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CHANGES IN THE PRACTICE OF LIVER RESECTION FOR COLORECTAL LIVER METASTASES OVER A 15-YEAR PERIOD IN A HIGH-VOLUME UK HEPATOBILIARY UNIT

doi:10.1136/gutjnl-2012-302514a.136

C Macutkiewicz,* C D Briggs, E Hidalgo, G J Toogood, J P A Lodge, K R Prasad. *Hepatobiliary and Transplant Surgery, St James's University Hospital, Leeds, UK*

Introduction Colorectal cancer remains the second most common cause of cancer-related death in Europe and North America. More than 50% of patients develop liver metastases within their lifetime and liver resection remains their only chance of cure. Recent trends in liver surgery have favoured parenchyma-preserving liver surgery over traditional major hepatectomies.¹ The aim of this study was to investigate the trend in approach to liver surgery over a 15-year period at a high-volume hepatobiliary unit.

Methods A prospectively maintained database containing data for the resection of colorectal liver metastases was analysed from 1995 to 2010. Demographic data were extracted together with data on types of liver resection, morbidity and mortality rates, and major vs minor hepatectomies. Minor hepatectomy was defined as any resection up to three segments and major hepatectomy was more than three segments resected. Data displayed compare the three 5-year periods from: 1995 to 1999, 2000 to 2004 and 2005 to 2009.

Results A total of 1414 hepatectomies were undertaken from 1995 up to 2010. 172 resections were performed in 1995–1999, 570 in 2000–2004 and 672 in 2005–2009. Median age and range were as follows: 61 years (36–80 years) in 1995–1999, 65 years (32–87 years) in 2000–2004, and 65 years (23–91 years) in 2005–2009. Major vs minor hepatectomy ratio were as follows: 55:45 in 1995–1999, 45:55 in 2000–2004, and 33:67 in 2005–2009. Complication rates were as follows: 29.1% in 1995–1999, 23.5% in 2000–2004, and 15.9% in 2005–2009. Mortality rates were significantly reduced from 9.3% in 1995–1999, and 3.3% in 2000–2004, to 1.9% in 2005–2009 (P

Conclusion The trend in liver resection has been towards more segmentectomies and metastasectomies rather than the more traditional major anatomical resections. This has been associated with a decreased complication rate and a significantly reduced mortality rate. This may reflect not only improvements in technique and critical care management but also in the paradigm shift towards parenchyma-preserving liver surgery. Local recurrence and survival rates will dictate whether this is the optimal treatment.

Competing interests None declared.

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DDF trainee symposium: "I do it best!—learning from training in other specialities"

OC-137

IS RESEARCH DECLINING AMONG GASTROENTEROLOGY TRAINEES?

doi:10.1136/gutjnl-2012-302514a.137

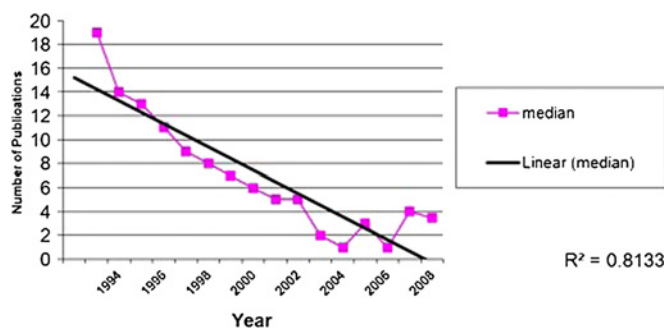
M Kurien,* A D Hopper, J Barker, M F Peerally, E J Lunn, D S Sanders. *Department of Gastroenterology, Royal Hallamshire Hospital, Sheffield, UK*

Introduction UK gastroenterology training programmes have undergone significant changes over recent years. Currently, little is known about the impact this may have had upon trainees' research experience. This study evaluates research trends among gastroenterology trainees over a 15-year period by assessing publication rates and

number of higher degrees attained by trainees at the time they are appointed to NHS consultant posts.

