



EUROPEAN COLORECTAL CONGRESS

Spotlight on the colon

1 – 5 December 2019, St.Gallen, Switzerland

Sunday, 1 Dec. 2019

MASTERCLASS

09.00
When the appendix plays nasty: intraoperative surprises, immediate solutions, and long-term treatment options
Justin Davies, Cambridge, UK

09.40
All the secrets of the pelvic floor - common disorders and proven solutions
Julie Cornish, Cardiff, UK

10.20
taTME in 2020 – when the dust settles: current and innovative indications, implementation, and practical advices
Roel Hompes, Amsterdam, NL

11.30
Complete mesocolic excision: indications, surgical approaches, and pitfalls
Paris Tekkis, London, UK

12.10
The views of an Editor and the wisdom of an Expert: contemporary publications with the potential to change and improve practice
Neil Mortensen, Oxford, UK

14.00
To ostomize or not and when? The value and downside of a diverting stoma versus virtual ileostomy versus no stoma
Gabriela Möslein, Wuppertal, DE

14.40
Extended lymph node dissection: indications, surgical anatomy, and technical approaches
Peter Sagar, Leeds, UK

15.20
Is the longer the new better - how to safely extend the interval after neoadjuvant chemoradiotherapy prior to surgery for rectal cancer
Ronan O'Connell, Dublin, IE

16.30
The colorectal anastomosis: time-proven wisdom, innovative configurations, and salvage techniques
André d'Hoore, Leuven BE

17.10
All you need to know about stomas but never dared to ask
Willem Bemelman, Amsterdam, NL

17.50
The EBSQ Coloproctology Examination
Michel Adamina, Winterthur, CH

18.00
Wrap-up
Michel Adamina, Winterthur, CH

Monday, 2 Dec. 2019

SCIENTIFIC PROGRAMME

09.45
Opening and welcome
Jochen Lange, St.Gallen, CH

10.00
Pathophysiology and non-operative management of symptomatic uncomplicated diverticular disease
Robin Spiller, Nottingham, UK

10.30
Surgery of acute diverticulitis – evidence, eminence and real life
Willem Bemelman, Amsterdam, NL

11.00
Management of atypical diverticulitis
Dieter Hahnloser, Lausanne, CH

11.30
Hartmann reversal: open, laparoscopic or transanal?
Roel Hompes, Amsterdam, NL

13.30
The surgeon personality – influence on decision making, risk-taking and outcomes
Desmond Winter, Dublin, IE

14.00
SATELLITE SYMPOSIUM Medtronic

15.00
Clinical applications of image-guided cancer surgery
Cornelis van de Velde, Leiden, NL

16.00
Volvulus of the colon – a treatment algorithm
Peter Sagar, Leeds, UK

16.30
Hereditary colorectal cancer syndromes: tailored surgical treatment
Gabriela Möslein, Wuppertal, DE

17.00
Lars Pahlman and Herand Abcarian (2015)
Herand Abcarian, Chicago, US



17.20
Lars Pahlman Lecture
Steven Wexner, Weston, US

Tuesday, 3 Dec. 2019

09.00
Robotic-assisted versus conventional laparoscopic surgery for rectal cancer
Amjad Parvaiz, Poole, UK

09.30
Robotic multivisceral resection
Paris Tekkis, London, UK

10.00
SATELLITE SYMPOSIUM Karl Storz

11.30
Neoadjuvant chemotherapy for advanced colon cancer: clinical and pathological Results
Dion Morton, Birmingham, UK
Philip Quirke, Leeds, UK

12.30
Cytoreductive surgery and hyperthermic intraoperative chemotherapy for intestinal and ovarian cancers: lessons learned from 2 decades of clinical trials
Vic Verwaal, Aarhus, DK

14.30
Mechanical bowel obstruction: rush to the OR or stent and dine
Neil Mortensen, Oxford, UK

15.00
Controversies in IBD surgery
André d'Hoore, Leuven, BE

16.00
How to deal with IBD and dysplasia
Janindra Warusavitarne, London, UK

16.30
Perianal Crohn – avoiding delay and best surgical practice
Justin Davies, Cambridge, UK

17.00
Perianal Crohn – stem cells therapy and current medical approach
Gerhard Rogler, Zürich, CH

Wednesday, 4 Dec. 2019

09.00
Is anastomotic leak an infectious disease
Ronan O'Connell, Dublin, IE

09.30
Is it time to invest in robotic surgery?
Antonino Spinelli, Milan, IT

10.00
SATELLITE SYMPOSIUM Intuitive

11.00
New developments in robotic systems
Alberto Arezzo, Torino, IT

12.00
Posterior component separation for abdominal wall reconstruction: evolution from open to minimal invasive using the robotic platform
Filip Muysoms, Gent, BE

14.00
Coloproctology 4.0 – the networked surgeon
Richard Brady, Newcastle upon Tyne, UK

14.30
SATELLITE SYMPOSIUM Olympus

15.30
The elderly colorectal patient – functional outcomes and patient reported outcomes
Isacco Montroni, Faenza, IT

16.30
The microbiome and colorectal cancer
Philip Quirke, Leeds, UK

17.00
Surgical management of rectal endometriosis
Eric Rullier, Bordeaux, FR



17.30
EAES Presidential Lecture 3D printing for the general surgeon
Andrea Pietrabissa, Pavia, IT

Thursday, 5 Dec. 2019

09.00
Management of locoregionally advanced colon cancer
Torbjörn Holm, Stockholm, SE

09.30
ROUNDTABLE
Herand Abcarian, Chicago, US
Bill Heald, Basingstoke, UK

10.30
Artificial intelligence in colorectal surgery
Michele Diana, Strasbourg, FR

11.30
The mesentery in colonic diseases
Calvin Coffey, Luimneach, IE

12.00
Technical pearls and typical mistakes in minimal invasive colectomy
Antonio Lacy, Barcelona, ES

12.30
Choosing the right anastomotic technique in colon surgery
Roberto Persiani, Rom, IT

13.00
Precision surgery: past, present and future
Brendan Moran, Basingstoke, UK

13.30
Poster award
Michel Adamina, Winterthur, CH

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Welcome Posters

WP01

Long-term bowel function after right sided complete mesocolic excision compared with conventional surgery: a questionnaire survey

C. A. Bertelsen¹, H. M. Larsen², A. U. Neuenschwander¹, S. Laurberg², B. Kristensen³ & K. Emmertsen^{2,4}

¹Department of Surgery, North Zealand Hospital Hillerød, Hillerød, Denmark,

²Department of Surgery, Aarhus University Hospital, Aarhus, Denmark,

³Department of Clinical Physiology, Herlev University Hospital, Herlev, Denmark,

⁴Department of Surgery, Regionshospitalet Randers, Randers, Denmark

Aim: Complete mesocolic excision (CME) for colon cancer is associated with better oncological outcome. Right-sided CME may present a risk of bowel dysfunction caused by injury to the superior mesenteric nerve plexus during the central dissection. As knowledge of long-term bowel function after CME is very limited, we aimed to investigate whether CME is associated with an increased risk of diarrhoea and decreased quality of life related to bowel dysfunction.

Method: A questionnaire survey of 465 patients undergoing elective right hemicolectomy or extended right hemicolectomy for colon cancer stage I-III.

Results: Of 141 patients underwent CME and 324 conventional colon resection. Median time from surgery to questionnaire response was 4.1 (IQR 2.9–5.5) years. CME was not associated with increased risk of any symptoms of bowel dysfunction, including the risk of diarrhoea (OR 1.11 [95% CI 0.60–1.98; $P = 0.72$]; adjusted OR 1.06 [95% CI 0.59–1.95; $P = 0.84$]), and moderate or severe impact on quality of life (OR 0.84 [95% CI 0.50–1.37; $P = 0.49$]; adjusted OR 0.84 [95% CI 0.49–1.40; $P = 0.51$]).

Conclusion: Right-sided CME does not seem to be associated with long-term bowel dysfunction.

WP02

Sacral Nerve Stimulation efficacy for faecal incontinence can be improved by using lead-model 3889

J. Duelund-Jakobsen, L. Lundby & S. Laurberg

Surgical Research Unit, Department of Surgery, Aarhus University Hospital, Aarhus, Denmark

Sacral nerve stimulation (SNS) is an effective treatment for faecal incontinence (FI). Refinement of the procedural technique with the new permanent lead-model 3889 (Medtronic) and the use of bent stylet may improve the functional outcome.

Aim: To explore the relation between lead-model, functional outcome, stimulation amplitude and need for extra visits during the first year of follow-up.

Method: In total 174 FI patients were implanted between May-2009 and February-2017. Correlation between lead-model, reduction in St. Mark's incontinence score, stimulation amplitude and the need for extra visits was searched from our prospective database.

Results: Foramen lead-model-3093 was used in 134 patients, model 3889 in 40. There were no differences in baseline characteristics or incontinence scores. St. Mark's incontinence score was overall significantly reduced from 17.5 (± 2.9) at baseline to 11.2 (± 4.6) at 1-year follow-up ($P < 0.001$). At 1-year follow-up the improvement in Δ St. Mark's incontinence score was significantly higher in patients implanted with lead-model 3889 (9.8 (± 4.7)) compared to 3093 (5.9 (± 5.0)) ($P = 0.023$). No difference was found between lead-model and stimulation amplitude ($P = 0.170$) or the need for extra visits ($P = 0.663$).

Conclusion: Lead-model 3889 improves functional results compared to lead-model 3093 during first year of follow up. Stimulation amplitude and the need for extra visits were unchanged.

WP03

Enhanced recovery after surgery for colectomy: factors contributing to early recovery of gastrointestinal motility: objective evaluation by using radiopaque markers

Y. Yokoyama, T. Yamada, M. Koizumi, S. Shinji, G. Takahashi, T. Hotta,

T. Iwai, K. Takeda, K. Hara, K. Ota & E. Uchida

Nippon Medical School, Tokyo, Japan

Aim: The basic concepts of enhanced recovery after surgery is shortening of the fasting period. Therefore, post-operative recovery of gastrointestinal motility (GIM) is important. We have objectively assessed GIM by using radiopaque markers (SITZ MARKS[®] (SM)). In this study, we examined the factors contributing to early recovery of GIM.

Method: Patients who underwent elective colectomy from January 2009 to June 2015 were included. The exclusion criteria were: (i) more than 2 anastomoses; (ii) intestinal obstruction; (iii) having undergone colostomy or ileostomy; (iv) having

undergone additional resection of other organs. All patients ingested SM at 2 h before surgery. Post-operative GIM was assessed by the residual number of SM. We defined early recovery as patients with no SM in the small intestine at 3 days post-operatively. We used multivariate analysis to extract the factors for early recovery of GIM.

Results: Four hundred and forty-eight patients were included. Mechanical bowel preparation (MBP) with polyethylene glycol (PEG) ($P < 0.001$, odds ratio: 0.43), laparoscopic surgery ($P = 0.003$, odds ratio: 2.09), and intra-operative water balance (< 10 ml/kg/h) ($P = 0.03$, odds ratio: 0.63) were significant factors for early recovery of GIM.

Conclusion: Omission of MBP, laparoscopic surgery, and appropriate intra-operative infusion management can provide early recovery of GIM.

WP04

Transcutaneous sacral nerve stimulation for intraoperative verification of internal anal sphincter innervation

D. W. Kauff¹, T. Moszkowski^{2,3}, C. Wegner², A. Heimann⁴, K.-P. Hoffmann³, T. B. Krüger², H. Lang¹ & W. Kneist¹

¹Department of General, Visceral and Transplant Surgery, University Medicine of the Johannes Gutenberg-University, Mainz, Germany, ²Inomed Medizintechnik GmbH, Emmendingen, Germany, ³Fraunhofer Institute for Biomedical Engineering, St. Ingbert, Germany, ⁴Institute for Neurosurgical Pathophysiology, University Medicine of the Johannes Gutenberg-University, Mainz, Germany

Aim: The current standard for pelvic intraoperative neuromonitoring (pIONM) is based on intermittent direct nerve stimulation. This study investigated the potential use of transcutaneous sacral nerve stimulation for non-invasive verification of pelvic autonomic nerves.

Method: Six pigs underwent low anterior rectal resection. For transcutaneous sacral nerve stimulation, an array of electrodes (cathodes) was placed over the sacrum. Anodes were applied on the back, right and left thigh, lower abdomen and intra-anally. Stimulation using the novel method and current standard were performed at different phases of the experiments under electromyography of internal anal sphincter (IAS).

Results: Transcutaneous stimulation induced increase of IAS activity could be observed in each animal under specific cathode-anode configurations. Out of 300 tested configurations, 19 exhibited a change in IAS activity correlated with intentional autonomic nerve damage. The damage resulted in a significant decrease of area under the curve of the IAS frequency spectrum ($P < 0.001$). Comparison of the IAS spectra under transcutaneous and direct stimulation revealed no significant difference (after rectal resection: median 5.99 μ V \cdot Hz vs 7.78 μ V \cdot Hz, $P = 0.12$; after intentional nerve damage: median -0.27 μ V \cdot Hz vs 3.35 μ V \cdot Hz, $P = 0.29$).

Conclusion: Non-invasive selective transcutaneous sacral nerve stimulation could be used for verification of IAS innervation.

WP05

Short- and long-term clinical and patient-reported outcomes following laparoscopic ventral mesh rectopexy using biological mesh for pelvic organ prolapse: a prospective cohort study of 224 consecutive patients

R. McLean¹, M. Mercer-Jones¹, M. Kipling² & E. Spoerer¹

¹Queen Elizabeth Hospital, Gateshead, UK, ²Sunderland Royal Infirmary, Sunderland, UK

Aim: Laparoscopic ventral mesh rectopexy (LVMR) is an effective treatment for pelvic organ prolapse and obstructive defaecation caused by rectocele. We present our experience of using Permacol LVMR using short- and long-term clinical outcomes, as well as presenting patient-reported functional and quality-of-life outcomes.

Method: Between 01/05/2008–31/10/2016, 224 patients (mean age 59.5 years; 96% female) underwent LVMR in our institution. Clinical outcomes (morbidity, recurrence and mortality), functional outcomes (Cleveland clinic constipation and Vaisey faecal incontinence scores), and quality-of-life outcomes (Patient Assessment of Constipation-QOL, Prolapse-QOL, Faecal Incontinence-QOL) were assessed at clinic follow-up at 6-months, 12-months, 2-years and 5-years. Patient data was prospectively collected and stored.

Results: Complications occurred in 9.8% of patients overall (4.9% early; 5.8% late). Mortality was 0%. Recurrence was present in 25 patients (11.4%): 1% at 6-months, 5% at 12-months, 10% at 2-years, and 11% at 5-years. There was significant improvement in functional outcomes for both constipation and faecal incontinence scores which persisted for 5-years postoperatively (all $P < 0.001$). There was significant improvement in all quality-of-life outcomes which persisted for 5-years postoperatively (all $P < 0.001$).

Conclusion: LVMR with Permacol mesh is a safe, effective operation with low morbidity and mortality, recurrence, and additionally, excellent functional and QOL outcomes for patients.

WP06

Anterior resection syndrome is prevalent and persistent on long-term follow-upD. B. Wright^{1,2}, K. S. Ng¹, J. K. Peat³, A. F. Engel^{4,5} & M. A. Gladman^{1,6}¹Academic Colorectal Unit Sydney Medical School - Concord, University of Sydney, Sydney, NSW, Australia, ²Westmead Hospital, Sydney, NSW, Australia, ³Australian Catholic University, Sydney, NSW, Australia, ⁴Kolling Institute of Medical Research, University of Sydney, Sydney, NSW, Australia, ⁵Royal North Shore Hospital, Sydney, NSW, Australia, ⁶Adelaide Medical School, University of Adelaide, Adelaide, SA, Australia**Aim:** The symptom-complex of bowel symptoms following anterior resection (AR), anterior resection syndrome (ARS), is presumed to improve with time. This study analysed long-term bowel function following AR.**Method:** A cross-sectional study of consecutive patients who underwent AR (2002–2012) was performed. Outcome measures included: (i) subjective satisfaction and (ii) objective assessment of bowel function using validated bowel dysfunction questionnaires. Patients were stratified according to clinical phenotypes (storage (SD) and/or evacuatory (ED) dysfunction).**Results:** Of 279 eligible patients, 206 participated. Mean follow-up was 7.8 (SD 2.5) years. Subjective dissatisfaction was reported by 24.7%. Patients experienced a mean of 5.7 (SD 3.3) symptoms of ED or SD. Concomitant ED and SD was present in 51%, ED alone in 26.7% and SD alone in 8.7%. Twenty-eight (13.6%) were asymptomatic. The number of symptoms (ED or SD) reported was not influenced by duration of follow-up. Each additional symptom of ED or SD reduced the odds of being satisfied with bowel function significantly (OR 0.74, 95% CI 0.66–0.83).**Conclusion:** ARS is prevalent and persistent in the long-term. Distinct clinical phenotypes are identifiable with evacuation (+/- storage) dysfunction being most prevalent. Patients should be counselled that ARS is common and persistent, perhaps permanent, postoperatively.

