been used to improve quality and define minimum standards for colonoscopy across the UK.[1] JAG also provides a clear competency based framework to assess trainee performance; however, there is reluctance in some units to allow independent senior registrars, who have passed JAG assessment, to practise independently. At our teaching centre we encourage appropriately trained registrars to perform their own lists. Supervision is available if needed and departmental protocols define limits of therapy to be undertaken independently (eg, large polypectomies). Attendance at training lists to continue development is also actively encouraged. Our aim was to evaluate whether this provided a quality of service comparable to national standards.

Methods We used data collected retrospectively from endoscopy reporting software (Ascribe-Scorpio) on the caecal intubation rate, polyp detection rate, sedation usage and complication rate, to evaluate the performance of senior gastroenterology trainees between 2007 and 2011, against the JAG auditable outcomes for colonoscopy.

Results Over a 4-year period, 17 senior gastroenterology registrars performed a total of 2917 colonoscopies. 2221 (76.1%) procedures were unsupervised and 696 (23.9%) were supervised. An uncorrected caecal intubation rate of 94.9% was achieved during unsupervised procedures, 96.6% with supervision (p=0.93, X^2). Polyp (all type) detection rate was 30%. Average sedation dose for patients aged >70 years, was pethidine 30 mg and midazolam 1.96 mg; aged <70 years, pethidine 35.5 mg and midazolam 2.54 mg. Flumazenil was used on four occasions and naloxone on one occasion. There were two major complications. One perforation, following argon therapy to an angiodysplasia, treated conservatively and one major post polypectomy bleed, treated endoscopically but admitted for observation. None of the registrars were outliers on the comfort score data.

Conclusion Our findings show that given appropriate training and support, independently practising senior UK gastroenterology registrars contribute significantly to service delivery, providing high quality colonoscopy, meeting JAG auditable outcome standards.

Competing interests None declared.

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BSG inflammatory bowel disease section symposium

OC-139 TIME TRENDS IN RATES OF FIRST SURGICAL RESECTION AND THIOPURINE USE IN CROHN'S DISEASE: RETROSPECTIVE COHORT STUDY

doi:10.1136/gutjnl-2012-302514a.139

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Introduction The efficacy of thiopurines in treating Crohn's disease is well established but their role in altering the long term natural history of Crohn's disease remains controversial. Using a national population based cohort we aimed to determine temporal trends in surgery and use of thiopurines.

Methods We undertook a retrospective study of electronic medical records from primary care. We identified newly diagnosed patients with Crohn's disease between 1989 and 2005 in the General Practise Research database (GPRD) which contains prescription and clinical data for over 13 million people in the UK and has been validated for research. Incident cases were eligible if registered for more than 12 months before their diagnosis. Patients were allocated to three cohorts according to year of diagnosis: group A (1989–1993), group B (1994–1999) and group C (2000–2005). We calculated rates of first surgical resection and thiopurine prescribing (azathiopurine and 6-mercaptopurine) within 5 years of diagnosis to examine temporal trends.

Results 5654 patients met our inclusion criteria. The mean age was 37 years and 57% were female. During the study period from 1989 to 2010 rates of intestinal surgery decreased while prescription of thiopurines increased. Rates of first surgery were 17, 11, and 6/1000/year (χ^2 p<0.05) and thiopurine prescriptions were 27, 33 and 45/1000/year (χ^2 p<0.05) in groups A, B and C respectively. Furthermore rates of thiopurine prescription within the first year of diagnosis were 11, 15, and 26/1000/year (χ^2 p<0.05) in groups A, B and C respectively.

Conclusion Rates of first surgical resection have markedly decreased with concomitant earlier and increased use of thiopurines over the same time frame. Further work is proposed to explain these trends.

Competing interests None declared.

