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Long-term quality of life after oesophagectomy with gastric conduit interposition for cancer ☆

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Abstract ***Background:*** Gaining insight in long-term health-related quality of life more than 1 year after oesophagectomy will assist clinical decision-making and inform patients about the long-term consequences of surgery.
Methods: In this cross-sectional study, all consecutive patients who underwent oesophageal resection with gastric interposition for cancer at a tertiary referral centre between January 2007 and July 2012 were included. European Organization for Research and Treatment of Cancer (EORTC) quality of life questionnaire (QLQ)-C30 and QLQ-OES18 were sent to all patients alive without recurrence more than 1 year after surgery.
Results: The questionnaires were completed by 92 of 100 patients. Median duration of follow-up after surgery at completing the questionnaire was 36 months (range: 12–75). Global quality of life scores were similar to a general population reference group (76 ± 19 versus 78 ± 17; $p = 0.26$). However, patients scored significantly worse compared to the general population reference group on physical-, role-, cognitive- and social functioning ($p < 0.001$). Neoadjuvant therapy and minimally invasive oesophagectomy were associated with significantly better health-related quality of life (HRQL) and symptom scores ($p < 0.05$).
Conclusion: Global HRQL more than 1 year after oesophagectomy with gastric tube reconstruction is comparable to the general Dutch background population, while specific functional and symptom scores are significantly worse. Neoadjuvant therapy and minimally invasive surgery are associated with quality of life benefits in long-term survivors.

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1. Introduction

Treatment with curative intent for oesophageal cancer consists of surgical resection, generally combined with neoadjuvant chemo(radio)therapy. Recent studies report increased 5-year survival rates of up to 49% for patients with resectable disease [1–3]. Consequently, it is important to focus on a reduction of postoperative morbidity and improve health-related quality of life (HRQL) after oesophagectomy. Gaining insight in risk factors for impaired HRQL after oesophagectomy will assist clinical decision-making and inform patients about the long-term consequences of surgery. Previous research has shown contradictory results regarding HRQL more than 1 year after oesophagectomy [4–9]. This cross-sectional study aims to evaluate HRQL and predictive factors from 1 year onwards after oesophagectomy with gastric interposition in patients with oesophageal cancer.

2. Materials and methods

A descriptive cross-sectional study was carried out at our tertiary referral centre. The study was approved by the institutional review board and informed consent was obtained from all patients. All consecutive patients who underwent oesophageal resection with gastric interposition for cancer between January 2007 and July 2012 were included. Deceased patients and patients with recurrent or metastatic disease were excluded. Health-related quality of life questionnaires (European Organization for Research and Treatment of Cancer (EORTC) quality of life questionnaire (QLQ)-C30 and OES-18) were sent to the included patients by postal mail. All questionnaires were completed between May and July 2013.

2.1. Treatment regimen

All patients underwent oesophagectomy and gastric tube interposition with a handsewn cervical oesophagogastric anastomosis. The gastric tube was located in the posterior mediastinum and connected to the remnant oesophagus in an end-to-side fashion. Different types of surgical approaches were used including robot-assisted minimally invasive thoracolaparoscopic oesophagectomy (RAMIE), laparoscopic transhiatal oesophagectomy (LTH), open transhiatal oesophagectomy (TH), open transthoracic oesophagectomy (TT) or a hybrid procedure combining thoracoscopy with laparotomy. The standard protocol for neoadjuvant chemotherapy consisted of three cycles of epirubicin (50 mg/m^2 IV; day 1), cisplatin (60 mg/m^2 IV; day 1) and capecitabine (625 mg/m^2 per dose by mouth; days 1 through 21). Neoadjuvant chemoradiotherapy consisted of weekly administration of carboplatin (area under the curve of 2 mg/ml/min) and paclitaxel (50 mg/m^2) for 5 weeks and concurrent radiotherapy (41.4 Gy in 23 fractions, 5 days per week). Patients underwent surgery as soon as possible after completion of the chemo(radio)therapy (preferably within 4–6 weeks).

2.2. Data collection

Data regarding patient characteristics, tumour characteristics and complications were collected from a prospectively acquired database. Co-morbidity was defined as the presence of one or more of the following: hypertension, angina pectoris, cardiac failure, chronic obstructive pulmonary disease, asthma, diabetes and renal or liver disease. Postoperative complications were defined as any of the following adverse events that occurred within 30 days after surgery: anastomotic leakage, pneumonia, atelectasis, pneumothorax, mediastinitis, gastric tube necrosis, empyema, chylothorax, arrhythmias, pulmonary embolism/deep venous thrombosis and recurrent nerve palsy. The diagnosis of pneumonia was based on temperature, leucocyte count and pulmonary radiography findings. Anastomotic leakage was defined as a cervical leak that was clinically or radiologically diagnosed and required treatment (e.g. opening of the neck wound). Postoperative benign anastomotic stricture was defined as dysphagia requiring at least one endoscopic balloon dilation.

2.3. HRQL assessment

Health-related quality of life (HRQL) was assessed with the validated quality of life score questionnaire (QLQ C-30, version 3.0, Dutch language) together with the oesophageal-specific module (QLQ OES-18, Dutch language), which are both developed by the European Organization for Research and Treatment of Cancer (EORTC) [10]. The QLQ-C30 includes one global quality of life scale, five functional scales (physical, role, emotional, cognitive and social functioning), three general symptom scales (fatigue, nausea, vomiting and pain) and six single item general symptom measures (dyspnoea, insomnia, appetite loss, constipation, diarrhoea and financial difficulties). The oesophageal specific module OES-18 consists of four symptom scales (dysphagia, eating problems, reflux and oesophageal pain) and six single items (swallowing saliva, choking when swallowing, dry mouth, taste problem, coughing and speech problems).

2.4. Statistical methods

Scores derived from the EORTC questionnaires were linearly transformed into a 0–100 scale according to the scoring manual [11]. High scores in the functional and