

and the neutrophil lymphocyte (N/L ratio) ratio may predict surgical outcome.

**Methods** A retrospective review of consecutive unselected patients aged 80 years or over undergoing emergency abdominal surgery over a 22-month period was performed. Univariate, multivariate and recursive analyses were performed and findings validated using an independent data-set.

**Results** 88 patients were identified, median age 84 years. 30-day mortality was 31%, 6-month mortality 43% and 12-month mortality 50%. Univariate analysis revealed age, N/L ratio, CRP, midline laparotomy, ASA and surgical risk score to predict outcome at set time points. Using a recursive approach N/L ratio > 22 ( $p=0.0018$ ) best predicted 30-day outcome. On multivariate analysis, N/L ratio was an independent predictor of 30-day outcome ( $p=0.004$ ,  $df=1$ ,  $\chi^2=8.144$ ) while CRP failed to predict outcome at any time point. In an independent dataset ( $n=84$ ), N/L ratio was an independent prognostic factor at 30 days ( $p=0.001$ ,  $df=2$ ,  $\chi^2=15.071$ ), 6 months ( $p<0.001$ ,  $df=1$ ,  $\chi^2=12.536$ ) and 12 months ( $p=0.001$ ,  $df=1$ ,  $\chi^2=10.27$ ).

**Conclusion** We suggest that N/L is an easily calculable pre-operative measure that may have utility in the prediction of outcome after emergency abdominal surgery in the elderly. Further work to validate this measure in a larger, prospective setting and determine why N/L ratio predicts outcome is necessary.

**Competing interests** None declared.

## Small bowel I

### PTU-141 BILE ACID MALABSORPTION: AN EVALUATION OF CURRENT PRACTICE

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**Introduction** Primary or idiopathic bile acid malabsorption (BAM) is increasingly recognised as a cause of chronic diarrhoea. Nevertheless, it remains underestimated by many gastroenterologists partly because of the limited use of the gold standard SeHCAT test. We aimed to determine the prevalence of primary bile acid malabsorption and the duration of diarrhoea in this category of patients. We also compared our current practice of BAM detection using SeHCAT with the British Society of Gastroenterology (BSG) guidelines for the investigation of chronic diarrhoea.

**Methods** This is a retrospective evaluative study of chronic diarrhoea patients who underwent a SeHCAT test between January and October 2011. The study was undertaken at the BHRU Hospitals in Greater London, UK. A total coverage sample was obtained and data were retrieved from the local patient electronic records.

**Results** The total number of patients who received SeHCAT was 47, of which 5 had to be excluded because of unavailability of the patients notes. Of the remaining 42 patients, 60% (25) had a positive SeHCAT test indicating significant bile acid malabsorption. To facilitate further analysis the study population was subcategorised into patients who had Crohn's disease (24%), cholecystectomy (33%), gastric bypass (2%), IBS (10%) and unexplained diarrhoea (31%). Idiopathic bile acid malabsorption was detected in 19% (8) of the general study population, 25% of IBS patients and in 54% of those with unexplained diarrhoea. The mean duration of diarrhoea was 5.1 years in the total population with similar figures (4.6 years) among the subcategory of patients with idiopathic bile acid malabsorption. On comparison with the BSG, we found that only 76% and 71% had their haematenics and coeliac screening checked respectively. The latter is specifically relevant to the subject as coeliac disease may interfere with bile acid metabolism. The study

also revealed that 90% (38) of our study population had colonoscopy. Twelve out of 14 patients aged <45 years with no other indication for colonoscopy, received full colonoscopy. Although this is considered safe, it carries cost implications as the BSG suggests flexi-sigmoidoscopy alone for this group of patients,

**Conclusion** The study revealed a high prevalence of idiopathic BAM in the study population and even higher among those who had IBS/unexplained diarrhoea. The results also showed a long average duration of diarrhoea before a solid diagnosis of primary BAM was established. We therefore, recommend early consideration of BAM in all patients with unexplained chronic diarrhoea. The SeHCAT test is a safe, non-invasive, and cheap investigation and should be more widely used by gastroenterologists. However, initial basic diarrhoea investigations must be offered to all patients to avoid under-diagnosing other common conditions.