WP07

Prognostic value of preoperative Neutrophil-to-Lymphocyte Ratio in predicting short-term outcome in Crohn's disease.S. Argeny¹, A. Stiff¹, M. Mittlböck¹, S. Maschke¹, P. Chitsabesan² & S. Riss¹¹Medical University of Vienna, Vienna, Austria, ²York Teaching Hospital, York, UK**Aim:** The Neutrophil-to-Lymphocyte ratio (NLR) has recently gained increased attention as a prognostic marker for malignant disease and short term outcomes. There is little data available in patients with Crohn's disease (CD), thus the present study was conducted to correlate preoperative NLR-values with disease phenotype and postoperative course.**Method:** We identified 373 patients, who underwent intestinal resection for symptomatic CD at an academic tertiary referral centre between 2000 and 2014. Preoperative NLR-values were calculated and analysed in regard to disease phenotype and 30-day morbidity rate. All relevant data were obtained from the institutional database and individual chart review.**Results:** Male patients had significantly higher preoperative NLR-values (5 vs 4; $P = 0.0075$). A higher NLR was also found in patients with an acute indication for surgery (6.15 vs 4.3; $P = 0.0374$), presenting with abscesses (5.36 vs 4.28; $P = 0.0254$), inflammatory masses (5.23 vs 4.08; $P = 0.0294$) or malignancy in the resected specimen (9.06 vs 4.35, $P = 0.0231$). Surprisingly, patients developing post-surgical complications showed significantly lower NLR-values (3.77 vs 4.67; $P = 0.0461$).**Conclusion:** NLR showed a significant correlation with specific disease phenotypes and was elevated in patients with colorectal a cancer in the resected specimen. However, elevated preoperative NLR in symptomatic CD is not predictive for complications.

WP08

Changing provision of ileoanal pouch surgery for IBD: an assessment of the SWORD databaseM. Lee¹, A. Acheson², S. Brown¹ & N. Fearnhead³¹Sheffield Teaching Hospitals NHS FT, Sheffield, UK, ²Nottingham University Hospitals, Nottingham, UK, ³Addenbrooke's Hospital, Cambridge, UK**Aim:** Inflammatory bowel disease is a subspecialist area of practice for colorectal surgeons. The surgical workload database (SWORD) uses administrative data from English Hospital Episodes and Statistics datasets to monitor practice. This study describes changes in pouch surgery provision from 2009–2016.**Method:** The SWORD database was interrogated for all ileoanal pouches formed between April 2009 and April 2016. Total number of pouches, number of centres offering pouch surgery, and operative approach were recorded. Fisher's exact test was used where appropriate. Only operations for ulcerative or indeterminate colitis on adults >18 years old were included.**Results:** 2,330 pouches were carried out in England in the study period. Number of pouches *P.a.* decreased from 362 in 2009 to 303 by 2015. Number of centres offering pouch surgery fell from 102 to 81 over the study period. However, theproportion of sites performing only 1 pouch/year remained constant (37% in 2009 vs 38% in 2015). Laparoscopic approach has grown in popularity, rising from 20% in 2009 to 39% in 2015 ($P < 0.001$).**Conclusion:** Fewer sites offer pouch surgery. Concerningly one third of sites still do just 1 pouch *P.a.* The overall reduction in volume may reflect centralisation of expertise.

WP09

Biological therapy or ileoanal pouch anastomosis in ulcerative colitisA. Oliveira¹, M. Rosete¹, A. Manso¹ & J. Leite¹¹Coimbra University Hospital, Coimbra, Portugal**Aim:** Ulcerative colitis (UC) has a significant impact on quality of life. The aim of this study was to compare the quality of life of UC patients with biological therapy versus ileoanal pouch anastomosis.**Method:** All patients who underwent ileoanal pouch anastomosis and ileostomy closure, from 2005 to 2015, and all patients with periodic biological treatment in the outpatient clinic, the last 3 months of 2016, were invited to complete the inflammatory bowel disease questionnaire (IBDQ) and the Short Form 36 (SF-36) as a generic tool of quality of life measurements.**Results:** In this study were included 24 of the 40 patients invited in the biological group and 46 of the 60 patients contacted in the pouch group. Both groups had similar age and sex distribution. Pouch patients had significant better IBDQ than the biological group (178 + 30 vs 153 + 41, $P = 0.01$). Pouch group also had better general health scores than the anti-TNF group (76 + 17 vs 62 + 17, $P = 0.001$), in 6 of the 8 SF-36 items.**Conclusion:** Patients in the surgery group reported better outcomes for disease-specific quality of life and for generic health compared with those in the biological therapy, a useful information to guide the clinical decision process.

WP10

Meta-analysis of histological margin positivity in the prediction of recurrence after Crohn's resectionJ. Ryan¹, A. Rogers¹, A. O'Toole¹ & J. Burke^{1,2}¹Beaumont Hospital, Dublin, Ireland, ²Royal College of Surgeons, Dublin, Ireland**Aim:** Previous studies have suggested that residual inflammation in resection margins could be predictive of recurrence after surgical resection for Crohn's disease (CD).**Method:** Meta-analysis was performed using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Databases were searched for studies reporting recurrence in patients with CD undergoing surgical resection, based on histological margin positivity. Results were reported as mean differences or pooled odds ratios (OR) with 95% confidence intervals (95% CI).**Results:** A total of 135 citations were reviewed; 15 studies were included for analysis involving 1340 patients. Patients with CD had recurrent disease in 41% of cases, with margin positivity in just under one-quarter of all patients. Definitions of recurrence were heterogenous, with the majority of studies reporting on clinical recurrence on an ad hoc basis, but some studies reporting on clinical, endoscopic or radiologic recurrence at predefined intervals. Patients with histologically positive margins were significantly more likely to have recurrence of their Crohn's disease (OR 1.8, 95% CI 1.4–2.2, $P < 0.001$).**Conclusion:** This meta-analysis demonstrates that patients undergoing resection for CD are more likely to have recurrence when their margins are positive for residual disease. This may be used as an indication for adjuvant therapy.

WP11

The long-term effectiveness of biologics in treating perianal fistulous Crohn's diseaseJ. Sugrue¹, S. Eftaiha¹, S. Thomas¹, C. Warner¹, S. Chaudhry¹, K. Kochar²,A. Mellgren¹ & J. Nordenstam¹¹University of Illinois at Chicago, Chicago, IL, USA, ²Advocate Lutheran General Hospital, Park Ridge, IL, USA**Aim:** Evaluate the long-term effectiveness of biologics in treating perianal fistulous Crohn's disease (CD).**Method:** Patients with CD and anal fistulas treated at a single academic institution between 2005 and 2016 were reviewed retrospectively. Patient demographics, medications, fistula-related operations, and perianal CD activity index (PCDAI) scores were recorded. Patients treated with biologics were analysed and the primary outcome was rate of fistula healing. Secondary outcomes were predictive factors for fistula healing and PCDAI score changes.**Results:** 79 patients were identified with perianal fistulous CD. 56 patients (71%) were treated with biologics and were followed for a median time of 4 (range, 0–12) years. Of these 56 patients, 19 (34%) healed their fistulas. 5 patients healed with

biologics and setons alone and 14 patients healed after biologics and additional surgery (6 sphincter-sparing repairs, 5 fistulotomy, and 3 faecal diversion). Six patients subsequently recurred. No analysed factors were predictive of healing with biologics. Biologics tended to improve median PCDAI scores from baseline (11) to last follow-up (8) ($P = 0.06$).

Conclusion: Anal fistulas in CD rarely heal with biologics and setons alone. Fair healing rates can be achieved with the use of biologics and additional surgical intervention, but outcomes deteriorate with longer follow-up.

WPI2

Evaluation of cholestyramine 15% ointment in relieving pruritus and burning after ileostomy: a randomized, double blind, placebo controlled clinical trial

S. Ala¹, M. Alvandipour², M. Saeedi¹, S. Seyedein¹ & M. Monajati¹

¹Faculty of Pharmacy, Mazandaran University of Medical sciences, Sari-Mazandaran, Iran, ²School of Medicine, Mazandaran University of Medical Sciences, Sari-Mazandaran, Iran

Aim: Irritant contact dermatitis is one of the ileostomy complications which present by pruritus and burning around stoma. The inflammation is thought to be related to high level of bile acids in ileal fluid. Cholestyramine has a high binding capacity to bile acids. This study designed to evaluate cholestyramine ointment effect in relieving burning and pruritus after ileostomy versus placebo.

Method: Thirty patients underwent ileostomy, were enrolled and randomized to apply 15% cholestyramine or placebo ointment to the skin around the stoma twice daily for 2 months. Burning and pruritus grades were evaluated every week for 1 month and finally after 2 months using visual analogue scale (VAS). Data analysed by SPSS 19.

Results: Comparing mean burning scores measured using VAS, there were statistically significant differences between the two groups after 3 weeks, 4 weeks and 2 months of receiving interventions (P value = 0.026, 0.042 and 0.019 respectively). Difference in pruritus scores were also significant after 4 weeks (P value = 0.021) and 8 weeks (P value = 0.013) of receiving interventions. No side effect was detected.

Conclusion: Topical cholestyramine can significantly improve the severity of symptoms of irritant dermatitis caused by bile acid secretion after ileostomy.

WPI3

Intestinal stoma-related morbidity: the preoperative stoma counselling counts. Review of 1076 patients

M. E. Allaix, C. Borgiotto, M. Mistrangelo, G. Gavello, G. Bosco & M. Morino
Department of Surgical Sciences, University of Torino, Italy

Aim: Stoma-related morbidity is often underestimated and risk factors for stoma complications are poorly investigated. The aim of this study is to assess the rate of complications associated with ileostomy and colostomy creation, and potential risk factors for their development.

Method: This is a review of a prospective database of consecutive patients who had a stoma between January 1990 and January 2016. Retraction, bleeding, ischemia, parastomal hernia, fistula, stenosis, and prolapse were defined major complications.

Results: A total of 1,076 (586 male) patients were included. A total of 194 (18%) patients underwent laparoscopic surgery. The stoma was formed during elective surgery in 779 (72.4%) cases. Indication for surgery was cancer in 719 (66.8%) patients; a colostomy was created in 603 (56%) patients. A total of 797 complications were observed. Major complications occurred in 493 (45.8%) patients. Parastomal hernia (8.2%) and retraction (7%) were the most common major complications. On multivariate analysis, male sex, emergency surgery, cancer and cardiopulmonary comorbidities were independent risk factors for major stoma complications. The preoperative stoma siting was the only variable associated with a reduced stoma-related morbidity rate ($P = 0.02$).

Conclusion: About 50% of patients experience major complications, that might be reduced with a proper preoperative stoma nurse counselling.

WPI4

Human Amniotic Membrane effect on perianal fistula healing in rabbits

F. Bahrami, S. V. Hosseini & M. Rahimi

Colorectal Research Center, Shiraz, Iran

Aim: Using new methods for treating perianal fistulas could help the surgeon reach a better outcome in patients with perianal fistula. Human amniotic membrane (HAM) had positive effects on wound healing in several conditions. This study was designed to further determine the HAM effect on wound healing of perianal fistula in rabbits.

Method: In this prospective experimental study, 14 male rabbits weighing 3–4 kg were randomly divided into 2 groups. After 12 weeks, the high type perianal fistula

in group one (control group) was repaired with Endo-rectal Flap (ERF) and group two (Case) with ERF plus HAM. In all rabbits of group two, HAM was applied and fixed around the site of ERF. Three weeks later, the repaired site of the perianal fistula was sent for pathologic wound healing scoring.

Results: There was a statistically significant difference in wound healing between the case and control groups ($P < 0.001$). Wound healing process in the case group occurred better and faster than the control group.

Conclusion: HAM had an effective role in advancement of ERF procedure. It can be concluded that HAM placement is appropriate. Combination of HAM and other methods is recommended.

WPI5

A follow-up study of long-term outcomes of a 12-year experience of contaminated complex abdominal wall reconstruction in two national referral centres for intestinal failure

F. de Vries¹, J. Hodginson^{2,3}, O. van Ruler⁴, J. Claessen¹, C. Leo², Y. Maeda², P. Tanis¹, W. Bemelman¹, O. Lapid¹, M. Obdeijn¹, G. Hanna³,

J. Warusavitarne², J. Constantinides², C. Vaizey² & M. Boermeester¹

¹Academic Medical Center, Amsterdam, The Netherlands, ²St Marks Hospital, London, UK, ³Imperial College, London, UK, ⁴IJsselland ziekenhuis, Capelle aan de IJssel, The Netherlands

Aim: Report long-term outcomes of contaminated complex abdominal wall reconstruction.

Method: All patients, with modified-VHGW grade 3 defects, operated from 2004–2015 were invited to participate. Patients were followed-up at a single out-patient clinic appointment, if possible. Demographic and past follow-up data were collected by retrospective case note review. Recurrent hernia was defined as an abdominal wall defect at follow-up clinical examination and/or CT.

Results: A total of 251 patients were included. Mean age was 58.1 (SD 13.5), 58.6% were male, 54.8% had an enterocutaneous fistula and intestinal failure was present in 45.8%. Mesh repair was used in 68.5%, with fascial bridging required in 31.4%. 51.8% developed a surgical site infection and in-hospital mortality was 2.4%.

At long-term follow-up, 75 patients (30.7%) developed a recurrent hernia with a mean follow-up of 24.8 months. Of the recurrences, 19 remained infected and required further operative intervention. Multivariate logistic regression showed BMI ($P = 0.011$) and bridging repair ($P \leq 0.001$) to be significant risk factors for hernia recurrence. Sixteen patients (6.5%) had postoperative fistula. Overall survival was 84.5%. Kaplan Meier regression demonstrated a 24% likelihood of requiring further hernia related surgery at 4-years.

Conclusion: Hernia recurrence rates are comparable with other series, although patients were more complex.

WPI6

Impact of multidisciplinary surgery in the management of endometriosis with significant long-term follow up

L. Devoto¹, M. Chand^{1,2}, A. Windsor¹ & A. Cutner¹

¹University College London Hospital, London, UK, ²University College London, London, UK

Aim: Deeply infiltrating endometriosis (DIE) affects up to 12% of endometriosis patients. Although multidisciplinary team working is supported for the management of complex conditions, this normally relates to peri-operative discussion rather than surgery itself. Surgery for rectovaginal disease is challenging as patients can experience significant morbidity and functional symptoms following radical bowel surgery. We present long-term outcomes from a large-volume centre practising multidisciplinary surgery.

Method: A prospective study of patients referred to a single centre (2007–2017). Pre-operative quality of life (QoL), post-operative QoL (eqvas and eq5d), demographic and clinical outcomes were recorded.

Results: Of 487 cases, 91 were considered severe rectovaginal DIE and underwent combined multidisciplinary surgery with a median follow-up of 42 months (7–118). 71 patients (78%) underwent conservative surgery and 20 had bowel resection. Major complications occurred in 2.2% with recurrence rates of 21.7%. Average eqvas and eq5d scores improved from 45.8 to 77.3 and 8.61 to 6.3, respectively. No patients who had conservative surgery went on to radical bowel resection.

Conclusion: Our series of long-term follow-up DIE shows the advantages of conservative surgery in a multidisciplinary setting leading to minimal complications and excellent quality of life.

