Introduction Survival and recurrence rates following oesophagectomy remain poor despite the use of neoadjuvant therapy. Human epidermal growth factor receptor-2 (HER2) overexpression is associated with poorer survival in patients with gastric cancer and trastuzumab, a monoclonal antibody against HER2 has been shown to be effective in patients with advanced gastric cancer. However, the influence of HER2 overexpression in patients with oesophageal cancer has been equivocal. We performed a systematic review and meta-analysis to determine the influence of HER2 overexpression and amplification on outcomes in patients with oesophageal cancer.

Methods A computerised search of MEDLINE was performed via PubMed and Embase from January 1990 to November 2011 using the MeSH subject headings: oesophageal neoplasm and human epidermal growth factor receptor 2 or HER2 or Neu or HER-2 or c-erbB-2 or erbB2 or CDS40 or p185 to identify studies investigating the influence of HER2 protein overexpression or gene amplification on survival in patients with oesophageal cancer. The meta-analysis was performed in line with the recommendations from the Cochrane Collaboration and PRISMA guidelines using Review Manager 5.1. Statistical analysis of dichotomous variables were carried out using OR as the summary statistic. Random-effects models were used and were reported with 95% CIs ORs represent the odds of death during the study interval in a patient who was HER2 positive compared with a patient who was HER2 negative.

Results This review included 16 studies totalling 1549 patients with oesophageal cancer [1486 (96%) curative oesophagectomy, 350 (22.6%) HER2 positive]. Immunohistochemistry was most commonly used to assess HER2 expression. 5-Year survival was significantly poorer in HER2 positive patients [OR 1.38, 95% CI (1.01 to 1.88), p = 0.01] but not adenocarcinoma [OR 1.33, 95% CI (0.89 to 2.00), p = 0.18]. Analysis according to histological type showed a significantly poorer survival in HER2 positive patients at 5 years for squamous cell carcinoma [OR 2.63, 95% CI (1.25 to 5.52), p = 0.01] but not adenocarcinoma [OR 1.33, 95% CI (0.89 to 2.00), p = 0.17]. However, sensitivity analysis for adenocarcinoma revealed the same trend [OR 1.91, 95% CI (1.15 to 3.17), p = 0.01].

Conclusion HER2 overexpression and gene amplification was a poor prognostic indicator in patients with curable oesophageal cancer. This may provide the opportunity for wider application of therapeutic targeting of this receptor to improve the prognosis of patients with oesophageal cancer. A randomised trial is therefore needed to determine whether HER2 monoclonal antibody therapy improves survival in patients with curable oesophageal cancer.

Competing interests None declared.

REFERENCES

PTU-175 CENTRAL OBESITY AND AGE PREDICT CARDIA MUCOSAL LENGTH IN HEALTHY VOLUNTEERS: EVIDENCE FOR AN ACQUIRED ENTITY

doi:10.1136/gutjnl-2012-302514c.176

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Introduction Oesophageal adenocarcinoma is thought to arise from columnar metaplasia of distal oesophageal mucosa caused by gastro-oesophageal reflux. Obesity is a risk factor for this process. There is some evidence that “normal” cardia may be an acquired mucosa...
arising through the same pathway and predisposing to adenocarcinoma development at this site. The influence of obesity on the aetiology of cardia mucosa is unknown.

**Methods** 62 *H pylori* negative healthy volunteers (age 18–74 years) were recruited. BMI, waist circumference and gender were recorded. MRI (Phillips 1.5T) was performed for quantification of visceral and subcutaneous fat (average of three axial planes; L2, L3 and L4). Upper GI endoscopy was performed with biopsies of the gastro-oesophageal junction. Biopsies were taken in a cranio-caudal direction and targeted to include enough squamous mucosa to confirm position. Intra-procedure pathological feedback was available and two to three biopsies were taken to optimise accuracy. Functional biopsies were assessed to determine cardia length, considered measurable provided there was consecutive squamous, cardia and oxyntic mucosal types present. Non-parametric correlations were examined between BMI, waist circumference and cardia length and between fat distribution quantified by MRI and cardia length. Regression analysis (Stepwise method) incorporating age, BMI, waist circumference and MRI total fat was used to determine predictors of cardia length.

**Results** 57 of 62 volunteers had at least one junctional biopsy including squamous, cardia and oxyntic mucosa; median total length 6.5 mm (IQR 1.6). Median cardia mucosal length was 2.5 mm (IQR 1.5 mm). Length of cardia mucosa increased with age (R = 0.457, p = 0.004) and with waist circumference (R = 0.466, p = 0.004). A correlation was also seen with intra-abdominal fat (R = 0.374, p = 0.027) and total fat measured by MRI (R = 0.389, p = 0.021) but not with subcutaneous fat (p = 0.091). There was no significant correlation with BMI. On regression analysis the independent predictors of cardia mucosa length were waist circumference (Standardised coefficient 0.342, p = 0.035) and age (Standardised coefficient 0.322, p = 0.046). Intestinal metaplasia at the cardia was seen in only 4 of 62 volunteers.

**Conclusion** These findings suggest that cardia mucosa may be acquired with increasing age through a process of distal squamous columnar metaplasia accelerated by central obesity. A possible mechanism is opening of the distal portion of the lower oesophageal sphincter and short segment acid reflux.

**Competing interests** None declared.

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**PTU-177** REDUCTION IN LENGTH OF STAY FOR PATIENTS UNDERGOING MAJOR UPPER GASTROINTESTINAL RESECTIONS WITH IMPLEMENTATION OF ENHANCED RECOVERY PACKAGES

doi:10.1136/gutjnl-2012-302514c.177

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**Introduction** The high mortality and morbidity associated with resection for gastro-oesophageal malignancy has resulted in a conservative approach to the post-operative management of this patient group. In August 2009 an Enhanced Recovery After Surgery (ERAS) pathway tailored for patients undergoing resection for gastro-oesophageal malignancy was introduced. We aimed to assess the impact of this change in practice on standard clinical outcomes.

**Methods** We performed a retrospective review of two cohorts of patients undergoing resection for gastro-oesophageal malignancy before (08/08–07/09) and after (08/09–07/10) the implementation of the ERAS pathway. Data were collected on demographics, interventions, length of stay, morbidity and in hospital mortality.

**Results** There were 53 and 55 gastro-oesophageal resections undertaken in each year for malignant disease. The median length of stay for both gastric and oesophageal resection decreased from 15 to 11 days (p < 0.001) following the implementation of the ERAS pathway. There was no increase in morbidity (gastric resection 23.1% vs 5.3% and oesophageal resection 25.9% vs 16.7%) or mortality (gastric resection no deaths and oesophageal resection 1.8% vs 5.6%) associated with the changes. There was a significant decrease in the number of oral contrast studies used following oesophageal resection with a reduction from 21 (77.8%) in 2008–2009 to 6 (16.7%) in 2009–2010 (χ², p < 0.0001).

**Conclusion** The introduction of an enhanced recovery programme following gastro-oesophageal surgery resulted in a significant decrease in length of median patient stay in hospital without a significant increase in associated morbidity and mortality.

**Competing interests** None declared.