**Competing interests** None declared.

### PTU-142 SMALL BOWEL CAPSULE ENDOSCOPY: A REVIEW OF 232 STUDIES UNDERTAKEN AT A SINGLE CENTRE

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**Introduction** Capsule endoscopy (CE) is the modality of choice for investigating small bowel pathology. It is non-invasive, tolerated, safe and reliable. The BSG have issued guidance on the use of CE for patients with obscure gastrointestinal bleeding (OGB) and for patients with a high suspicion of small bowel Crohn's disease undetected by conventional means, in Kettering General Hospital (KGH) CE has been used extensively for this as MR enteroclysis is not available. KGH introduced a CE service in 2008. In 3+ years, 232 studies have been reported. KGH uses Diagmed/Given PillCam 2 CE. Patients take two sachets of Klean prep prior to their study. Patients do not undergo patency capsule testing. Patients take the capsule and using a laptop computer, a real time image is visualised, ensuring the capsule has passed into the small bowel. Patients are sent home and keep the recording belt and box on for 12–15 h. If capsule does not pass into small bowel patients are given a prokinetic and if that fails they undergo a gastroscopy to introduce the capsule into the distal duodenum (rarely required).

**Methods** Demographic data, indications, quality of bowel preparation and diagnosis is recorded in a database. This has been analysed using Microsoft Excel.

**Results Overall:** 232 studies, mean age = 54.93 years, median = 57.31 years. 114 males, mean age = 57.83 years, median = 60.80 years. 118 females, mean age = 52.07, median = 52.5 years. Yield of pathology = 100 studies (43.10%). 3 capsules retained (1.72%)—2 strictures, 1 trapped in diverticulum. **Obscure GI bleeding/anaemia as an indication:** 174 studies, yield = 72 studies (41.38%). Diagnoses: angioectasia 13, erosions/ulcers 11 (gastric 3), Crohn's disease 6, tumours 6, active bleeding 5, polyps 5, stenosis/stricture = 5. **Other indications:** 58 studies: ?Crohn's disease 46 (yield = 22/47.83%), known Crohn's 6, abnormal imaging = 3, other = 3.

**Conclusion** This series of CE studies reveals a yield of 43.10% with a low capsule retention rate of 1.73%. As these patients have had multiple investigations (endoscopies/cross sectional imaging) it suggests that in patients with suspected small bowel pathology, CE is very useful (with a high yield) and safe. For OGB the yield is 41.38% with common diagnoses being angioectasia, ulcers/erosions. Occasionally active bleeding, polyps and tumours are seen. This confirms the importance of CE in investigating OGB. For suspected Crohn's disease the yield is high (47.83%). This confirms that as long as patients don't have symptoms of sub-acute small bowel

obstruction, CE is a very useful diagnostic modality for small bowel Crohn's disease.

**Competing interests** None declared.

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## PTU-143 QUICKVIEW IN CAPSULE ENDOSCOPY: IS IT ENOUGH?

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**Introduction** Analysis of small-bowel capsule endoscopy (SBCE) is time consuming. QuickView (QV) has been added to the RAPID® software to reduce reading times. Its validity though has been questioned.<sup>1 2</sup> We have recently showed that Blue Mode (BM) application provided image improvement for different lesion categories.<sup>3</sup>

**Aim** To assess the validity of QV with white light (QVWL) and QV with BM (QVBM) reading mode, in patients with obscure gastrointestinal bleed (OGIB), compared with the standard (reference) viewing.

**Methods** Retrospective study; all SBCE for OGIB (August 2008–November 2011), performed with PillCam®SB, with complete small-bowel visualisation were included. A clinician with SBCE experience (>200), unaware of the capsule endoscopy reports, reviewed prospectively the SBCE video streams on RAPID® (ver. 7) platform using QVWL and QVBM. All SBCE were previously reported using standard viewing mode; these reports were taken as reference. Findings were labelled as P0 (non-pathological), P1 (low/intermediate) and P2 (high bleeding potential) lesions. Sensitivity, specificity, negative and positive predictive value (NPV and PPV) for QVWL and QVBM, as compared to reference review, for clinically significant (P1/P2) lesions was calculated.