WP17**Involving patients in designing surgical trials in complex disease**

M. Lee¹, K. Sahnan², A. Sayers³, N. Heywood⁴, A. Verjee^{5,6}, S. Blackwell^{6,7}, S. Brown⁸ & N. Fearnhead⁸

¹Sheffield Teaching Hospitals NHS FT, Sheffield, UK, ²St Mark's Hospital, London, UK, ³Mid-Yorks NHS FT, Wakefield, UK, ⁴University Hospital South Manchester, Manchester, UK, ⁵ENiGMA Collaborators, Sheffield, UK, ⁶ROManTIC Collaborators, Sheffield, UK, ⁷RAPPORT Collaborators, Sheffield, UK, ⁸Addenbrooke's Hospital, Cambridge, UK

Aim: Patient and Public Involvement (PPI) is key in trial design to ensure acceptability of interventions, establish patient equipoise, minimise burden of participation, confirm the relevance of proposed outcome measures, optimise written information, and ultimately promote successful recruitment. This paper describes current best practice and patient feedback on PPI in complex disease.

Method: Three separate whole-day PPI meetings were convened by ACPGBI-supported research programmes in rectal prolapse, perianal Crohn's fistula, and terminal ileal Crohn's disease. Participants were recruited through social media, website information and personal invitation. Sessions were based on deliberative engagement methodology. Meetings were structured into patient stories, background to research, patient equipoise, recruit strategies, relevance of outcomes, and testing of questionnaire packs for patient reported outcomes. Interaction between patients and researchers was enhanced by the presence of skilled patient representatives. Contemporaneous feedback notes were made.

Results: 50 patients participated. Social media were effective in engaging patients with Crohn's disease; direct invitation was more successful with rectal prolapse. Participants welcomed the opportunity to tell their story. Feedback allowed every trial proposal to incorporate PPI recommendations.

Conclusion: A modified deliberative engagement approach can be used to discuss complex surgical trial issues with patients, and to elicit constructive feedback.

WP18**Importance of Moskowitz artery in the laparoscopic medial approach of splenic colic flexure mobilization: a cadaveric study**

A. Garcia-Granero¹, L. Sánchez-Guillén¹, O. Carreño¹, J. S. Muriel¹, E. A. Sarrado¹, D. F. Sanfeliu², B. Flor¹, M. Frasson¹, F. M. Soriano³ & E. Garcia-Granero¹

¹Hospital Universitario y Politécnico la Fe, Valencia, Spain, ²Hospital Clínico Universitario, Valencia, Spain, ³Anatomy and Embryology Department, Valencia University, Valencia, Spain

Aim: The medial approach of splenic flexure is based on the entrance to the lesser sac just above the ventral edge of the pancreas (VEOP). The artery of Moskowitz runs just above the (VEOP). The objective of this study is to assess the incidence of the artery of Moskowitz, its route and its distance from VEOP.

Method: Study of 27 cadaver specimens. The vascular arcades of splenic flexure were dissected. Splenic flexure avascular space (SFAS) was defined as the avascular zone in mesocolon limited by, VEOP, middle colic artery, ascending branch of left colic artery and the vascular arch of splenic flexure nearest to VEOP.

Results: Artery of Drummond was identified in 100% of the specimens. In 18% Riolan's arch was present, and in 11% Moskowitz artery was found. The SFAS was greater in cadavers that only presented the artery of Drummond (6.8 cm) than in those who presented Riolan's arch (4.5 cm). The SFAS was considered non-existent in the three specimens with Moskowitz artery.

Conclusion: In case the artery of Moskowitz is present, it would contraindicate the medial approach for the laparoscopic liberation of the splenic flexure due to an iatrogenic bleeding risk. A radiological pre-operative study could be essential.

WP19**Risk factors for failure of laparoscopic peritoneal lavage in Hinchey III diverticulitis**

T. Greilsamer¹, E. Abet², G. Meurette¹, M. Comy², A. Hamy³, E. Mirallie¹, A. Venara³, P.-A. Lehur¹ & E. Duchalais¹

¹University Hospital of Nantes, Nantes, France, ²Vendée Medical Center, La-Roche-Sur-Yon, France, ³University Hospital of Angers, Angers, France

Aim: The Laparoscopic Peritoneal Lavage (LPL) is a conservative alternative to colonic resection in Hinchey III diverticulitis. A wider implementation of LPL is limited by a high postoperative reoperation rate. The purpose of this study was to identify risk factors of LPL failure in Hinchey III diverticulitis patients.

Method: In three hospital centers, all patients operated on for Hinchey III diverticulitis with LPL between 2006 and 2015 were included. Patients with Hinchey II and IV diverticulitis at laparoscopy were excluded. Patient characteristics and postoperative complications were retrospectively collected to identify risk factors associated with LPL failure. LPL failure was defined as reoperation or death at 30 postoperative days.

Results: Seventy-one patients (43 males, mean age 58 years [20–84 years]) diagnosed with Hinchey III diverticulitis at laparoscopy were included. LPL failure was

observed in 14 (20%) patients including 13 reoperations and 1 death. Immunosuppressive drugs ($P = 0.01$) and ASA grade ≥ 3 ($P = 0.02$) were associated with LPL failure after univariate analysis. Multivariate analysis identified only immunosuppressive drugs intake (steroids or chemotherapy for cancer) as an independent predictive factor.

Conclusion: Our results highlight immunosuppressive drugs intake as a major risk factor for LPL failure in Hinchey III diverticulitis patients.

WP20**Acute diverticulitis Hinchey III: two-year follow-up of a randomized clinical trial (DILALA) comparing laparoscopic lavage versus Hartmann's procedure**

E. Angenete¹, A. Kohl², J. Rosenberg², D. Bock¹, T. Bisgaard³, A. Thornell¹, J. Gehrman¹ & E. Haglind¹

¹Department of Surgery, Institute of Clinical Sciences, Scandinavian Surgical Outcomes Research Group, Sahlgrenska Academy, University of Gothenburg, Sahlgrenska University Hospital/Östra, Göteborg, Sweden, ²Centre for Perioperative Optimization, Department of Surgery, Herlev Hospital, Herlev, Denmark, ³GastroUnit, Surgical Division, Hvidovre Hospital, University of Copenhagen, Hvidovre, Denmark

Aim: To compare risk for one or more operations within 24 months of index surgery for perforated diverticulitis Hinchey III.

Method: After diagnostic laparoscopy showing perforated diverticulitis Hinchey III patients were randomized to laparoscopic lavage or Hartmann's procedure by open technique. Patients were followed by until 24 months, detailing complications, re-admissions and any kind of further operation; intention-to-treat analysis.

Results: Forty-three and 40 patients respectively in laparoscopic lavage and Hartmann's group. In the lavage group the risk for further surgery within 24 months was 45% lower than in the Hartmann's group (relative risk, 0.55 [95% CI, 0.36 to 0.84]; $P = 0.012$) and fewer operations (ratio 0.51 [95% CI, 0.30 to 0.86]; $P = 0.024$). There were no significant differences regarding mean number of re-admissions (1.37 vs 1.51; $P = 0.22$) or length of hospital stay (18 vs 24 days; $P = 0.11$).

Conclusion: Long-term results of laparoscopic lavage confirmed 12 months results that lavage was beneficial for the patients in terms of need for further operations and also cost-saving. Studies of implementation and outcomes in regular clinical use are under way.

WP21**Effectiveness of concomitant use of green tea and polyethylene glycol in bowel preparation**

Z. Hao¹, J. Chen^{1,2}, S. Feng¹, L. Gong¹, Q. Shen¹ & Y. Cai¹

¹Department of General Surgery, The Fifth People's Hospital of Shanghai, Fudan University, Shanghai, China, ²Department of Colorectal Surgery, Cleveland Clinic Florida, Weston, Florida, USA

Aim: To evaluate the effectiveness of concomitant use of green tea (GT) with polyethylene glycol (PEG) in bowel preparation prior to colonoscopy.

Method: This was a prospective, randomized controlled study. Patients aged 18 through 80 scheduled to undergo outpatient colonoscopy, were randomly prescribed to take PEG+GT or PEG only for bowel preparation. Primary endpoint was bowel cleanliness determined by Aronchick indicators. Adverse events, compliances and repeating use were documented.

Results: 116 patients were enrolled in this study (PEG+GT 59, PEG 57). Full compliances were achieved in 86.4% patients of group PEG+GT and 66.7% of group PEG ($P = 0.012$). Mean Aronchick scale between two groups were 2.02 ± 0.9 versus 2.18 ± 0.7 ($P = 0.187$). Rates of adverse events as nausea and vomiting in bowel preparation were significant different between two groups (57.6% vs 77.2%, $P = 0.025$ and 15.3% vs 33.3%, $P = 0.023$). Patients in the group administered PEG+GT who have probabilities to receive repeated colonoscopy had a higher willingness to accept PEG+GT again for bowel preparation, compared with PEG group (79.6% vs 56.1%, $P < 0.01$).

Conclusion: Concomitant use of green tea and polyethylene glycol may effectively reduce incidence of adverse events, increase compliances with comparable bowel cleanliness in bowel preparation.

WP22**A six-year single centre review of loop ileostomy reversal rates and reasons for non-reversal**

M. Reid¹, S. Daniel-Papi¹, R. Wharton^{2,1} & J. Hernon^{2,1}

¹University of East Anglia, Norwich, UK, ²Norfolk and Norwich University Hospital NHS Foundation Trust, Norwich, UK

Aim: Approximately 70% of patients undergoing a Low Anterior Resection (LAR) for colorectal cancer are covered with a temporary defunctioning loop ileostomy.

Nationally 73% of these temporary stomas are reversed. Our aim was to establish: 1. Reasons for non-reversal 2. Risk factors associated with non-reversal.

Method: The Colorectal data based was used to identify all patients undergoing a loop ileostomy between April 2010–April 2016. Hospital records were assessed to determine the following: 1. Patients not undergoing a reversal 2. Reason for non-reversal. The following patient demographics were also recorded: Age, sex and TNM stage.

Results: Between April 2010–2016 247 patients underwent a LAR. 34 (14%) patients were not reversed. Reasons for non-reversal were: Development of terminal disease with 1 year (14), Patient declined reversal (9), Anastomotic leak (7), Anastomotic stricture (2), and Patient not medical fit for further surgery (2). Advanced TNM stage at the point of diagnosis significantly increased the risk of non-reversal ($P < 0.05$)

Conclusion: A significant number of patients are not reversed post LAR. Stage of disease at presentation is strongly associated with non-reversal and should be considered during the decision to perform a temporary loop ileostomy / permanent stoma (colostomy).

WP23

The role of interventional radiology in the management of anastomotic leakage following rectal surgery

M. Kelly¹, D. Ahern¹, A. Moynihan¹, B. Creavin¹, C. Redmond², D. Brophy², R. Kennelly¹, A. Hanly¹, S. Martin¹, R. O'Connell¹ & D. Winter¹

¹The Centre for Colorectal Disease, St Vincent's University Hospital, Dublin, Ireland, ²Department of Radiology, St Vincent's University Hospital, Dublin, Ireland

Aim: Anastomotic leakage (AL) is a serious complication following rectal resection. Interventional radiology (IR) has revolutionized the management, reducing re-operative rates. We assessed the success of IR following AL.

Method: A 10-year retrospective review of all rectal cancer resections in a tertiary referral centre was performed. The incidence and management of AL was reviewed. Treatment and management success of AL by IR was assessed.

Results: Over the 10-year period there were a total of 496 patients that had a rectal resection and anastomosis ($n = 236$ in neoadjuvant group vs $n = 260$ in non-neoadjuvant group). Median (range) age was 67 (28–85) years. 53.2% ($n = 397$) had prior neoadjuvant therapy. The overall incidence of AL was 9.8% ($n = 49$). There was a statistical difference in leak rate between neoadjuvant versus non-neoadjuvant groups (14.8% vs 5.3%, $P = 0.01$). 76.9% ($n = 30$) of AL were managed initially by IR drainage, with two-thirds ($n = 25$) being successfully managed by IR drainage alone, without surgical intervention. Only five patients required surgery (laparotomy, wash-out + stoma) following IR drainage.

Conclusion: IR management of anastomotic leak following rectal resection is associated with safe and effective outcomes, preventing re-operative surgery in the majority of cases.

WP24

A novel tube device for faecal diversion (FDD) applied in low rectal anastomosis (LRA); Preliminary result of prospective observation trial (POT)

J. H. Kim & S. Kim

Yeungnam University, Daegu, Republic of Korea

Aim: FDD was applied to LRA patients to evaluate the safety and effectiveness in the protection of the anastomosis.

Method: FDD is a tubular device made of silicone. An absorbable PGLA mesh band was used to fix the head portion of the device externally on the colon. A POT ($n = 80$) was performed on 15 LRA patients, with high risk of anastomotic leakage (AL), who could not be included in randomized controlled trial because of inclusion criteria. The FDD procedure comprised of intraoperative FDD installation after LRA and postoperative maintenance period for 3 weeks. If the AL was noted, FDD was retained for 3 weeks more.

Results: Twelve rectal cancer, three traumatic rectal perforation were included. Average height of anastomosis was 5 (median) cm from anal verge. FDD were retained for 22 (Median) days. Four AL was identified however, 3 weeks prolongation of FDD maintenance was enough to preserve the anastomosis. There was no septic event due to FDD and FDD procedures. Erosion of band was noted in one case however, there was no additional treatment needed.

Conclusion: FDD procedure was effective in the prevention of dismal septic cascade in case of anastomotic leakage. There was no significant complication about FDD procedure.

WP25

Incisional hernia following laparoscopic versus open colorectal resection: a systematic review and meta-analysis

M. R. Lee & G. W. Ha

Chonbuk National University, Jeonju, Jeonbuk, Republic of Korea

Aim: Incisional hernia is one of the common late complications following abdominal surgery. The aim was to evaluate the long-term incisional hernia incidence following laparoscopic versus open colorectal resection.

Method: Multiple comprehensive databases, including PubMed, EMBASE, Cochrane Library were searched for studies assessing incidence of incisional hernia after laparoscopic versus open colorectal resection. The main study outcome was incidence of incisional hernia and secondary outcome measure was incidence of surgical hernia repair. Outcome data were pooled and combined overall effect size were calculated using fixed or random effect models.

Results: Two randomized clinical trials and 13 nonrandomized studies involving 10,160 patients were included. Subgroup analyses of 2 randomized clinical trials found that laparoscopic colorectal resection had no benefit on reducing incisional hernia (odds ratio 0.57, 95% CI 0.28–1.15, $I^2 = 0\%$). Meta-analysis of 13 nonrandomized studies showed that laparoscopic colorectal resection was associated with a lower incidence of incisional hernia compared with open resection (odds ratio 0.50, 95% CI 0.36–0.68, $I^2 = 0\%$).

Conclusion: Laparoscopic colorectal resection may lead to a lower incidence of incisional hernia compared with open resection. Randomized clinical trials with sufficient power are needed to confirm this beneficial effect of laparoscopic colorectal resection.

WP26

Impact of resident and fellow changeovers on patient outcomes after colorectal surgery: a nationwide cross-sectional study

J.-D. Zeitoun¹, J. Marty-Reboul², Y. Parc¹ & J. Lefevre¹

¹Hôpital Saint-Antoine, Paris, France, ²CH Marne la Vallée, Jossigny, France

Aim: Findings regarding the association of cohort changeovers with patient outcomes are mixed. In France, residents switch from one teaching hospital department to another in May and November, while fellow changeovers occur only in November. We sought to examine the impact of changeovers.

Method: We performed a comparative study including all French teaching and non-teaching hospitals. Mortality and length of stay were assessed. Focused analysis after colorectal surgery was performed regarding readmissions, ICU admission, transfers.

Results: Of 34,330,716 patients were admitted in 2011 and 2012. Within the month following cohort changeovers, no increase in mortality was observed in teaching hospitals. Hospital stay was longer in May and November in teaching hospital ($P < 0.0001$) whereas it was shorter in the private sector.

Of 86,616 colorectal procedures were then analysed. Mortality rate were 7% and 2.8% in teaching hospital or private sector. In November, no significant impact was observed. Comparison of May/November to the remaining 10 months showed a longer length of stay (16.8 ± 15.6 vs 16.3 ± 15.8 , $P < 0.005$) and more readmissions (21.4% vs 20%, $P < 0.005$) not observed in the private sector.

