



**Karolinska  
Institutet**

**Övre gastrointestinal forskning  
Institutionen för molekylär medicin och kirurgi  
Karolinska Institutet**

## **Aspects of Endoscopic Interventions of the Upper Gastrointestinal Tract**

**AKADEMISK AVHANDLING**

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## Abstract

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Interventional endoscopy of the upper gastrointestinal tract is a rapidly evolving surgical discipline that minimizes the surgical trauma. Yet, complications occur that sometimes are severe. This thesis aims to improve upper gastrointestinal endoscopic therapeutic procedures by addressing aspects of their complications in three randomised clinical trials (paper I-III) and one prospective cohort study (paper IV).

In distal oesophageal tumours the palliative placement of stent, against dysphagia, crosses the gastrooesophageal junction, thus possibly causing reflux-induced severe oesophagitis and aspiration. Therefore, in paper I, a multicentre trial was performed with the intention of improving the health-related quality of life (HRQL) by testing an anti-reflux stent after palliative stenting of patients with inoperable distal oesophageal cancer. The 65 patients included were randomised for an anti-reflux stent or a conventional stent. HRQL was measured using validated questionnaires assessing general and oesophageal-specific symptoms and functions (EORTC QLQ-C30 and QLQ-OES18) at baseline, and both one and three months after stenting. No statistically significant differences were found between the two types of stents.

Some research has indicated that the antihypertensive angiotensin II receptor blocker (ARB) losartan might prevent acute pancreatitis. Therefore, in paper II, we conducted a placebo controlled trial that tested whether losartan prevents hyperenzymemia (a marker of acute pancreatitis) as assessed 24 hours after endoscopic retrograde cholangiopancreatography (ERCP). Among 76 randomised patients, there was no evidence of any preventive effect of losartan on such hyperenzymemia.

A significant problem after insertion of nutritional percutaneous endoscopic gastrostomy (PEG) is peristomal infection. A standard antibiotic prophylaxis of 1.5 g cefuroxime (Zinacef<sup>®</sup>) given intravenously one hour before PEG insertion is generally recommended. In paper III, to develop and facilitate such prophylaxis, we tested whether antibiotic prophylaxis with 20 ml oral solution sulphamethoxazole/trimethoprim (Bactrim<sup>®</sup>) given in the newly inserted PEG catheter could replace the standard treatment. Among 234 randomised patients, 10 and 14 peristomal infections occurred in the sulphamethoxazole/trimethoprim and the cefuroxime group, respectively. The intention-to-treat and per-protocol analyses both revealed that the sulphamethoxazole/trimethoprim strategy was at least as effective as standard antibiotic prophylaxis.

The risk factors for peristomal infections and early mortality after PEG insertion are uncertain. In paper IV we therefore conducted a hospital-based prospective cohort study addressing six potential risk factors for infectious complications or 30-day mortality after PEG insertion: age  $\geq 65$  years, BMI  $<18.5$  kg/m<sup>2</sup>, albumin  $<30$  g/L, C-reactive protein (CRP)  $\geq 10$  mg/L, indications for PEG, and co-morbidities. After adjustment for potential confounders: advanced age, low albumin and high CRP levels were followed by a statistically significantly increased risk of short-term mortality. Compared to the 2.6% risk of mortality in patients with normal albumin and CRP levels, a combination of low albumin and high CRP rendered a greater than 7-fold increased risk (OR, 7.45; 95% confidence interval, 2.62-21.19) or a mortality rate of 20.5%.

In summary, antireflux stents might not be superior to conventional stents in the palliation of dysphagia in patients with distal oesophageal cancer. Losartan does not seem to reduce hyperenzymemia after ERCP. A local solution of 20 ml sulphamethoxazole/trimethoprim can probably replace standard antibiotic prophylaxis during PEG insertion. Low albumin and high CRP are markers of increased risk of early mortality after PEG insertion.

*Keywords:* Endoscopic retrograde cholangiopancreatography, ERCP, angiotensin II receptor blocker, percutaneous endoscopic gastrostomy, PEG, stent, esophageal cancer, risk factors, complications, C-reactive protein, albumin, peristomal infection, 30 day mortality