**Results** A total of 106 SBCE were analysed. Indications were: overt OGIB in 21 and occult OGIB/IDA in 85. With QVWL, 54 [P0 (28), P1 (18), P2 (8)] lesions were detected; 63 [P0 (48), P1 (13), P2 (2)] with QVBM, as compared to 98 [P0 (67), P1 (23), P2 (8)] by standard (reference) reporting. For P1+P2 lesions, the sensitivity, specificity, PPV and NPV for QVWL (as compared to reference reporting) was 92.3, 96.3, 96 and 92.8%, respectively. For QVBM, the above values were 91, 96, 96.2 and 90.6%, respectively. The mean evaluation time (including reading and time to mark thumbnails) was 443 and 433 sec for QVWL and QVBM, respectively.

**Conclusion** When urgent SBCE analysis is necessary, for further immediate management planning, the QV mode can be trusted to provide an accurate (almost on-the-spot) diagnosis in most cases. In this setting, BM does not confer any additional advantage over WL. QV has high PPV (all P2 lesions were detected), but the NPV was just above 90% which indicated that QV can miss certain lesions (P1) thus necessitating further capsule review using the standard mode of SBCE.

**Competing interests** None declared.

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## PTU-144 SMALL-BOWEL CAPSULE ENDOSCOPY FOR IRON DEFICIENCY ANAEMIA ALONE; EXPERIENCE FROM A TERTIARY CENTRE

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**Introduction** Small-Bowel Capsule Endoscopy (SBCE) is a useful diagnostic modality in the investigation of Obscure Gastrointestinal Bleeding (OGIB). Its role though in Iron Deficiency Anaemia (IDA) is less clear.

**Aim** To assess the usefulness of SBCE in the diagnostic work-up of patients with IDA with neither complicating pathology nor specific GI symptomatology.

**Methods** *Design:* Retrospective study. *Setting:* University hospital & tertiary referral centre for capsule endoscopy for South East of Scotland. A review of SBCE database was carried out for the period between March 2005 and June 2011. Only patients with IDA and no other GI symptoms or known previous diagnosis contributing to IDA for example, Crohn's or coeliac disease were included in the analysis. Electronic and paper case notes were reviewed for information relating to procedure indications, investigations carried out prior to SBCE and subsequent findings. Cases with failed examinations due to SBCE retention and/or incomplete small-bowel transit were excluded from further analysis. SBCE findings were classified as clinically significant (small-bowel malignancy, significant inflammation and/or strictures and coeliac disease) or clinically relevant pathology that is, angioectasias (P1/P2 lesions).

**Results** A total of 811 SBCE examinations were performed during the above period. IDA as the sole indication for SBCE was recorded in 27% (*n*=221; 151F/70M, mean age: 62 yr) patients. All patients had bi-directional endoscopies prior to SBCE. The overall diagnostic yield (DY) of SBCE was 30.7% (68/221). The DY for significant pathology and angioectasias was 9% and 21.7%, respectively. In those ≤40 yr (*n*=20; 13F/7M, mean age: 26.5 yr), significant pathology was found in 25% (5/20); in the >40 yr group (*n*=201; 138F/63M, mean age: 72.2 yr), significant pathology was found in 7.5% (15/201), *p*=0.0231. Although none of the patients ≤40 yr had angioectasias, P1 or P2 lesions were found in 48/201 (21.7%) of those >40 yr, *p*=0.009. Age-range analysis showed angioectasias in 11.1%, 13%, 20% and 42% in the age-groups 41–50, 50–60, 60–70, 70–80 yr, respectively. Interestingly, in those >80 yr (*n*=16; 12F/4M, mean age: 82.5 yr) angioectasias were present in 50% of SBCE but no significant pathology was identified.

**Conclusion** IDA alone is one of the main indications (27%) for referral to the SBCE service of our centre with the majority of referrals coming from the >40 age group. In our cohort, the overall DY of SBCE for IDA is 30.7% and the commonest finding small-bowel angioectasias. The detection rate of significant small-bowel pathology for those >40 yr is low decreasing to zero in the >80 age group. In contrast, 25% of patients ≤40 yr had a significant or sinister diagnosis made with SBCE.

**Competing interests** None declared.

## PTU-145 A SYSTEMATIC REVIEW OF THE DIAGNOSTIC YIELD OF SMALL-BOWEL CAPSULE ENDOSCOPY IN PATIENTS WITH IRON DEFICIENCY ANAEMIA

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