Conclusion: Our findings provide some reassurance regarding cohort changeover and mortality even if they suggest a loss of efficiency in some cases.

WP27

CRP values after colorectal resection: can we discharge a patient with a CRP value > 100?

O. Benoit¹, N. Margot¹, M. Farron¹, B. Creavin², C. Debove¹, N. Chafai¹, E. Tiret¹, Y. Parc¹ & J. Lefevre¹

¹Hôpital Saint-Antoine, Paris, France, ²St Vincent's University Hospital, Dublin, Ireland

Aim: Evaluate CRP as an indicator of post-operative complication and as a test for discharge.

Method: All patients undergoing a colorectal resection with anastomosis (2014–2015) were retrospectively retrieved.

Results: Five hundred and twenty-two patients were included. Majority had colorectal ($n = 159$, 31%) or colo-anal anastomosis ($n = 150$, 29%). Global morbidity was 29.3%.

CRP was significantly higher among patient having intra-abdominal complications at an early stage (day 1–2) (164.6 vs 136.2 ; $P = 0.0028$) and at a later stage (day 3–4) (209.4 vs 132.1 ; $P < 0.0001$). In multivariate analysis, early CRP was associated with BMI (Coef = 4.9 –IC95% [3.2 – 6.5]; $P < 0.0001$) and open surgical procedure (Coef = 43.1 –IC95% [27 – 59.1]; $P < 0.0001$), late CRP value was influenced by BMI (Coef = 4.8 –IC95% [2.5 – 7.0]; $P = 0.0024$) and realization of associated procedures (Coef = 34.2 –IC95% [2.7 – 65.6]; $P = 0.033$).

Sensitivity, specificity, negative predictive and positive predictive values for intra-abdominal complication were 85.9%; 33.6%; 89.3% and 27.1% for an early CRP < 100 and 72.7%; 75.4%; 89.4% and 49.2% for a late CRP < 100.

407 patients with an uneventful postoperative course were discharged at day 8 ± 6.4 with a last CRP of 83.5 ± 67.4 . 38 patients (9.3%) were readmitted and

had a significantly higher last CRP (138.6 ± 94.1 vs 77.8 ± 61.2 , $P = 0.0004$). Readmission rate was 16.5% for patients with a last CRP > 100 and 6% for the others ($P = 0.0008$).

Conclusion: CRP < 100 is associated with a low risk of intra-abdominal complication and readmission.

WP28

A total laparoscopic approach reduces erectile dysfunction after ileal pouch-anal anastomosis: a two-center study

O. Picaud^{1,2}, L. Beyer-Berjot¹, Y. Parc², S. Berdah¹ & J. Lefevre²

¹Hôpital Nord, Marseille, France, ²Hôpital Saint-Antoine, Paris, France

Aim: To assess the impact of ileal pouch-anal anastomosis (IPAA) on male fertility and erectile dysfunction (ED).

Method: This was a prospective two-center study. All male patients under 70 years undergoing IPAA were included. All patients responded to a fertility survey and international index of erectile function (IIEF). Fertility was analysed with a control group (male who underwent appendectomy, matched for age at surgery, desire for paternity (DP) and follow-up).

Results: 246 patients had IPAA and 116 answered to the questionnaires (47.2%). 28% of IPAA patients had DP, 16% tried to be a father and 20% had a child versus 27%, 26% and 22% in the control group. After 1 year, 18 IPAA patients with DP had a child vs. 22 controls (78% vs. 81%, $P = 0.9$).

35 IPAA patients (30%) presented ED, including 7 with severe dysfunction. Open surgery (43% vs 25%, $P = 0.035$), rectal dissection by open surgery (43% vs 11%, $P = 0.0006$) and mesorectal excision (50% vs 26%, $P = 0.017$) were risk factors for ED.

Conclusion: No decrease in fertility after IPAA was detected. ED was observed in 30% of cases. Laparoscopic rectal dissection and dissection close to the rectal wall should be preferred whenever possible.

WP29

Good compliance to Fast-Track program improves outcome after colorectal surgery

A. Hartmann¹, D. Leonard¹, C. Trefois¹, C. Remue¹, R. Bachmann¹,

N. A. Orabi¹, F. Lois², P. Forget² & A. Kartheuser¹

¹Colorectal Surgery Unit, Cliniques universitaires Saint-Luc, Brussels, Belgium,

²Anesthesiology Department, Cliniques universitaires Saint-Luc, Brussels, Belgium

Aim: Our goal was to evaluate the compliance to the FT protocol and to analyse the effect of compliance on postoperative outcome and post-operative hospital stay (POHS).

Method: This retrospective study involves consecutive patients who underwent colorectal surgery within a FT protocol between 2007 and 2013. Basic demographics, adherence to protocol, postoperative complications and POHS were recorded. Both univariate and multivariate analysis were performed.

Results: There were 157 men and 127 women with a mean age of 58 years. Compliance to the FT protocol reached a median of 18 out of 20 items. The median hospital stay was 3 days (2–49). Overall complications rate was 34.9% and 7.4% when Dindo-Clavien >2 was considered. Risk factors of postoperative complications were male sex ($P = 0.038$), laparotomy ($P = 0.015$), neoplasia ($P = 0.0069$) and number of comorbidities ($P = 0.00877$). Higher compliance to the FT protocol reduces the complication rate ($P = 0.00004$), severity of complication ($P = 0.002$) and POHS ($P \leq 0.00001$). We have not been able to identify any isolated FT measure able to influence post-operative outcome.

Conclusion: Greater adherence to FT protocol decreases postoperative complications and POHS. Our data supports a holistic effect of the FT protocol rather than specific isolated measures to improve patient's postoperative outcome.

WP30

A novel wireless device can accurately measure output in Ostomy patients

S. Rajagopal & R. Fearn

Department of Colorectal Surgery, Homerton University Hospital, London, UK

Aim: Common complications suffered by stoma patients include acute kidney injury, hospital readmissions, and reduced quality of life. This study aimed to assess whether a wireless device can monitor the fullness of an Ostomy bag in order to aid self-management and potentially reduce complications.

Method: The Ostom-i alert sensor attaches to a stoma bag and measures deformation of the bag whilst filling. 20 ostomates (14 ileostomy, 6 colostomy) within 12 months of surgery were recruited via social media. Devices were attached to pre-filled stoma bags and output recorded while patients performed a set of standardised activities. The ability of the device to accurately detect the correct volume was measured for increments of filling from 0–100%.

Results: All 20 users were able to attach and connect the Ostom-i alert sensor. The device was able to correctly detect volume at all increments (0–100%) whilst prone, supine, reclining, climbing stairs, lying flat, bending, driving and turning over. Accuracy was reduced in a seated position. All devices failed when immersed in water.

Conclusion: The Ostom-i sensor device is easy to attach and connect for ostomates. The Ostom-i sensor can accurately detect volumes of fluid within a stoma bag during most activities of daily living.

WP31

Sutured Trephine Annular Reinforcement Technique to reduce parastomal hernia incidence: the START trial

A. E. Sayers, R. K. Patel, J. E. Hartley & I. A. Hunter

Hull and East Yorkshire NHS Trust, Yorkshire, UK

Aim: Parastomal hernias (PSH) have a reported incidence of up to 50%, with 10–20% of these warranting surgical intervention. The aim was the development of a novel reinforcement technique at primary stoma formation, to reduce PSH incidence.

Method: Full ethical approval was obtained for a blinded randomised controlled trial. Patients were randomised into a standard stoma trephine group, or a reinforced stoma trephine group. Trephines were reinforced with a locked purse-string 1-0 Ethibond suture. The presence of a PSH was determined at stoma reversal, or at 30-month follow-up.

Results: Seventy-eight patients entered the trial over a 3-year period, at a tertiary teaching hospital, with 67 patients completing follow-up. Forty patients underwent standard stoma formation, whilst 38 underwent trephine reinforcement. Eleven patients developed a PSH in the standard trephine group, compared with six in the suture-reinforced group (57.9% vs 21.4%). At stoma reversal, it was noted that suture-reinforced trephines had a higher prevalence of dense adhesions (38.1% vs 20%).

Conclusion: Sutured reinforcement of stoma trephines is a safe technique to reduce PSH incidence. Due adhesion formation, it may be best reserved for those undergoing permanent stoma formation.

WP32

Persistent peritonitis after damage control surgery for perforated diverticulitis with diffuse peritonitis: a strong predictor for a worse outcome

M. Sohn¹, A. Agha¹, P. Steiner³, P. Ritschl², A. Felix² & I. Igors¹

¹Klinik für Allgemein-, Viszeral-, Endokrine- und Minimal-Invasive Chirurgie,

Klinikum Bogenhausen, Städtisches Klinikum München GmbH, Munich, Germany,

²Chirurgische Klinik, Charité, Universitätsmedizin Berlin, Campus Virchow Klinikum,

Berlin, Germany, ³Klinik für Allgemein- und Viszeralchirurgie, Klinikum Harlaching,

Städtisches Klinikum München GmbH, Munich, Germany

Aim: To evaluate the impact of a persistent peritonitis (PP) within second look after damage control surgery (DCS) for perforated diverticulitis and generalised peritonitis.

Method: A multicentric retrospective analysis was performed (5/2011–1/2017). DCS is a two stage procedure: limited colon resection, oral and aboral blind closure, lavage, vacuum assisted abdominal closure within emergency surgery. 2nd-look laparotomy with definite reconstruction (anastomosis +/- ileostomy or end-colostomy) 24–48 h later.

Results: Fifty-eight patients were included (age 67.5 years [30–92]). 17% had Hinchey IV-peritonitis at emergency surgery. Second look was performed after an average of 48 h. At this time, 53% macroscopically showed PP. PP was diffuse in 10 and localised in 20 patients. 28 patients showed complete remission (nPP). Characteristics of patients with PP versus nPP: organ failure: 78% vs 48% ($P = 0.15$), Mannheim score: 25 vs 18 ($P = 0.005$), procedural length: 106 vs 82 min ($P = 0.011$). Secondary anastomosis: PP: 67% vs nPP: 100% ($P = 0.001$). Anastomotic leakage: 20% vs 7% ($P = 0.22$). Overall morbidity: 50% vs 21% ($P = 0.031$). Stoma-rate: 70% vs 29% ($P = 0.003$). Mortality: 17% vs 0% ($P = 0.053$). Multivariate analysis: diffuse PP was strongest predictor for mortality (HR 35.6, 95% CI: 2.5–504.9, $P = 0.008$).

Conclusion: PP is a significant predictor of outcome and could lead to a tailored surgical approach.

WP33

Outcome after R1 rectal cancer surgery – is there a difference within microscopic circumferential resection margins less than one millimeter

E. Agger¹, F. Jörgren², M.-L. Lydrup^{1,2} & P. Buchwald^{1,2}

¹Skåne university hospital, Malmö, Sweden, ²Lund university, Lund, Sweden

Aim: R1-resection is defined as a microscopically non-radical resection margin. Most frequently a cut-off of less than one millimeter (mm) is used. We aimed to

compare differences in outcomes after rectal cancer surgery when the circumferential resection margin (CRM) was less than one mm. Primary endpoint was local recurrence.

Method: Data were retrospectively collected for all patients treated with TME-surgery for rectal adenocarcinoma between 2005 and 2013 in southern Sweden. Patients with metastatic disease, R2-resection and cases where the pathology report did not specify exact resection margin were excluded. R0-resections were included for comparison.

Results: A total of 1355 patients were included of which 99 had CRM < 1 mm. Eleven R1-resected patients (11.1%) developed a local recurrence. Patients with CRM = 0 mm; 0.1–0.3 mm and 0.4–0.9 mm had a local recurrence rate of 16.7 %, 11.1 % and 9.5 % respectively, compared to 2.5 % in the R0-group.

Conclusion: Only a subset of patients with R1-resection will suffer from local recurrence. Exact measurements of CRM-margin could predict the risk of local recurrence within the R1-group.

WP34

Risk factors for lateral pelvic lymph node metastasis after preoperative chemoradiotherapy in patients with advanced low rectal cancer

T. Akiyoshi¹, A. Ogura, T. Nagasaki, T. Konishi, Y. Fujimoto, S. Nagayama, Y. Fukunaga & M. Ueno

Cancer Institute Hospital, Tokyo, Japan

Aim: To determine risk factors for lateral pelvic lymph node (LPLN) metastasis in patients with advanced low rectal cancer treated with preoperative chemoradiotherapy.

Method: We analysed 369 consecutive patients with low rectal cancer without distant metastases treated with preoperative chemoradiotherapy or short-course radiotherapy from 2004 to 2014. LPLN dissection (LPLD) was performed in patients with enlarged LPLNs before CRT. LPLN metastasis was defined as both the pathological LPLN metastasis proven by LPLD and local recurrences in LPLNs during follow-up. Clinical factors associated with LPLN metastasis were analysed using multivariate analyses.

Results: Thirty-six (9.8%) patients had pathological LPLN metastasis at the time of surgery and 10 (2.7%) patients had local recurrences in LPLNs during follow-up. Multivariate analyses showed that location of tumour from anal verge ≤40 mm [*P* = 0.0088; odds ratio (OR) = 3.21; 95% confidence interval (CI), 1.33–8.42], pathological mesorectal lymph node metastasis [*P* < 0.0001; OR = 6.96; 95% CI: 2.69–20.01], and LPLNs with a short-axis diameter ≥8 mm before CRT on imaging [*P* < 0.0001; OR = 70.35; 95% CI: 25.12–231.13] were independently associated with LPLN metastasis.

Conclusion: These factors should be considered to determine indications for LPLD or to detect local recurrences in LPLNs earlier.

WP35

Survivorship issues following treatment for anal cancer in people living with HIV

M. Alfa-Wali¹, A. Dalla-Pria^{2,3}, M. Nelson^{2,3}, D. Tait⁴, P. Tekkis^{3,4} & M. Bower^{2,3}

¹Royal London Hospital, London, UK, ²Chelsea and Westminster Hospital, London, UK, ³Imperial College, London, UK, ⁴Royal Marsden Hospital, London, UK

Aim: Anal cancer survivors including people living with HIV (PLWH) face a number of health-related concerns. This study reports the survivorship issues of PLWH after anal cancer treatment.

Method: Clinical characteristics of all PLWH treated for anal cancer since 1989 have been prospectively collected at the National Centre for HIV malignancy. Anal cancer survivors have been offered annual high resolution anoscopy (HRA) surveillance and regular lymphocyte and HIV viral load measurement.

Results: Between 1989 and 2016, 92 patients were identified. Seventeen treated with surgery alone for T1 anal verge tumours and 68 with chemoradiotherapy (CRT) with curative intent for non-metastatic anal tumours. Forty survivors (25 after CRT, 15 after surgery alone) had a total of 129 post-treatment HRA examinations. Eight died in remission from: AIDS defining cancers (2-Kaposi sarcoma, 2-non-Hodgkin's lymphoma), 2 – opportunistic infections, 1 – liver failure, 1 – lung cancer.

Conclusion: Anal cancer survivors with HIV carry a double burden, from HIV and its long-term consequences and anal cancer treatment. They are at risk of treatment related late toxicities including immunosuppression and associated infections. The long-term effects of CRT and the potential contributions to the risks of secondary malignancies in PLWH need to be recognised.

WP36

Gastrointestinal anastomotic leak and associated factors in peritoneal carcinomatosis surgery

T. Bisgin¹, N. C. Arslan², F. Obuz¹, I. Oztop¹, A. E. Canda¹, C. Terzi¹ & S. Sokmen¹

¹Dokuz Eylul University, Izmir, Turkey, ²Istinye University, Istanbul, Turkey

Aim: To determine the factors associated with anastomotic leak after peritoneal carcinomatosis (PC) surgery.

Method: Patients who underwent cytoreductive surgery and hyperthermic intraperitoneal chemotherapy with gastrointestinal anastomosis were included. Charlson Comorbidity Index and ECOG performance status were used to assess preoperative condition of the patients. Clinically and/or radiologically diagnosed gastrointestinal leaks were recorded as anastomotic leak.