OC-140 HYDROXYCHLOROQUINE AS A TREATMENT FOR CROHN'S DISEASE: ENHANCING ANTIBIOTIC EFFICACY AND MACROPHAGE KILLING OF *E COLI*

doi:10.1136/gutjnl-2012-302514a.140

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Introduction Mucosal *E coli*, increased in Crohn's disease, have an adherent invasive phenotype (AIEC) and replicate within macrophages. AIEC can induce granulomas in vitro and in vivo and treatment leads to remission of colitis in animal models of Crohn's.[1] Hydroxychloroquine, which alters phagolysosomal pH and cellular iron mobilisation, enhances antibiotic efficacy and macrophage killing of other intra-macrophage organisms (*Coxiella, Tropheryma*).[2] We postulate Hydroxychloroquine may be a useful treatment in Crohn's.

Methods We aimed to assess the effect of Hydroxychloroquine, alone or in combination with antibiotics, on intra-macrophage *E coli* survival. Further, we aimed to investigate the role of intracellular iron release and phagolysosomal pH as possible mechanisms of action. J774A.1 murine macrophages were infected with representative Crohn's *E coli* isolates, HM605 (colonic) or LF82 (ileal), and the effect of Hydroxychloroquine and/or antibiotics was assessed using the gentamicin protection assay. FeNTA (pH independent ferric iron release from transferrin) and FeCitrate (pH dependent) were assessed for their ability to reverse the effect of Hydroxychloroquine. Fluorescence of macrophages co-infected with *E coli* and pHrodo *E coli* bioparticles was measured with a plate reader to determine phagolysosomal pH. Standard curves obtained by co-incubation of cells with nigericin and phosphate-citrate buffers allowed calculation of pH from fluorescence.

Results Compared to untreated control, Hydroxychloroquine significantly reduced intra-macrophage *E coli* survival in a dose dependent manner at clinically achievable concentrations (31.4±4.6% at 2 μg/ml, p<0.001, ANOVA, N=3 where n=3). Combination with Doxycycline was significantly more effective than antibiotic treatment alone both at C_{max} (34.5±4.7% vs 75.5±6.7%, p<0.001, N=6) and 10% C_{max} (48.9±5.4% vs 89±5.6%, p<0.001, N=6). Similar synergy was seen with Ciprofloxacin at 10% C_{max} (4.63±1.0% vs 7.9±1.3%, p<0.05, N=3) but not at C_{max} where antibiotic alone markedly reduced bacterial survival

(0.17±0.1%, N=3). Neither FeNTA nor FeCitrate reversed the effect of Hydroxychloroquine suggesting its effect is not mediated by changes in iron metabolism. A trend towards higher pH was seen with Hydroxychloroquine compared to control (7.22±0.016 vs 6.66±0.19) but this did not reach significance.

Conclusion Hydroxychloroquine enhances antibiotic efficacy and macrophage killing of AIEC. Its mechanism of action is not via pH dependent iron metabolism but is likely due to direct phagolysosomal pH changes. Further work is required to determine its mechanism of action but it holds potential as a treatment for Crohn's.

Competing interests P Flanagan: None declared, B Campbell: None declared, J Rhodes consultant for: a member of advisory boards for Atlantic, Procter and Gamble and Falk, Speaker bureau with: Received speaking honoraria from Abbott, Falk, Ferring, Glaxo Smith Kline, Procter and Gamble, Schering Plough, Shire and Wyeth, Conflict with: With the University of Liverpool and Provexis UK, holds a patent for use of a soluble fibre preparation as maintenance therapy for Crohn's disease plus a patent pending for its use in antibiotic-associated diarrhoea.

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BSG endoscopy section symposium and free papers: "Managing bleeding risk"

OC-141 UPPER GI BLEEDING IN SCOTLAND 2000–2010: IMPROVING OUTCOME BUT A SIGNIFICANT WEEKEND EFFECT

doi:10.1136/gutjnl-2012-302514a.141

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Introduction Recent studies have suggested a reduction in incidence of upper GI haemorrhage (UGIH) and a possible worse outcome if patients present at weekends. Our aim was to assess trends in numbers and mortality of patients admitted with UGIH in Scotland and to examine whether weekend presentation affected outcome.

Methods We identified 23 ICD-10 codes that identified UGIH and interrogated ISD Scotland data using these codes for the 10-year period 2000–2010. We analysed the annual numbers of patients and their 30-day mortality during this period, comparing length of stay and mortality for those admitted at weekends and weekdays.

