**Introduction**

We have previously shown how the Allred scoring system may be used to semi-quantify expression of nuclear biomarkers in the Barrett’s (BE) to oesophageal adenocarcinoma (OA) sequence. Recently, a number of digital image analysis (DIA) platforms have been clinically validated for quantification of immunohistochemistry (IHC) in breast tissue. This study aims to compare pathologists scores (PS) with DIA for the quantification of nuclear biomarkers in BE to OA sequence.

**Methods**

Paraffin embedded specimens were selected from 34 patients. Pathology grade (PG) was scored as 1 (non-dysplastic BE; n = 5), 2 (low grade dysplasia; n = 5), 3 (high grade dysplasia; n = 11) and 4 (OA; n = 14). Sections were immunostained with antibodies PLK1-M, PLK1-L and Geminin. Intensity (I-PS) (0 to 3+) and extent (E-PS) (0; < 1%; 1–10%; 2; 10–33%; 3; 33–66%; 4; > 66% = 5) of staining were scored by 2 GI pathologists, and mean PS calculated. Intensity and proportions of +ve staining were digitally quantified using Ariol® software. Analysis classifiers were trained to identify thresholds of positive (brown/DAB) and negative (blue/ Hx) nuclei (Figure A) in the areas of interest. Background tissue was digitally excluded. Mean intensity (I-DIA) and mean counts for DIA positive (red) and negative (green) nuclei (Figure B) were quantified using Ariol® software. Analysis classifiers were trained to identify thresholds of positive (brown/DAB) and negative (blue/ Hx) nuclei (Figure A) in the areas of interest. Background tissue was digitally excluded. Mean intensity (I-DIA) and mean counts for DIA positive (red) and negative (green) nuclei (Figure B) were quantified to calculate percentage positivity (E-DIA) and compared with I-PS, E-PS and total Allred score (A-PS) using Pearson correlation coefficient.

**Results**

Significant correlation was seen between E-DIA and A-PS (r = 0.76, p = 0.006; r = 0.73, p = 0.008; r = 0.94, p = 0.0004) with all biomarkers (PLK1-M; PLK1-L; Geminin). PLK1-L showed additional correlation between DIA and PS for intensity (r = 0.985, p = 0.02) and extent (r = 0.95, p = 0.90). Geminin showed additional correlations between DIA and PS for extent (r = 0.99, p = 0.0008) and PG (r = 0.97, p = 0.03). Following training, Ariol® analysis took a mean of 4mins (Range 3–5) per tissue region high-lighted.

**Conclusion**

This study has demonstrated how DIA may be used to quantify expression of nuclear biomarkers. Significant correlation between DIA with Allred score was seen with all biomarkers, but only PLK1-L correlated with intensity and Geminin with PG. Background staining ignored by pathologists was found to be a confounder for DIA, particularly with PLK1-M. Nonetheless, DIA has great potential to enhance current grading and risk stratification systems for BE, and help select patients for targeted therapies dependent on biomarker expression.

**Disclosure of Interest**

None Declared

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**Abstract PTU-143 Figure**
pathology of 28 IMC (28%) and 69 HGD (71%). Finally the time from first RFA to developing malignancy was a mean of 182 (42 – 733) days.

Conclusion In this cohort, there is a 4.7% chance of developing EAC, 2.8% of patients could not complete planned endotherapy and an 8.5% chance of death from non-oesophageal diseases. These outcomes are independent of the demographic, pathologic and endoscopic variables studied.

Disclosure of Interest None Declared

**Abstract PTU-145**

**INCIDENCE AND PREDICTORS OF EOSINOPHILIC OESOPHAGITIS IN A NEW ZEALAND POPULATION: A RETROSPECTIVE ANALYSIS**

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Introduction Eosinophilic oesophagitis (EO) is the diagnosis in 10–15% of dysphagic patients in European and N American studies, most frequent in men aged less than 50 years. It is precipitated by aero-allergens. Diagnosis requires >20 eosinophils per hpf on oesophageal biopsies. We investigated its incidence in a New Zealand population where the genetic profile is similar (92% NZ European descent) but the environmental exposure to flora very different.

Methods A retrospective review of 871 patients investigated by gastroscopy from 2006–11 at Dunedin hospital. Age, sex, endoscopic findings and whether biopsied were recorded from the endoscopy database. Histology was determined from the hospital PAS system and equivocal cases reviewed by a consultant histopathologist. Sex and age differences were interrogated with chi-squared and sex differences were considered significant.

Results Average age of all patients was 68.7 years, 57.1% male. Common diagnoses were normal (27.7%), oesophagitis (21.7%), cancer (11.2%), dysmotility (7.5%), peptic stenosis (5.0%). 20 patients (12 male, mean age 45.5 years) had EO. 5 of these had endoscopic abnormalities (2 x ridges, 2 x Schatzki rings, 1 x furrows). 351 patients (40.9%) had oesophageal biopsies, but only 86 of 434 where the underlying cause was not evident ie no cancer, eosinophilic or peptic stenosis. EO incidence was 2.3% of all patients, 5.7% of those biopsied but 23.2% of those where an alternative diagnosis was not evident. Annual incidence varied from 1.1 to 4%. The frequency of biopsies was greater in 2011 (73.6%) than previous years (26.9–44.1%) but the number of cases identified did not differ significantly (3.4–9.0% of those biopsied).

<table>
<thead>
<tr>
<th>Total</th>
<th>Biopsied</th>
<th>Eosinophilic oesophagitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>497</td>
<td>224 (45.1%)</td>
</tr>
<tr>
<td>Female</td>
<td>374</td>
<td>133 (35.6%)</td>
</tr>
<tr>
<td>&lt; 50 years old</td>
<td>96</td>
<td>42 (43.8%)</td>
</tr>
<tr>
<td>≥ 50 years old</td>
<td>711</td>
<td>313 (40.6%)</td>
</tr>
</tbody>
</table>

*P < 0.05
**P < 0.0001

Conclusion EO appears less frequent in a New Zealand dysphagic population than in previous Northern hemisphere studies although this might be due to few biopsies where no macroscopic abnormality was seen. Biopsies are more frequent in men than women but EO no more likely. Biopsies are not more frequent in younger patients (< 50 y/o) but EO is much more frequent. The exact incidence of EO and reasons for discrepancies with previous studies merit further investigation.

Disclosure of Interest None Declared

**Abstract PTU-147**

**INCIDENCE AND PREDICTIVE FEATURES OF PHARYNGEAL POUCHES IN A DYSPHAGIC POPULATION**

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Introduction Pharyngeal pouches (PPs) commonly present with dysphagia. Perforation of a pouch at gastroscopy is a feared complication. Predicting patients likely to have PPs can enable selection for barium swallow to reduce this risk. PP incidence in a dysphagic population has been reported as 0.3%. We investigated PP incidence and predictive demographic and clinical features in patients referred to a dysphagia hotline service over a 7 year period.

Conclusion

Disclosure of Interest None Declared