Results: One-hundred and eight patients were included in the analysis. A single anastomosis was performed in 93 patients, two anastomoses in 12 and three anastomoses in 3 patients. Diverting stoma was performed in 15 (13.8%) patients. Anastomotic leak was seen in 11 (10.1%) patients. Preoperative albumin level (*P* < 0.001) and BMI (*P* = 0.012) were significantly lower in patients with anastomotic leak. Smoking (*P* = 0.014), ECOG status (*P* > 0.001), CC score (*P* = 0.014), HIPEC toxicity (*P* = 0.029), neoadjuvant chemotherapy (*P* = 0.018) and PCI (*P* = 0.009) were other significant factors related to anastomotic leak. Independent risk factors for anastomotic leak were ECOG score greater than 1 (HR: 4.430, CI: 2.471–6.409) and previous palliative/inadequate surgery (HR: 1.8, CI: 1.266–2.178).

Conclusion: Careful patient selection is a prerequisite for complete cytoreduction with low morbidity rates in PC surgery. The initial cytoreduction with curative intent and experience has a crucial role on anastomotic complications

WP37

The frequency and nature of upper GI polypoid lesions in patients with FAP

T. Banasiewicz, A. Lutkowska, J. Paszkowski & A. Pławski

Poznan University of Medical Sciences, Poznan, Poland

Aim: Familial adenomatous polyposis (FAP) is the most common familial polyposis syndrome. In patients with FAP, polyps may also occur in the upper gastrointestinal (UGI) tract. The aims of this study were to determine the frequency and nature of UGI polypoid lesions in patients with FAP and to analyse the relationship between UGI lesions and germline mutations in the APC gene

Method: The study group consisted of 65 FAP patients (50 families) who were undergoing periodic endoscopic examinations of the lower GI.

Results: UGI polypoid lesions were found in 66.2% of FAP patients. Macroscopic lesions in the stomach were present in 50.8%, whereas 38.5% had these lesions in the duodenum. Fundic gland polyps, adenomas and hyperplastic polyps accounted for 52.2%, 30.4% and 17.4% of the gastric lesions, respectively. Duodenal adenomas with dysplasia and adenocarcinoma of the ampulla of Vater accounted for 85.7%, 9.5% and 4.8% of the lesions in the duodenum, respectively. Germline mutations of the APC gene between codons 1061–1465 predispose patients with FAP to neoplasias in the UGI tract (*P* = 0.0223).

Conclusion: Examination of the UGI should be obligatory part of FAP patient follow-up. UGI lesions are a significant clinical problem in FAP patients.

WP38

Indications and multicenter results of transanal total mesorectal excision (TaTME) in Germany

F. Aigner¹, M. Biehl¹, A. Rink², A. Fürst³ & W. Kneist⁴

¹Department of Surgery, Charite University Medicine Berlin, Berlin, Germany, ²Department of Surgery, Klinikum Leverkusen, Leverkusen, Germany, ³Department of Surgery, St. Josef Krankenhaus Regensburg, Regensburg, Germany, ⁴Department of Surgery, University Medicine Mainz, Mainz, Germany

Aim: Transanal total mesocolic excision (taTME) is utilised for benign and malignant rectal diseases. We report on surgical technique and early results of TaTME in four German colorectal centers.

Method: All consecutive TaTME cases performed at four colorectal centers in Germany were included. Data are reported as mean ± SD and total numbers (%).

Results: Two hundred and seventeen consecutive patients (f:m ratio = 1:2.3; mean age 59 ± 14a) underwent TaTME. Indications included rectal carcinoma (85.3%), ulcerative colitis (10.1%), Crohn's disease (1.4%) and others (1.4%). Median operative time was 317 ± 105 min with a two-team approach performed for 46% procedures. Protective stoma was performed in 97.7% (93.5% ileostomy/4.2% colostomy). For the two main indications, rectal cancer (group A) and ulcerative colitis (group B), conversion to open rates were 3.8% vs 0%, stapled anastomosis performed in 49% vs 82% and no anastomosis performed in 4% vs 0%. Length of stay was 14 ± 11 days. 30d mortality was 1%, total morbidity was group A 46% and group B 23%, reoperation rate 8% vs 5%, anastomosis leakage 8% vs 5%, R0 resection rate 99.5%, recurrence rate 4.2%.

Conclusion: TaTME is feasible in a multicentre setting in Germany. The procedure is technically demanding and requires further investigation.

WP39

Omitting diverting ileostomy after transanal total mesorectal excision with staple line reinforcement

R. Blok, R. Stam, E. Westerduin, W. Borstlap, W. Bemelman & P. Tanis
Academic Medical Center, Amsterdam, The Netherlands

Aim: Introducing transanal total mesorectal excision (TaTME) for rectal cancer was accompanied by a shift from double to single stapling anastomosis. Additionally, we started routine transanal oversewing and stopped routine faecal diversion. This comparative cohort study aimed to compare our experience after TaTME with those after conventional laparoscopic TME (LaTME).

Method: All consecutive patients undergoing TaTME for mid and low rectal cancer between January 2015 and March 2017 were compared with those undergoing LaTME in the preceding period since January 2011.

Results: Of the 89 included patients, 41 (46%) had TaTME. Median follow-up was 35 months after LaTME and 12 months after TaTME. Primary diversion was performed in 43 (90%) and 4 (10%) patients, respectively. Anastomotic leak rate at 90 days postoperatively after LaTME and TaTME was 19% and 5%, respectively ($P = 0.047$). Stoma-related readmission and reoperation rate (including reversal) after LaTME were 83% and 85%, respectively. Corresponding percentages were significantly lower after TaTME (15% and 15%; $P < 0.001$). Total hospital stay was 11 days (IQR 8–19) versus 5 days (IQR 4–6) after LaTME and TaTME, respectively ($P < 0.001$).

Conclusion: A diverting ileostomy could be safely omitted in almost all patients after TaTME with double pursestring, single stapled anastomosis and intraluminal suture reinforcement.

WP40

Risk of acute dehydration or renal failure after formation of ileostomy in patients with antihypertensive medication

C. Buchli, L. Lindmark, L. de la Motte & C. Nordenvall
Department for Molecular Medicine and Surgery, Karolinska Institutet, and Center for Digestive Diseases, Karolinska University Hospital, Stockholm, Sweden

Aim: Ileostomy is used in patients with anterior resection for locally advanced and low rectal cancer to reduce the impact of anastomotic leakage. Hypertension and cardiac failure are common in these patients and often treated with drugs that interfere with fluid homeostasis. The aim of this cohort study was to evaluate the risk of acute dehydration and renal failure after formation of ileostomy in patients exposed to diuretics or drugs affecting the Renin-Angiotensin-System (RAS).

Method: This cohort study included all patients ($n = 749$) treated with anterior resection and defunctioning ileostomy for rectal cancer stage I-III in Stockholm County during 2007 and 2015. Exposure to RAS-affecting drugs or diuretics was determined based on medical records. Readmission due to acute dehydration, renal failure, or death within 90 days after ileostomy formation, were defined as a composite outcome.

Results: The frequency of exposure to diuretics, RAS-affecting drugs or a combination was 210 of 749 (28%). The cumulative incidence was 21.4% in the exposed group versus 10.2% in the unexposed group. The hazard ratio for RAS was 2.42 ($P < 0.001$), for diuretics 1.31 ($P = 0.602$) and the combination 2.53 ($P = 0.003$).

Conclusion: Antihypertensive medication has to be adjusted after formation of ileostomy and monitoring of renal function is advised.

WP41

Multi disciplinary team (MDT) outcomes: do we follow the advice?

H. Koh, I. Krupova & P. Coyne
Royal Victoria Infirmary, Newcastle-upon-Tyne, UK

Aim: The evidence in favour of MDT is varied and contradictory. There is increasing pressure to streamline cancer services to protocol driven care. We analyse outcomes from the MDT at a tertiary centre.

Method: All referrals to the colorectal and anal cancer MDT were included for a 3-month consecutive period from Oct-Dec 2016.

Results: Three hundred and eight patients were discussed within 10 categories. There were 134 (44%) external referrals from 9 other trusts. Tumour site varied. There were 22 (7%) discussions deferred either due to pathology or radiology not being ready/available. 3 discussions were around breach risk. 3 partial responses (2 referred to oncology but radiotherapy rather than chemo-radiotherapy delivered, 1 sent back to gynae-oncology for tumour markers). 5 patients (2%) were sent back to referring trust with advice. Overall compliance was 259/286 (91%). Reasons for non-compliance were commonly due to patient choice 11/27 (41%) and frailty 6 (22%).

Conclusion: Overall MDT compliance is high (91%), reasons for non-compliance were varied but often involved patient choice or patients being too frail for the proposed treatment indicating an element of clinician assessment. At a regional referral service decision making can be complex as highlighted by the wide range of referring units and discussion sections.

WP42

Does the timing of curative laparoscopic surgery impact on overall survival in colorectal cancer?

N. Francis^{1,2}, N. Curtis^{1,3}, C. Weegeenaar¹, J. Ockrim¹, A. Allison¹, R. Dalton¹ & E. Salib⁴

¹Yeovil District Hospital NHS Foundation Trust, Somerset, UK, ²University of Bath, Bath, UK, ³Imperial College, London, UK, ⁴University of Liverpool, Merseyside, UK

Aim: Following colorectal cancer diagnosis, regulatory targets mandate prompt surgery. Incorporating patient optimisation and prehabilitation into this timeframe is challenging. We aimed to investigate if time from diagnosis to surgery is linked with patient outcomes.

Method: A dedicated, prospectively populated database was reviewed. Inclusion criteria were biopsy proven colorectal adenocarcinoma, elective laparoscopic surgery with curative intent. Neoadjuvant treatment, metastatic disease, open surgery and 90-day mortality were excluded. All patients were observationally followed in a standardised pathway for 5 years. Overall survival was assessed with the Kaplan-Meier log rank method.

Results: Six hundred and sixty-eight patients met inclusion criteria. Mean time from diagnosis to surgery was 53 days (95% CI: 48.3–57.8). Risk factors for longer time to surgery were: males (OR 1.92 [1.2–3.1], $P = 0.008$), age ≤ 65 (OR 1.9 [1.2–3], $P = 0.01$), ASA ($P = 0.01$) stoma formation (OR 6.9 [4.1–11], $P < 0.001$) and rectal cancer (OR 5.06 [3.1–8.3], $P < 0.001$). No association was seen for BMI ($P = 0.36$), conversion ($P = 0.5$), length of stay ($P = 0.33$) or readmission ($P = 0.3$). There were no differences in 5-year survival when patients were dichotomised into 1, 3 or 6 month groups ($P = 0.487$, $P = 0.611$, $P = 0.838$).

Conclusion: Time from diagnosis to curative surgery did not impact on overall survival. This may allow pre-operative pathway alteration without compromising safety.

WP43

Clinical complete response in rectal cancer: is it safe to watch and wait? A systematic review and pooled analysis

M. Dattani¹, R. J. Heald^{1,2}, J. Broadhurst³ & B. J. Moran³

¹Pelican Cancer Foundation, Basingstoke, UK, ²The Champalimaud Foundation, Lisbon, Portugal, ³Basingstoke and North Hampshire Hospital, Basingstoke, UK

Aim: The oncological safety of watch and wait (W+W) following the detection of a clinical complete response (cCR) after neo-adjuvant chemoradiotherapy remains to be validated in rectal cancer.

Method: We carried out a systematic review to determine the oncological outcomes for patients managed under a W+W strategy. The primary outcome was the actuarial rate of local regrowth and associated salvage surgery. A pooled estimate was calculated using inverse variance weighting.

Results: Twenty studies were identified, comprising 693 patients. There were 156 local regrowths, of which 95% ($n = 148$) occurred in the first 3 years of surveillance. The actuarial 1-, 2-, and 3-year risk of local regrowth was 13.4%, 20.1% and 23.4%, respectively. Salvage surgery was performed in 83% of patients, and of these 115 (90%) had a complete (R0) resection. The pooled incidence of metastatic disease was 8.4% ($n = 58$). Of these, 35 (60%) were isolated metastases without evidence of synchronous regrowths.

Conclusion: In selected rectal cancer patients with a cCR, a W+W policy appears feasible and safe, and avoids the morbidity and functional sequelae of surgery. Robust surveillance with early detection of regrowths can have a high rate of successful salvage surgery, without an increase in the risk of systemic disease.

WP44

Significance of tumour deposits in patients with Stage III colorectal cancer

R. Seton¹, Y. Salama¹, A. Gill^{2,3} & A. Engel^{1,4}

¹Royal North Shore Hospital, Department Colorectal Surgery, Sydney, Australia,

²Royal North Shore Hospital, Department Surgical Pathology, Sydney, Australia,

³University of Sydney, NSW, Australia, ⁴Sydney Vital translational cancer research

centre, Kolling, Sydney, Australia

Aim: To define incidence of discontinuous extramural tumour deposits (TD), their relation with other synoptic histological tumour features and effect on overall survival in Stage III colorectal cancer patients.

Method: In 1159 Stage III colorectal cancer patients 7th AJCC staging was used to analyse synoptic histological features, including number of involved Lymph nodes

(LN), and their relation with tumour deposits (TD). A minimum of 24 months Overall Survival (OS) was used. Stage IIIA patients were classified as TD+/LN-/, TD-/LN+, and TD+/LN+.

Results: TDs were present in 48% of Stage III patients, un-associated with LN mets in 147 (12.7%) of 1159 Stage III patients. TDs correlated (Pearson, P value) with Stage (.53, <.001), number of involved LN (.42, <.001), LN ratio (.46, <.001), continuous extramural invasion (.44, <.001), and T stage (.22, <.001). Overall survival for Stage III in patients with and without TDs (53% vs 74%, P < .001) confirmed the negative effect of TDs which was even more obvious when Stage IIIA patients were analysed separately: OS for TD+/LN- (53%), TD-/LN+ (90%), TD+/LN+ (67%), P < .001).

Conclusion: TDs in Stage III patients confer an independent negative effect on overall survival and may explain variation in oncological outcome in Stage IIIA patients.

WP45

Right versus Left sided colorectal cancer: more than meets the eye
R. Seton¹, Y. Salama¹, A. Gill^{2,3} & A. Engel^{1,4}

¹Royal North Shore Hospital, Department Colorectal Surgery, Sydney, Australia,

²Royal North Shore hospital, Department of Surgical Pathology, Sydney, Australia,

³University of Sydney, Sydney, Australia, ⁴Sydney Vital translational cancer research centre, Kolling, Sydney, Australia

Aim: To determine differences in oncological variables, positive and negative predictors, between patients with right-sided (GrA) or left-sided colorectal cancer (GrB).

Method: A surgical pathology database of 4183 patients was used to analyse differences in age, sex, macroscopic tumour characteristics, histological variables, MSI and BRAF status, and stage between GrA and Gr B.

Results: Gr A patients were older (74.6 vs 69 year, P < .001, more likely female (58% vs 44%, P < .001), had larger tumours (46.3 mm vs 39 mm, P < .001), had more lymph nodes resected (18.3 vs 15.8, P = .02), had more involved nodes (1.8 vs 1.5, P < .001), more often had apical node involvement (11% vs 8%, P = .003), more often had high grade tumours (28.4% vs 14.6%, P < .001), more often had signet, mucinous or medullary morphology (17.8% vs 6.8%, P < .001), more associated with conspicuous tumour infiltrating lymphocytes (21% vs 11.3%, P < .001), more often had Crohns-like peritumoural lymphocyte reaction (42% vs 34%, P < .001), had more BRAF mutations (33% vs 9%, P < .001), and increased mismatch repair deficiency (34% vs 6%, P < .001) but similar mean TNM Stage (2.3 vs 2.3, P = ns).

Conclusion: Relevant patient and tumour differences exist between right and left sided CRC patients contributing to an ever increasing complexity in the dynamics of CRC survival analysis.

WP46

BRAF status in combination with MMR status is an independent predictor of overall survival in colorectal cancer patients

R. Seton¹, Y. Salama¹, A. Gill^{2,3} & A. Engel^{1,3}

¹Royal North Shore Hospital, Department Colorectal Surgery, Sydney, Australia,

²Royal North Shore Hospital, Department of Surgical Pathology, Sydney, Australia,

³University Sydney, NSW, Australia

Aim: To clarify the much debated role of BRAF and mismatch Repair (MMR) status in overall colorectal cancer (CCR) survival.