Methods All consultant appointments and their previous place of training were identified between February 1993 and December 2008 (courtesy of the BSG). The number and type of publications of each consultant was collected using PubMed & Embase databases. An 18-month lag time was allowed post consultant appointment to allow for potential time delays between submission and publication. The consultant name was then either; matched with their entry in the British Society of Gastroenterology (BSG) handbook, medical directory or an individuals' department contacted and higher degree noted. Consultant appointment to either teaching hospital (TH) or district general hospital (DGH) was collected and data analysed using Microsoft Excel.

Results Over the 15-year period, 825 consultant appointments were made. We excluded consultant-to-consultant transfers and appointments to or from academic posts (n=126). Also excluded were trainees who had subsequently left the UK or the medical register (n=146). Of the 553 appointments, 267 (48%) were appointed to TH posts and 45% (249/553) were appointed to posts within the region they trained. There is a significant decreasing trend in the median number of publications by gastroenterology trainees' prior to their NHS consultant appointment from 19 in 1993 to four in 2008, correlation co-efficient $R^2=0.81$ ($r=-0.90$, $df=14$, $p<0.001$, Abstract OC-137 figure 1). Mean publication rates of consultants appointed to TH's posts (10.1, n=267) were higher than DGH consultants (7.37, n=286) ($p=0.0012$), with differences also seen when comparing higher degrees of TH consultants with DGH consultants (53.2% vs 22.1%, $p=0.017$).



Abstract OC-137 Figure 1 Median publications for consultants.

Conclusion This study demonstrates a significant decreasing trend in the number of publications obtained by a gastroenterology trainee at time of their appointment to an NHS consultant post. This could act as a tool in assessing academic activity among trainees. Our data would support interventions to promote academic training in postgraduate training programmes.

Competing interests None declared.

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QUALITY OF COLONOSCOPIC PROCEDURES AMONG INDEPENDENTLY PRACTISING GASTROENTEROLOGY TRAINEES IN A NW LONDON COHORT: ARE THEY REACHING NATIONAL STANDARDS?

doi:10.1136/gutjnl-2012-302514a.138

S Nayagam,* N Selvapatt, J Louis Auguste, H R T Williams, T R Orchard, H J W Thomas, J P Teare, J Hoare. *Department of Gastroenterology, St Mary's Hospital, Imperial College NHS Trust, London, UK*

Introduction The Global Rating Scale (GRS) and Joint Advisory Group on GI Endoscopy (JAG) auditable outcome standards have

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

¹S Chatu,* ²S Saxena, ³V Subramanian, ⁴V Curcin, ⁵G Yadegarfar, ²A Majeed, ¹R C Pollok. ¹Department of Gastroenterology, St George's Hospital, London, UK; ²Department of Primary care and Public Health, Imperial College, London, UK; ³Department of Gastroenterology, St James's University Hospital, Leeds, UK; ⁴Department of Computing, Imperial College, London, UK; ⁵Department of Statistics, Imperial College, London, UK

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

P K Flanagan,* B J Campbell, J M Rhodes. Department of Gastroenterology, University of Liverpool, Liverpool, UK

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 ($31.4 \pm 4.6\%$ at $2 \mu\text{g/ml}$, $p<0.001$, ANOVA, $N=3$ where $n=3$). Combination with Doxycycline was significantly more effective than antibiotic treatment alone both at C_{max} ($34.5 \pm 4.7\%$ vs $75.5 \pm 6.7\%$, $p<0.001$, $N=6$) and $10\% C_{\text{max}}$ ($48.9 \pm 5.4\%$ vs $89 \pm 5.6\%$, $p<0.001$, $N=6$). Similar synergy was seen with Ciprofloxacin at $10\% C_{\text{max}}$ ($4.63 \pm 1.0\%$ vs $7.9 \pm 1.3\%$, $p<0.05$, $N=3$) but not at C_{max} where antibiotic alone markedly reduced bacterial survival