Results A total of 61 574 Scottish residents were admitted to Scottish hospitals with a diagnosis of UGIH during the years 2000/1–2009/10. There was no significant change in annual numbers of admissions during this period, but there was a reduction in 30-day mortality from 10.3% to 8.8% ($p<0.001$). For the whole study period, patients admitted with UGIH at weekends had a higher 30-day mortality compared with those admitted on weekdays ($p<0.05$). A significantly higher mortality for patients admitted at weekends was seen in 9 of the 10 years, including each of the last five years. This was despite patients admitted at weekends being younger than those admitted on weekdays (57.6 yrs vs 58.8 yrs; $p<0.001$). Over the study period there was a greater length of stay for patients admitted on weekends compared with weekdays ($p<0.05$), with the greatest difference found in the most recent year of study.

Conclusion There has been a gradual reduction in mortality for patients admitted with UGIH in Scotland over the past 10 years. Despite a younger age, patients admitted at weekends had consistently higher mortality and greater length of stay compared with weekday admissions.

Competing interests None declared.

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OC-142 HEMOSPRAY FOR NON-VARICEAL UPPER GASTROINTESTINAL BLEEDING: RESULTS OF THE SEAL DATASET (SURVEY TO EVALUATE THE APPLICATION OF HEMOSPRAY IN THE LUMINAL TRACT)

doi:10.1136/gutjnl-2012-302514a.142

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Introduction Hemospray is an endoscopic haemostatic agent licensed for use in non-variceal upper gastrointestinal bleeding (UGIB). It has been shown to be effective in achieving haemostasis in bleeding peptic ulcers in a pilot study from Hong Kong.[1]

Methods From June until September 2011 several European hospitals participated in the SEAL dataset. Data on the use of Hemospray, lesions treated and other endoscopic modalities employed were prospectively collected. Rockall score and treatment outcomes were obtained retrospectively. The type of lesion treated and the use of Hemospray as monotherapy or combination therapy was at discretion of the endoscopist.

Results Eighty two patients (57M:25F) were treated across 10 hospitals. Median age was 70 years. Aetiology of UGIB was gastroduodenal ulceration in 52% (n=43), post EMR 9% (n=7), tumour 6% (n=5), oesophageal ulceration 4% (n=3), dieulafoy lesion 4% (n=3), GAVE 2% (n=2), post-polypectomy 2% (n=2) and other causes totalling 21% (n=17). The gastroduodenal ulcers were classified as Forrest 1a (n=19), Forrest 1b (n=21) and unclassified (n=3). Hemospray was used as monotherapy in the majority of patients (57% n=47). In 8 (10%) it was used as first modality followed by additional endoscopic treatment and in 27 (33%) it was used as an adjuvant (rescue) therapy. Primary haemostasis was achieved in 71 patients (87%). Results of therapy for each of the three subgroups are shown in the Abstract OC-142 table 1. There were five deaths none of which were due to bleeding. Cause of death was liver disease in two patients, myocardial infarction, aspiration pneumonia and perforation in the remaining three patients respectively. There were eight technical complications: four blockages of the application catheter, one blockage of the endoscope working channel, on two occasions the endoscope became adherent to the oesophageal mucosa after use in retroflexion and on one occasion the CO_2 propellant cartridge failed to operate.

Abstract OC-142 Table 1

	Hemospray monotherapy	Hemospray + additional endoscopic treatment	Standard endoscopic therapy + hemospray
Number of patients	47	8	27
Rockall score (median)	6	7	6.5
Primary haemostasis	46/47 (98%)	6/8 (75%)	19/27 (70%)
Rebleed (7 days)	7/46 (15%)	1/6 (17%)	7/19 (37%)
Mortality (7 days)	3/47 (6%)	0	2/27 (7%)
Number of peptic ulcers	19	6	18
Proportion forrest 1a	7/19 (37%)	3/6 (50%)	9/18 (50%)
Proportion forrest 1b	10/19 (53%)	3/6 (50%)	8/18 (44%)
Unclassified	2/19	0	1/18

Conclusion Hemospray provides an effective endoscopic modality for achieving primary haemostasis of non variceal UGIB as