Method: In 4183 CRC patients age, sex, sidedness of tumour, number of resected nodes, number of involved nodes, lymph node ratio (LNR), apical node involvement (ANI) discontinuous tumour nodules (TD), tumour grade (TG), BRAF+ (mutant), BRAF- (wild type), MMR+ (sufficient) MMR- (deficient), were used to perform an overall survival analysis using Cox regression.

Results: There were 4183 patients of mean age 71.3 of whom 52% were female. Stage I, II, III, IV were present in 18%, 37%, 41% and 4% of patients respectively. MMR+/BRAF-, MMR+/BRAF+, MMR-/BRAF-, MMR-/BRAF+ was present in 70%, 10%, 5% and 15% of patients respectively. In the final model age (Wald 137, P < .001), LNR (Wald 38.7, P < .001), TD (Wald 34.7, P < .001), sex (Wald 7.2, P = .007), TG (Wald 6.7, P = .008), ANI (Wald 5.4, P = .021), MMR+/BRAF+ (Wald 5.2, P = .02) were independent predictors of overall survival. Number of nodes resected, involved nodes and tumour sidedness were not predictive.

Conclusion: Many independent factors contribute to overall survival in colorectal cancer of which BRAF/MMR status is one. In this study BRAF mutation and proficient MMR status confer significantly poorer overall survival to patients.

WP47

The case for mandatory MRI EMVI reporting

N. Gouvas, M. Iglesias-Vecchio, G. Iacob, A. Karim, M. Zilvetti, D. Nicol,

J. Ng & S. Pandey

Worcestershire Acute Hospitals NHS Trust, Worcester, UK

Aim: Extramural vascular invasion (EMVI) is an important adverse prognostic indicator for rectal cancer associated with a higher incidence of metachronous distant metastases and local failure, even in the absence of positive margins. MRI staging is very accurate in identifying EMVI positivity in rectal cancer, especially in locally advanced tumours but is as yet inconsistently reported in many centers as it is not mandatory. The aim of this study was to audit EMVI reporting rates

Method: Consecutive rectal cancer patients operated electively between 01/02/2011 and 30/04/2016 were included. Demographics and preoperative, mortality and follow-up data were also extracted.

Results: Two hundred and two patients satisfied inclusion criteria. Pathologists used a standard proforma for colorectal cancer reporting, in which EMVI reporting is mandatory. Their reporting rate for EMVI was 97.5%. EMVI positivity rate was 33%. Radiology EMVI reporting rates and accuracy were compared using this as the gold-standard. Radiology reporting rate was 60.9% with an overall EMVI positive rate of 28.4%. Overall, the sensitivity was 45.5% and specificity 81.6%. Specialist and non-specialist radiologists had sensitivity and specificity of 40.6%, 84.9% and 58.3%, 73.9% respectively.

Conclusion: A standardised proforma for radiology reporting of rectal cancer including EMVI status would improve reporting rates and accuracy.

WP48

How does pre-operative anaemia affect outcomes in patients undergoing surgical treatment for colorectal cancers?

G. Govind, S. Ranjit, H. Jeddy, E. Fletcher, J. Radhakrishnan & T. Hammond

Mid Essex Hospitals Trust, Broomfield, UK

Aim: Preoperative anaemia is associated with poor outcomes after surgery, although this has not specifically been shown in patients undergoing elective resection for colorectal cancer (CRC). The study aim was to investigate the impact of preoperative anaemia on postoperative outcomes for this group of patients.

Method: Retrospective case note review was performed for all elective CRC resections from a prospective database (n = 304). Data extraction included patient demographics, preoperative and postoperative haemoglobin, co-morbidities & ASA grade, type of resection, postoperative complications (categorised using the Clavien-Dindo classification), mortality, blood transfusion, length of stay and 90-day mortality.

Results: Multivariate regression analysis showed that preoperative anaemia is related to increased postoperative complications. Each g/dl drop in haemoglobin below the normal range led to a 1.5% increase in complications. Each unit of blood transfused increased the risk of complications by 16% (95% CI: 1.05–1.27) and grade of complications by 37% (95% CI: 1.07–1.78). When associated with increasing ASA grade there was a significantly increased length of stay.

Conclusion: Preoperative anaemia significantly impacts on postoperative outcomes for CRC patients. Its optimisation could potentially lead to reduced complication rates and length of stay, especially in patients with a higher ASA grade.

WP49

Preoperative radiotherapy and postoperative re-laparotomy are risk factors for admission due to small bowel obstruction after rectal cancer surgery

A.-F. Hersi^{1,2}, K. Smedh^{1,2}, A. Chabok^{1,2} & M. Nikberg^{1,2}

¹Colorectal unit, Department of Surgery, Vastmanlands Hospital, Västerås, Sweden,

²Centre for Clinical Research, Uppsala University, Västerås, Sweden

Aim: Small bowel obstruction (SBO) occurs in 10–15% rectal cancer patients and approximately half require intervention. The aim was to determine prevalence and risk factors regarding admission and surgery for SBO after rectal cancer surgery.

Method: Population based retrospective study of prospectively collected data. All rectal cancer patients undergoing a bowel resection with curative intent during 1996–2006 were included. Admission with or without surgery and potential risk factors were studied. Follow-up was at least 1 year or until death.

Results: Of 661 resected patients, 426(64%) received an anastomosis. Admission due to SBO was found in 67(10%), and 28(4%) had a laparotomy. Preoperative radiotherapy (RT) and postoperative re-laparotomy due to complication were found to be risk factors for admission in both univariate (HR 2.1 CI: 1.1–4.3) and multivariate (HR 5.7 CI: 2.7–12.2) logistic regression (data given for RT). Age, gender, type of surgery, incisional hernia or protective stoma did not confer increased risk. The only identified risk factor for surgery was re-laparotomy due to complication (HR 4.7 CI: 1.7–13.3).

Conclusion: The prevalence of SBO was 10% with 4% needing further surgery after rectal cancer surgery. Preoperative radiotherapy and re-laparotomy due to

complications were found to be risk factors for admission. Re-laparotomy was also a risk factor regarding future SBO surgery.

WP50

Dutch validation of the low anterior resection syndrome score

B. J. P. Hupkens¹, T. Chen², P. J. Tanis³, W. A. Borstlap³, M. E. de Noo⁴, P. van Duijvendijk⁵, E. L. van Westreenen⁶, J. W. T. Dekker⁷, S. O. Breukink¹ & T. Juul²

¹Maastricht University Medical Centre, Maastricht, The Netherlands, ²Aarhus University Hospital, Aarhus, Denmark, ³Academic medical Centre, Amsterdam, The Netherlands, ⁴Deventer Hospital, Deventer, The Netherlands, ⁵Gelre Hospital, Apeldoorn, The Netherlands, ⁶Sala Clinics, Zwolle, The Netherlands, ⁷Reinier de Graaf Hospital, Delft, The Netherlands

Aim: Patients with rectal cancer, having a low anterior resection, can suffer from long-term bowel dysfunction, called the "Low Anterior Resection Syndrome" (LARS). The LARS score was developed in Denmark and has already been validated in several other countries. The aim of this study was to validate the Dutch version of the LARS score in Dutch rectal cancer patients, investigating the convergent and discriminative validity and test-retest reliability of the score.

Method: The translation was performed by two independent professional translators. An extra question and the EORTC QLQ-C30 was added to investigate convergent and discriminative validity. To test the test-retest reliability a subgroup of patients had a second questionnaire 2 weeks after the first test.

Results: 258/409 patients were included in the analysis (response rate: 63.1%). 166/258 patients filled in the second questionnaire. A strong association between the LARS score and quality of life was found (convergent validity). Discriminative validity was good, and the test-retest reliability was high.

Conclusion: The Dutch translation of the LARS score showed good results, comparable with the earlier published results of the international multicentre study. The Dutch translation of the LARS score can be considered valid and reliable to measure LARS.

WP51

Colorectal cancer screening by immunochemical faecal occult blood test using consecutive samples on 2 days: is a 'double' days' positive result more predictive than a 'single' day's positive result?

H. Igarashi, H. Yamashita, K. Tsuchiya, Y. Hanaoka, D. Sugimoto, T. Shimada, T. Fujii & I. Ogata

Kawakita general hospital, Suginami, Tokyo, Japan

Aim: To evaluate the impact of double days' positive of an immunochemical faecal occult blood test (iFOBT) compared with a single day's positive in the setting of colorectal cancer (CRC) screening.

Method: In total, 1336 (657 men and 679 women, mean age 70.8 years) underwent a colonoscopy at our hospital because of a positive iFOBT. These were divided into those with a positive result on 1 day only (group S [single], $n = 977$) and those with results on both days (group D [double], $n = 359$). The following variables were evaluated between the two groups: CRC detection rate; rate of carcinoma *in situ*; overall detection rate of colorectal neoplasm (cancer or adenoma). The χ^2 test was used for statistical analysis.

Results: Thirty-nine CRCs (detection rate, 3.3%) were detected in group S and 62 (18.2%) in group D ($P < 0.001$); 24 of 39 CRCs (61.5%) and 25 of 62 (40.3%) were carcinoma *in situ*, respectively ($P = 0.038$). The detection rate of colorectal neoplasm was 48.2% (487/977) and 60.4% (236/359), respectively ($P < 0.001$).

Conclusion: In CRC screening, a 'double' days' positive of iFOBT showed a much higher probability of CRC and adenoma and deeper cancer invasion than a single day's positive.

WP52

Importance of primary tumour pathological findings for predicting recurrence after hepatectomy in patients with colorectal liver metastasis

Y. Kajiwara¹, E. Shinto¹, S. Mochizuki¹, Y. Hashiguchi², H. Mochizuki¹, K. Hase¹, J. Yamamoto¹ & H. Ueno¹

¹Department of Surgery, National Defense Medical College, Tokorozawa, Saitama, Japan, ²Department of Surgery, Teikyo University, Tokyo, Japan

Aim: To clarify the prognostic value of evaluating pathological findings of the primary tumour in patients with colorectal liver metastasis (CRLM).

Method: Histological assessments were performed in 280 CRLM patients who underwent hepatectomy. Tumours were graded as 1, 2, or 3 by the density of poorly differentiated clusters (PDCs) and were categorised as mature, intermediate, or immature by desmoplastic reaction (DR) pattern in the primary lesion.

Results: PDCs stratified patients into three groups with different 5-year relapse-free survival (RFS) rates after hepatectomy: G1, 42%; G2, 31%; G3, 15% (50, 87, 143 patients, respectively; $P < 0.0001$). DR identified 77 mature-type, 76 intermediate-type, and 127 immature-type tumours associated with 45%, 31%, and 9% 5-year RFS, respectively ($P < 0.0001$). In multivariate analysis, G3 PDC and immature DR were independent risk factors of recurrence, together with grade C of CRLM prognostic grouping system defined by the Japanese classification of colorectal carcinoma, which is based on N stage, M stage and number and size of liver metastasis). Among 33 patients having these three risk factors, 18 patients (54.5%) relapsed within 6 months after hepatectomy.

Conclusion: Pathological assessment of the primary tumour contributed to effective stratification of relapse risk after hepatectomy.

WP53

Postoperative abdominal infections after resection of T4 colon cancer increase the risk of peritoneal recurrence

C. Klaver¹, K. Wasmann¹, M. Versteegen², J. van der Bilt³, I. Nagtegaal², B. van Ramshorst⁴, P. Tanis¹, A. Wolthuis³, H. van Santvoort⁴, H. de Wilt² & A. D'Hoore³

¹AMC, Amsterdam, The Netherlands, ²Radboudumc, Nijmegen, The Netherlands, ³UZ Leuven, Leuven, Belgium, ⁴St. Antonius ziekenhuis, Nieuwegein, The Netherlands

Aim: Patients with pT4 colon cancer are at risk of developing peritoneal recurrence. Infection-based immunologic pathways might create a favourable environment for colon cancer cell dissemination in the abdominal cavity. We hypothesise that pT4 colon cancer patients who develop a surgical site infection (SSI) have an increased risk of peritoneal recurrence.

Method: All consecutive patients with a pT4N0-2M0 colon cancer from three centres (Jan-2000-Jul-2013) were included. Patients were categorised into those with and without a SSI, including both deep incisional as well as organ/space SSIs. The primary outcome was peritoneal recurrence (including local/incisional recurrence and peritoneal metastases) assessed using Kaplan-Meier and Cox regression analyses. Secondary outcome measures were disease-free survival (DFS) and overall survival (OS).

Results: Of all 363 patients, 50 (13.8%) developed an SSI. The 5-year peritoneal recurrence rate was 46% and 27% for patients with and without an SSI, respectively ($P = 0.010$). In multivariate analysis, SSIs were significantly associated with risk of peritoneal recurrence (HR:2.016 [1.171-3.470]) and worse DFS (HR:1.834 [1.220-2.758]) and OS (HR:1.783 [1.047-3.037]). Other independent risk factors for peritoneal recurrence were a right-sided tumour (HR:1.563 [1.030-2.372]) and N2-stage (HR:2.141 [1.297-3.534]).

Conclusion: SSI following resection of a pT4N0-2M0 colon cancer is associated with an increased risk of peritoneal recurrence and worse survival.

WP54

Survival after neoadjuvant chemoradiation therapy in locally advanced rectal cancer: a nationwide study

M. Klein¹, R. Vogelsang² & I. Gögenur²

¹Copenhagen University Hospital Herlev, Copenhagen, Denmark, ²Zealand University Hospital, Roskilde, Denmark

Aim: To describe long-term survival after locally advanced rectal cancer in patients receiving neoadjuvant chemoradiation therapy. Focus on survival associated with complete pathological response and comparison with patients without neoadjuvant therapy.

Method: Database study based on the Danish Colorectal Cancer Group's (DCCG) nationwide database, the Danish National Patient Registry and the Danish nationwide civic registry. By merging data from these databases, we were able to register long-term survival according to neoadjuvant treatment, disease stage etc.

Results: We received data on 3643 patients operated for UICC stage I-III rectal cancer with curative intent in the period January 1st 2009 through June 2014. Of these, 871 (24%) received neoadjuvant radiotherapy (median, IQR) 26(25-28) irradiations ending median 57(53-65) days before surgery) with concomitant chemotherapy, predominantly Capecitabine or 5-fluorouracil. After neoadjuvant therapy, 115/871 (13.2%) patients achieved complete pathological response with corresponding 86% 5-year overall survival. Across postoperative UICC stages I-III, 5-year overall survival was similar between patients with or without neoadjuvant therapy, respectively.

Conclusion: In this nationwide study, survival after neoadjuvant therapy followed by resection with curative intent for locally advanced rectal cancer was similar to that of patients without locally advanced disease at diagnosis.

WP55

Nutritional risk screening score is an independent predictive factor of anastomotic leakage after rectal cancer surgery

S. Y. Lee, M. R. Jung, C. H. Kim, Y. J. Kim & H. R. Kim

Chonnam National University Hwasun Hospital, Hwasun, Jeonnam, Republic of Korea

Aim: Correlation between nutritional risk screening score (NRS) and anastomotic leakage after rectal cancer surgery is uncertain. This study aimed to evaluate the association between NRS and anastomotic leakage following rectal cancer surgery.

Method: A total of 1063 primary rectal cancer patients who underwent resection between January 2011 and December 2015 were included. We utilized CNUHNRST, which was developed based on NRS 2002 and cross-validated, as a screening tool of nutritional risk. Patients with NRS \geq 4 were compared with NRS <4, and risk factors for anastomotic leakage were analyzed.

Results: One hundred nineteen (11.2%) patients were determined as being high nutritional risk (NRS \geq 4). Nutritional risk patients had more advanced tumor stage compared with patients without nutritional risk. Anastomotic leakage occurred in 69 (6.5%) of the patients included. Multivariate logistic regression analysis showed that high American Society of Anesthesiologists score (odds ratio [OR] = 2.435, 95% confidence interval [CI] 1.085–5.469), long operative time (OR = 1.975, 95% CI 1.177–3.313), and high nutritional risk (OR = 2.044, 95% CI 1.085–3.851) as independent risk factors of anastomotic leakage.

