. The Eckardt cutoff 4, and ASQ, cutoff 15, were 94% and 87% accurate in identifying treatment successes versus failures. The correlation coefficient between the two tools

Conclusion. 1) ASQ and Eckardt scores are valid and reliable tools to assess symptom severity in achalasia patients; 2) Both instruments accurately classify treatment successes versus failures. 3) The choice of tool should be informed by the physicians' and patients' values and preferences and repeat physiologic testing may be reserved for treatment failures with either instrument and patients classified as treatment successes may be spared routine physiologic testing in the long term.

#### 146 LEVEL OF DYSPHAGIA AND QUALITY OF LIFE FOLLOWING ENDOSCOPIC TREATMENT OF LOW-GRADE DYSPLASIA AND SUPERFICIAL ESOPHAGEAL CANCER

T Hauge<sup>1,3</sup> T Hauge<sup>2,3</sup> M Franco-Lie<sup>2</sup> C Amdal<sup>4</sup> E Johnson<sup>1,3</sup>

1. Department of Gastrointestinal and Child Surgery, Oslo University Hospital, Ullevål, Norway 2.Department of Gastroenterology and Hepatology, Oslo University Hospital, Ullevål, Norway 3. Faculty of Medicine, University of Oslo, Norway 4. Department of Research Support Service, Oslo University Hospital, Norway

Low-grade dysplasia (LGD) and superficial esophageal cancer (high grade dysplasia, T1a and superficial T1b) can be endoscopically treated according to most international guidelines, including the European Society of Gastrointestinal Endoscopy from 2017. The aim was to assess the level of dysphagia and health-related quality of life (HRQOL) in patients who underwent endoscopic treatment.