ABSTRACT

Barrett’s esophagus (BE) is considered to result from prolonged gastroesophageal reflux and is the only known precursor of esophageal adenocarcinoma. The clinical management of BE patients aims to control esophageal reflux to reduce mucosal injury and neoplastic progression, and to detect early neoplastic lesions in Barrett’s mucosa, suitable for curative endoscopic treatment.

The first part of this thesis evaluates the effect of a stepwise increase in the dose of proton pump inhibitors (PPI), on esophageal acidic reflux, symptoms and histology in long segment BE patients (group 1, n=24). We also compare these outcomes in BE patients under PPI with the results of BE patients after clinically successful fundoplication (group 2, n=30). In both groups, we found that patients under PPI and patients after surgery had a significant decrease in symptoms and histology.

The second part of this thesis assesses 3 different endoscopic classification systems, Amsterdam, Kansas and Nottingham, developed for the characterization of Barrett’s mucosa. These classifications use magnification endoscopy with narrow band imaging (ME-NBI) for the identification of intestinal metaplasia and dysplasia in Barrett’s mucosa. We used 84 video segments from Barrett’s mucosa, that were randomly selected and blindly evaluated by 9 observers with different expertise in the field. All classifications were feasible but showed suboptimal accuracy and low inter-observer agreement, with slightly better results for the Amsterdam classification.

The last part of this thesis evaluates the role of a structured learning program for the application of the Amsterdam classification system. We used the first 70 videos from the 84 randomly selected videos from the previous study. While, during the learning process, there was a decrease in the time spent for evaluation and an increase in declared certainty of prediction, the accuracy in histological prediction did not improve. This classification system was found to be suboptimal in terms of accuracy and inter- observer agreements.

This thesis shows that, in long segment BE patients, acid reflux and symptom scores co-vary through the several steps of the PPI treatment, achieving the same level as after a successful fundoplication. If a single dose of PPI is associated with marked improvement of symptoms, higher doses may be needed for complete acid suppression. Minor changes were found among morphological markers of reflux disease, both in the glandular and the squamous epithelium, irrespective of medical or surgical treatment. Our results underscore the questionable utility of ME-NBI classification systems for clinical routine practice in BE.

Keywords: Barrett’s esophagus, anti-reflux surgery, proton pump inhibitors, narrow band imaging.