Conclusion: NRS was an independent predictive factor of anastomotic leakage after rectal cancer surgery. Nutritional risk patients should be carefully managed in rectal cancer surgery.

WP56

Does the classification of regression response after neoadjuvant chemoradiotherapy affect the long-term follow-up results in locally advanced rectal cancer?

A. Bayraktar¹, C. B. Kulle¹, E. Sivrikoz², M. Keskin¹, G. Yegen³, E. Balik⁴, D. Bugra⁴, Y. Buyukuncu¹ & T. Bulut¹

¹Istanbul University, School of Medicine, Department of General Surgery, Istanbul, Turkey, ²Okmeydanı Training and Research Hospital, Department of General Surgery, Istanbul, Turkey, ³Istanbul University, School of Medicine, Department of Pathology, Istanbul, Turkey, ⁴Koc University, School of Medicine, Department of General Surgery, Istanbul, Turkey

Aim: To investigate the long-term effects of histopathological tumour regression grades in locally advanced mid and distal rectal cancer patients treated with neoadjuvant chemoradiotherapy (CxRT).

Method: Two hundred and forty-eight patients were enrolled in the study. The response to CxRT was determined by using the “Dvorak Tumour Regression Grading Score” (RS). Each group was analysed based on demographic, clinic and long-term follow-up data. In addition, patients with a pathological partial response (pPR) (RS 0-1-2-3) were categorised as Group 1 and patients with a pCR (RS 4) were categorised as Group 2. Based on this classification a further statistical analyses were undertaken.

Results: No difference was found between the groups in terms of demographic and clinical data, overall survival (OS) and disease-free survival (DFS) ($P > 0.05$). Significant differences were determined regarding lymph node invasion status and local recurrence rate in RS4 group ($P < 0.001$, $P = 0.04$). Analysis regarding the patients group 1 and group 2 revealed no significant difference in OS and DFS. Lymph node invasion, positive surgical margins and local recurrence rates were found to be significantly lower in Group 2 ($P < 0.001$, $P = 0.014$, $P = 0.041$).

Conclusion: Tumour RS has no impact on OS or DFS, but the local recurrence rate in patients with pCR is significantly lower.

WP57

Cytoreductive surgery and hyperthermic intraperitoneal chemotherapy for peritoneal carcinomatosis from colorectal cancer: results of the association of the closed abdomen technique combined with oxaliplatin

S. Barbois^{1,2}, D. Leonard¹, E. Cotte^{1,3}, S. Van den Broeck^{1,4}, C. Remue¹, R. Bachmann¹, N. A. Orabi¹, F. Lois⁵, P. Forget^{5,6}, M. De Kock^{5,7}, P.-F. Laterre⁸, X. Wittebole⁸, Y. Humblet⁹, M. van den Eynde^{9,10}, E. Danse¹¹, C. Dragean¹¹, A. Jouret-Mourin¹², G. Leclercq¹³, A. Van Maanen¹⁴ & A. Kartheuser¹

¹Colorectal Surgery Unit, Cliniques universitaires Saint-Luc, Brussels, Belgium, ²Department of Digestive and Emergency Surgery, CHU Grenoble-Alpes, Grenoble, France, ³Department of Digestive, Thoracic and Endocrine Surgery, CHU Lyon-Sud, Lyon, France, ⁴Department of Abdominal, Pediatric and Reconstructive Surgery, University Hospital Antwerp, Edegem, Belgium, ⁵Department of Anesthesiology, Cliniques universitaires Saint-Luc, Brussels, Belgium, ⁶Department of Anesthesiology and Perioperative Medicine, Vrije Universiteit Brussel (VUB), Brussels, Belgium,

⁷Department of Anesthesiology, Centre Hospitalier de Wallonie picarde – Chwapi, Tournai, Belgium, ⁸Department of Intensive Care Medicine, Cliniques universitaires Saint-Luc, Brussels, Belgium, ⁹Department of Medical Oncology, Cliniques universitaires Saint-Luc, Brussels, Belgium, ¹⁰Department of Gastro-enterology, Cliniques universitaires Saint-Luc, Brussels, Belgium, ¹¹Department of Radiology, Cliniques universitaires Saint-Luc, Brussels, Belgium, ¹²Department of Pathology, Cliniques universitaires Saint-Luc, Brussels, Belgium, ¹³Department of Pharmacy, Cliniques universitaires Saint-Luc, Brussels, Belgium, ¹⁴Statistical Support Unit, Institut Roi Albert II, Cliniques universitaires Saint-Luc, Brussels, Belgium

Aim: Cytoreductive surgery (CS) combined with hyperthermic intraperitoneal chemotherapy (HIPEC) has become a valid therapeutic option for peritoneal carcinomatosis (PC). The aim of this study was to review our results of the association of the closed abdomen technique combined with Oxaliplatin.

Method: Data from a prospective registry of consecutive patients undergoing CS-HIPEC for PC of colorectal origin has been reviewed retrospectively. Oncologic outcome was assessed. The outcome oriented approach was used to determine the peritoneal carcinomatosis index (PCI) cut-off.

Results: Between October 2007 and December 2015, 64 patients underwent 71 CS with Oxaliplatin HIPEC. There were 28 men and 36 women with a median age of 58 years (18–77). The median PCI reached 6 (0–30). Mortality was 1.6%, and median follow-up 26 months. Twenty-nine patients (45.3%) received neoadjuvant, and 42 (65.6%) adjuvant chemotherapy. Nine patients (16.7%) presented an isolated recurrence of CP and 34 patients (53.1%) relapsed as distant metastases. The overall and recurrence-free 5-years survival were 43.5% and 16.1%, respectively. PCI \leq 6 lead to improved RFS ($P = 0.003$).

Conclusion: Closed abdomen HIPEC with oxaliplatin for treating CP of colorectal origin offers acceptable oncological results. Recurrence rate remains significant, mainly due to distant metastasis. PCI < 6 significantly improves RFS.

WP58

Differences in post-operative bowel function and ileus between right and left sided radical colorectal resections

B. Liu, E. Jones & K. Thane

Glan Clwyd Hospital, Betsi Cadwaladr University Health Board, Rhyl, Wales, UK

Aim: This retrospective comparative study aims to answer the question: are there differences in the post-operative bowel functions between right and left-sided radical colonic resections?

Method: One hundred and forty-one radical resections for cancer in two groups - 77 cases of right-sided colectomies (right and extended-right hemicolectomies) and 64 cases of left-sided resections (left hemicolectomies and anterior resections) from a 2-year period (2014–2016) are reviewed. Patient characteristics, operative techniques, time to passage of motions, tolerance of diet, incidence and duration of post-operative vomiting are compared.

Results: Besides stoma rate, no differences in baseline characteristics (patient age, laparoscopic/open surgery, emergency/elective) were found. Patients undergoing right colonic resections took longer to establish bowel motion (4.92 vs 4.00 days; $P = 0.028$), tolerated diet later (6.03 vs 3.42 days; $P = 0.017$), and vomited for longer (5 vs 2.5 days; $P = 0.029$) compared with left-sided resections. Results remained statistically significant on subgroup analyses for patients with anastomoses and elective surgery only.

Conclusion: This study demonstrated slower recovery of bowel function in patients undergoing radical right-sided colonic resection compared to left-sided surgery. This contrasts with early research suggesting left colonic anastomosis being the determining factor. We attribute this to the disturbance of peri-duodenal nervous tissue during radical lymph node dissections.

WP59

Association between patient and tumour related factors and lymph node positive disease in colon cancer: results from a prospective national cohort study

J. Lykke¹, P. Jess² & O. Roikjaer²

¹Department of Surgery, Herlev Hospital, University of Copenhagen, Herlev, Denmark, ²Department of Surgery, Zealand University Hospital Roskilde, Roskilde, Denmark

Aim: To examine the association between patient and tumour related factors and lymph node positive disease in non-metastatic colon cancer.

Method: A nationwide Danish cohort of 13,766 patients with non-metastatic colon cancer an so treated in the period 2003–11 were analysed.

Results: Lymph node yield, pT-category, tumour sub-site and priority of surgery were associated with lymph node positive disease. Each level of age, lymph node yields and pT-categories were compared to the preceding level. Odds ratios were as follows: Age: <65/ 65–75 years: 1.282 (95% confidence interval (95% CI): 1.153–1.426), 65–75/ >75 years: 1.221 (95% CI: 1.128–1.322). Lymph node yield 0–5/ 6–11: 0.600 (0.503–0.717), lymph node yield 6–11/ 12–17: 0.838 (0.755–0.930), lymph node yield 12–17/ \geq 18: 0.965 (0.885–1.053). pT1/ pT2: 0.735 (95% CI:

0.566–0.954), pT2/ pT3: 0.346 (95% CI: 0.300–0.398), pT3/ pT4: 0.491 (95% CI: 0.466–0.539). Only tumours of the transverse colon had a lower risk of lymph node positive disease compared to tumours at the sigmoid colon: Sigmoid colon: 1, transverse colon: 0.836 (95% CI: 0.726–0.962). Elective surgery: 1, Acute surgery: 1.434 (95% CI: 1.289–1.596).

Conclusion: Lymph node positive disease in colon cancer is significantly associated with age, lymph node yield, tumour sub-site, pT-category and priority of surgery.

WP60

'Straight to test' pathway for suspected colorectal cancer referrals in the UK

S. Malley, S. Warburton & T. Hammond

Mid Essex Hospital Services NHS Trust, Chelmsford, UK

Aim: UK patients with suspected colorectal cancer (CRC) must have specialist clinic review within 2 weeks and investigation within 31 days of referral. A nurse-led telephone assessment (TA) followed by straight to test (STT) pathway was implemented to reduce time to diagnosis of CRC and reduce demand for specialist appointments. The study aim was to assess the success of this pathway.

Method: From July 2015–November 2016, data for all patients referred for suspected CRC were prospectively collected. Referrals managed via the STT pathway were compared to those initially reviewed in clinic. Time to initial assessment and diagnosis, and patient satisfaction levels were assessed.

Results: Of 2395 referrals, 787 (33%) were telephone assessed, of which 712 (90%) went STT. For STT patients the average time to TA was 1.5 days, compared to 12 days for clinic appointments. A total 278 (12%) patients were diagnosed with CRC. The average time to diagnosis for STT patients was 26 days, compared to 42 days for patients seen in clinic. 96% STT patients would be happy to have future referrals managed in this way.

Conclusion: A STT service reduces time to diagnosis of CRC, is acceptable to patients and improves specialist clinic capacity.

WP61

Interval metastasis during neoadjuvant treatment for rectal cancer - maximising its diagnosis

M. Maung, Z. Hanif, H. Abudeeb & A. Mukherjee

Hairmyres Hospital, East Kilbride, Glasgow, UK

Aim: Preoperative chemoradiotherapy is recommended for locally advanced middle and low rectal cancer. Role of accurate preoperative staging cannot be overemphasised. Interval metastasis (IM) can develop during neoadjuvant treatment (NAT) precluding surgical resection. Study aims at assessing incidence of IM, influencing factors and outcome.

Method: Retrospective analysis of prospective rectal cancer database in a district general hospital over last 9 years. Imaging, patient demographics and tumour characteristics were assessed.

Results: One hundred and ninety-seven consecutive rectal cancers analysed. 80 received NAT after MDT discussion. M: F ratio is 45:35, median age 66.7 years. Routine staging CT and Pelvic MRI were undertaken before and after NAT. 8/80(10%) patients developed IM. 3 underwent palliative resection, 4 palliative chemotherapy and one intervention unfit. Metastatic patterns were 5 Liver only, 2 liver and peritoneum and one combined liver and lung. Pre-neoadjuvant staging MRI reported tumour 4 T4N1, 2 T4N0, one T3N1 and one T3N0. EMVI reported in only 3.

Conclusion: IM during NAT is rare entity although significant (10%) in this series. PET-CT may facilitate earlier diagnosis in this subset with locally advanced tumours and EMI positivity. Role of early tumour biology assessment of locally advanced tumours in predicting risk for interval metastasis remains to be explored.

WP62

Indication of adjuvant chemotherapy in patients with ypN-negative rectal cancer after preoperative chemoradiotherapy

A. Ogura¹, T. Akiyoshi¹, H. Noma², S. Suzuki¹, Y. Takeda¹, T. Nagasaki¹, Y. Fukunaga¹ & M. Ueno¹

¹The Cancer Institute Hospital, Tokyo, Japan, ²The Institute of Statistical Mathematics, Tokyo, Japan

Aim: The indication of adjuvant chemotherapy (AC) in patients with ypN-negative rectal cancer who underwent preoperative chemoradiotherapy (CRT) have remained controversial. The aim is to investigate the risk factors of recurrence of ypN-negative rectal cancer after CRT and clarify the indication.

Method: A total of 214 patients with ypN-negative rectal cancer who underwent curative-intent surgery after preoperative CRT or short-course radiotherapy (SRT) between 2005 and 2014 were included in the present study. Propensity score matching was used to form two cohorts (AC vs no-AC) with otherwise balanced characteristics. Overall survival (OS), relapse-free survival (RFS), and distant recurrence

free survival (DRFS) were compared by Kaplan-Meier analysis with the log-rank test. For determination of risk factors for recurrence, univariate and multivariate analyses were performed using the Cox proportional hazard models.

Results: The median follow-up duration was 54.2 (10.8–135.4) months. There were no significant differences between AC group and no-AC group in OS, RFS and DRFS after propensity score matching. Multivariate analysis showed that por/sig/muc cell differentiation was an independent significant predictive factor for OS and DRFS. (OS: HR = 3.522, 95%CI 1.675–9.082; *P* = 0.0003, DRFS: HR = 2.428, 95% CI 1.205–5.819; *P* = 0.0107)

Conclusion: Adjuvant chemotherapy improves the survival in patients with por/sig/muc cell differentiation in ypN-negative rectal cancer after CRT.

WP63

Chemoradiation in locally advanced rectal cancer: role of miR-375 and c-Myc

P. Palma¹, R. Conde¹, A. Comino², C. Cano² & M. Cuadros²

¹Division of Colon & Rectal Surgery, University Hospital, Granada, Spain,

²Department of Biochemistry, Faculty of Medicine, Granada, Spain

Aim: The incorporation of chemoradiation (CRT) prior to resection of the tumour has revolutionized the management of locally advanced rectal cancer (LARC). However, a large proportion of these patients are resistant to preoperative treatment schedule. We recently reported that c-Myc gene expression correlates negatively with this resistance in patients with LARC.

Method: An integrated analysis of miRNA and mRNA expression profiling in 45 pre-treatment LARC biopsies was carried out.

Results: Twelve miRNAs were differentially expressed between responder and non-responder LARC patients. Functional classification revealed an association between differentially expressed miRNAs and c-Myc. Subsequent quantitative real-time PCR results showed that both, miR-148 and miRNA-375 levels were significantly lower in responder compared to non-responder patients. Notably, the higher level of miRNA-375 was significantly positively correlated with c-Myc.

Conclusion: These results suggest that miRNA-375 and its targeted c-Myc play an important role as predictive biomarker of response to CRT treatment in patients with LARC.

WP64

Local excision after neoadjuvant radiochemotherapy for T3-T4 and/or N+ rectal cancer : an analysis of 34 patients with clinical and MRI suspicion of complete tumour response

M. Calmels, E. Hain, N. Guedj, M. Zappa, L. Maggiori & Y. Panis

Beaujon Hospital, Clichy, France

Aim: to assess if local excision (LE) after radiochemotherapy (RCT) for T3–T4 and/or N+ mid or low rectal cancer (RC) is possible in high-risk patients with suspicion of complete tumour response (CTR) (i.e. aged patients and/or with severe comorbidity and/or indication of abdominoperineal resection (APR)).

Method: High-risk patients with a clinical and MRI suspicion of CTR after RCT were selected for LE and included in the study.

Results: From 2005 to 2017, 34 patients underwent LE after RCT. Pathologic examination showed ypT0 in 13 and ypTis-T1 in 10. In 11 cases (31%), it showed ypT1R1 in 1, ypT2 in 8 and ypT3R0 in 2: salvage proctectomy was performed in 5/11 (45%) and was not performed because refusal of the patient (*n* = 2) or severe comorbidity (*n* = 4). After a mean follow up of 25 months (1–86), local recurrence was noted in 2/34 patients (6%), at 9 and 20 months (one in whom salvage TME was not performed)

Conclusion: This study suggested that suspicion of CTR after RCT is confirmed by pathologic examination in approximately 70% of the cases. LE can be proposed in high-risk patients (with severe comorbidity and/or indication of APR) with acceptable oncologic results.

WP65

The impact of mesocolic excision on oncological outcomes in patients undergoing surgery for right sided colon cancer

L. Teng, A. Patel, A. Gaunt, A. Hussain & P. Varghese

University Hospitals of North Midlands NHS Trust, Stoke, UK

Aim: This study aimed to determine if excision along the mesocolic plane had an impact upon oncological outcomes for right sided colon cancer.

Method: Retrospective review of all patients undergoing curative surgery for Stage I–III right sided colon cancer between January 2009 and December 2014. Statistical analysis was performed using SPSS version 22.

Results: Overall, 255 patients (M:F 127:128, median age(75 years [67–82 years])) were included. Excision along the mesocolic plane was achieved in 195/255 (90%) patients. Mesocolic excision was associated with both a higher median lymph node yield (19 [14–25] vs 16 [11–22], *P* = 0.036) and R0 (complete) resection rate (184/

195 vs 15/22, $P = 0.001$) compared to patients who had excision along the intramesocolic/muscularis propria plane. However, there was no difference overall survival (70% mesocolic vs 66% intramesocolic, $P = 0.542$) or cancer specific survival (73% vs 84%, $P = 0.590$).

Conclusion: Resection along the mesocolic plane improves the quality of the surgical specimen by increasing lymph node yield and reducing the incidence of an involved surgical margin. However, it has no impact upon survival outcomes which appear to be influenced by tumour related pathological factors such as vascular invasion and nodal stage.

WP66

Robotic low anterior resection versus transanal total mesorectal excision in rectal cancer: a comparison of 115 cases

D. Perez¹, N. Melling¹, J. Miros¹, A. Polonski¹, J. Baukloh¹, J. Izbicki¹, B. Knoll², J. Pratschke², M. Biebl² & F. Aigner²

¹Department of Surgery, University Medical Center Hamburg-Eppendorf, Hamburg, Germany, ²Department of Surgery, Charité Universitätsmedizin Berlin, Campus Mitte und Virchow Klinikum, Berlin, Germany

Aim: Robotic low anterior resection (RLAR) and transanal total mesorectal excision (TaTME) are novel surgical techniques for resection of rectal cancer. To our knowledge, no data exist on direct comparison of these two procedures in terms of perioperative and oncological parameters.

Method: Sixty RLAR and 55 TaTME for rectal cancer were compared in respect to patient characteristics, clinicopathological parameters, intraoperative and perioperative results and short term oncological outcome.

Results: The majority of the rectal resections addressed tumours of the lower third (>50%). No intergroup differences in terms of patient characteristics and clinicopathological parameters were observed. Operating time did not differ between groups ($P = 0.312$), nor did the perioperative complication rate ($P = 0.176$). Circumferential resection margin was wider in the RLAR than in the TaTME group ($P < 0.001$), while no differences were found in the remaining oncological parameters.

Conclusion: Our study shows comparable results for RLAR and TaTME in rectal cancer treatment. Both procedures should be considered equally feasible for low rectal cancer cases and as an alternative to conventional anterior resections (open or laparoscopic). Furthermore, both techniques allow excellent oncological outcome especially in patients with anatomical limitations.

WP67

Long-term functional outcomes after transanal endoscopic microsurgery: a single-centre experience

M. Jakubauskas¹, V. Jotautas^{1,2}, G. Valeikaite^{1,2}, K. Strupas^{1,2} & T. Poskus^{1,2}

¹Clinic of Gastroenterology, Nephrology and Surgery, Faculty of Medicine, Vilnius University, Vilnius, Lithuania, ²Centre of Abdominal Surgery, Vilnius University Hospital Santaros Klinikos, Vilnius, Lithuania

Aim: The aim of this study was to evaluate long-term functional outcomes after transanal endoscopic microsurgery (TEM).

Method: Patients who underwent TEM from 2003 to 2016 were enrolled in this study. Demographics, surgery and pathology information, length of hospital stay, post-operative complications were gathered prospectively. Postal questionnaires were sent to all the patients. Functional outcomes were evaluated analysing the adenoma recurrence rate, EQ-5D-5L quality of life questionnaire and Wexner score.

Results: One hundred and twenty-nine (47.1%) patients from 274 who underwent TEM responded to the questionnaire. The mean duration of operation – 59.2 ± 34.6 min, mean hospital stay – 5.8 ± 2.5 days. 5 patients (3.9%) developed postoperative complications such as haemorrhage (2 cases, 1.6%) and suture dehiscence (3 cases, 2.3%), all of them were managed conservatively. The mean follow-up time was 7.5 ± 3.8 years. Quality of life mean score – 75.7 ± 19.9 ; Wexner score mean – 2.1 ± 4.0 . A Wexner score of >4 was more prevalent in patients with cancer (17/97 [17.5%] vs 12/31 [38.7%]; $P = 0.014$) and in patients with a history of more than one TEM operation (3/100 [3%] vs 4/29 [13.8%]; $P = 0.024$).

Conclusion: Faecal incontinence 7.5 years after TEM is uncommon. Cancer and repeated TEM procedures predict higher incidence of incontinence.

WP68

Postoperative recurrence and metastasis in advanced rectal cancer

D.L. H. Baird^{1,2}, C. Simillis¹, C. Kontovounisios^{1,2}, S. Rasheed^{1,2} & P. Tekkis^{1,2}

¹Royal Marsden hospital, London, UK, ²Imperial College London, London, UK

Aim: Local and distant recurrence are the main cause of failure after curative surgery for advanced rectal cancer.

Method: Retrospective review of consecutive patients attending a single centre that had undergone a curative intent extra-anatomical resection for advanced rectal

adenocarcinoma between 2010–16. Untreated pre-existing metastasis were excluded from analysis.

Results: Two hundred and fifteen patients were found. 142 underwent an exenterative procedure and 73 underwent an extra-anatomical multivisceral resection. 19 patients had a pre-existing metastasis after the completion of neoadjuvant chemotherapy. 62 patients suffered a postoperative recurrence. 21 had a local recurrence, there were 26 lung and 17 liver metastasis. 14 patients had synchronous recurrence at more than one site. A positive surgical resection margin significantly increased the chances of local recurrence (HR 6.084 CI [2.453–15.089] $P \leq 0.001$) and of a lung metastasis (HR 3.32 CI [1.33–8.272] $P = 0.02$). It did not affect the rate of having a liver metastasis ($P = 0.557$). Positive pathological lymph nodes is of boarder line significance for lung metastasis (HR 2.252 [0.976–5.195] $P = 0.057$) and local recurrence (HR 2.546 [0.982–6.602] $P = 0.055$).

Conclusion: Having a positive resection margin is the single greatest risk for a local or a lung metastasis in advanced rectal cancer.

WP69

Surgery in persons of older AGE (SAGE): a prospective, longitudinal, observational study investigating postoperative outcome in the frail undergoing surgery for colorectal disease

N. M. Bagnall¹, H. Rafique^{1,2}, R. Kennedy³, T. Athanasiou¹, A. Darzi¹ & O. Faiz^{1,2}

¹Department of Surgery and Cancer, Imperial College London, London, UK, ²Surgical Epidemiology, Trials and Outcomes Centre (SETOC), St Marks hospital and Academic Institute, London, UK, ³St Mark's Hospital and Academic Institute, London, UK

Aim: Healthcare innovation has resulted in an increasingly elderly and “frail” population undergoing surgery. To date, there are no studies that evaluate the relationship between preoperative frailty and long-term postoperative outcome. The Surgery in persons of older AGE(SAGE) study investigates the impact of preoperative frailty on postoperative outcome, the recovery of function and the influence of postoperative complication on functional recovery.

Method: A prospective, longitudinal, observational, clinical study in the age over 60 years, undergoing colorectal surgery. Preoperative frailty, postoperative complications and functional recovery (i.e. Quality of Life(QoL)) was recorded at 1, 3, 6 and 12 months postoperatively.

Results: There were 165 subjects (85Fit; 36Intermediate; 44Frail). Frail subjects had a 2–3 fold increased risk of postoperative complication ($P < 0.05$). Baseline QoL scores were significantly lower in the frail versus non-frail patients. Following surgery, those who had a complication had significantly lower QoL longitudinally compared with those who did not suffer complications. Frail patients who sustained significant complications did not return to baseline QoL by the end of the study.

Conclusion: SAGE provides evidence that preoperative frailty results in worse outcomes. Resource measures must focus on identification of this vulnerable group and implement early intervention when there is failure of recovery postoperatively.

WP70

The prognostic properties of cell-free DNA hypermethylation in colorectal cancer

S. L. Rasmussen^{1,2}, H. B. Krarup¹, K. G. Sunesen¹, M. B. Johansen¹, M. T. Stender¹, I. S. Pedersen¹, P. H. Madsen¹ & O. Thorlacius-Ussing^{1,2}

¹Aalborg University Hospital, Aalborg, Denmark, ²Aalborg University, Aalborg, Denmark

Aim: To assess cell-free DNA hypermethylation in peripheral blood samples as a marker for stage and survival in colorectal cancer (CRC).

Method: We analysed pre-treatment plasma samples from 193 patients with CRC. Thirty gene-promoter regions were analysed for methylation status using methylation specific PCR. We compared the median number (range) of DNA hypermethylations with the stage at the time of diagnosis (Wilcoxon-Mann-Whitney), and constructed a multivariable Cox-regression model adjusted for CRC stage, to evaluate the added prognostic information of cell-free DNA hypermethylations.

Results: The median number of hypermethylated promoter regions was nine (0–28) in patients with distant metastasis compared to five (0–19) in patients without distant metastasis ($P < 0.0001$). Individual cell-free promoter hypermethylations inferred a poor prognosis (HR = 1.81, 95%CI [1.65, 1.99]). In a multivariable Cox-regression analysis adjusted for patient age, sex, pre-treatment CEA-levels, and disease stage, only RARB (HR = 1.99, 95%CI [1.07, 3.72]) and RASSF1A (HR = 3.35, 95%CI [1.76, 6.38]) hypermethylation inferred an effect on survival.

Conclusion: The risk of metastasis increases with a high number of cell-free DNA hypermethylations. Pre-treatment RARB and RASSF1A hypermethylations were predictors of poor survival, independent of disease stage at the time of diagnosis, indicating a more aggressive disease phenotype.

WP71**A meta-analysis comparing outcomes of primary tumour resection versus no resection in patients with stage IV colorectal cancer**C. Simillis^{1,2}, E. Kalakouti², T. Afxentiou¹, C. Kontovounisios^{2,3}, M. Adamina⁴, D. Cunningham^{3,5} & P. Tekkis^{1,3}¹Department of Colorectal Surgery, Royal Marsden Hospital, London, UK,²Department of Colorectal Surgery, Chelsea and Westminster Hospital, London,UK, ³Department of Surgery and Cancer, London, UK, ⁴Department of Surgery,Cantonal Hospital Winterthur, Winterthur, Switzerland, ⁵Gastrointestinal and

Lymphoma Unit, The Royal Marsden Hospital, London, UK

Aim: To compare outcomes of primary tumour resection versus no resection for stage IV colorectal cancer.**Method:** A systematic review of the literature and meta-analysis was performed.**Results:** The meta-analysis included 32 studies reporting on 43 403 participants with stage IV colorectal cancer (30 294 undergone primary tumour resection, 13 109 no resection). Patients receiving primary tumour resection had longer overall survival (hazard ratio [HR] 0.58, 95% confidence interval [CI] 0.48–0.69, $P < 0.01$). Primary tumour resection extended survival by 7 months (mean difference [MD] 7.07, 95% CI 5.80–8.34; $P < 0.01$). Subgroup analysis of patients receiving chemotherapy showed improved survival after primary tumour resection (HR 0.63, $P < 0.01$) by 7 months ($P = 0.02$) compared to no resection. Subgroup analysis of patients receiving resectional surgery of the primary tumour versus non-resectional surgery identified improved survival with resectional surgery (HR 0.52, $P = 0.02$; MD 7.34, $P < 0.01$). The complication rate related to resection of the primary tumour was 28% (collection 28%, dehiscence 2.2%, leak 1.2%, reoperation 1.1%) and for no resection it was 25% (obstruction 21%, anaemia 17%, perforation 1.3%, bleeding 1.2%).**Conclusion:** Resection of the primary tumour results in improved survival of about 7 months, without a significant increase in overall complications. Further randomized trials are warranted to confirm findings.**WP72****Risk factors of stoma re-creation after loop ileostomy reversal in patients with rectal cancer who underwent low anterior resection with loop ileostomy**

O. Song, S. Y. Lee, C. H. Kim, Y. J. Kim & H. R. Kim

Chonnam National University Hwasun Hospital, Hwasun, Republic of Korea

Aim: The aim of this study is to identify the risk factors of stoma re-creation after primary reversal surgery of diverting ileostomy in rectal cancer patients who underwent low anterior resection.**Method:** A total of 520 consecutive rectal cancer patients who had undergone low anterior resection with loop ileostomy were retrospectively reviewed. Risk factors for stoma re-creation after ileostomy reversal were evaluated among these patients.**Results:** Among 520 cases of rectal cancer, a total of 458 patients underwent stoma reversal surgery. Among these cases, 45 (9.8%) underwent stoma re-creation. The median period between primary surgery and stoma reversal was 5.5 months (range 0.5–78.3 months) and between reversal and re-creation was 6.8 months (range 0–71.5 months). The reasons of stoma re-creation were anastomosis-related complications (26, 57.8%), local recurrence (15, 33.3%), anal sphincter dysfunction (3, 6.7%). Multivariate analysis showed that independent risk factors for stoma re-creation were anastomotic leakage [odds ratio (OR) = 4.258, 95% confidence interval (CI) 1.814–9.993], postoperative radiotherapy (OR, 3.947, 95% CI 1.624–9.594), and intersphincteric resection (OR = 3.293, 95% CI 1.462–7.417).**Conclusion:** Anastomotic leakage, postoperative radiotherapy, and intersphincteric resection were independent risk factors for stoma re-creation after ileostomy reversal in rectal cancer patients.**WP73****Outcomes in non-curatively managed colorectal cancer**

N. Thavanesan, C. Yao, C. W. Lai, M. Abdalkodous, P. Ng & B. Stubbs

Dorset County Hospital Foundation Trust, Dorchester, UK

Aim: To report outcomes in colorectal cancer patients deemed unsuitable for curative surgery and rates of re-intervention.**Method:** Analysis of all colorectal cancers managed without curative surgery in a district general hospital from the prospectively updated Somerset Cancer Record between 2009 and 2016.**Results:** One hundred and eighty-four patients out of 976 patients were managed with non-curative intent. 47 percent were female, 56.5 percent of patients were aged over 80. Reasons for non-curative management included; extent of metastatic disease (46%), frailty (42%), patient choice (6%), locally advanced disease (3%). Median life expectancy from diagnosis to death was 134 days (range: 3–1248 days). 24 patients were still alive at a median of 430.5 days at the end of the study period. 2 patients received non-curative surgery (1 diagnostic, 1 palliative) initially, and 22 cases (12%) managed non-operatively were subsequently admitted for emergency

surgery owing either to acute obstruction or uncontrollable diarrhoea, (21 patients having a stoma, 1 stent).

Conclusion: There is a paucity of published data on outcomes for patients with incurable colorectal cancer. Wide variation is observed in life-expectancy with 1 in 9 patients requiring subsequent admission for surgery for palliation of symptoms, an important factor when counselling in the clinic.**WP74****Multimodal prehabilitation versus regular care in colorectal cancer patients to improve functional capacity and reduce postoperative complications (PREHAB): the first international randomized controlled trial for multimodal prehabilitation**S. van Rooijen¹, F. Carli², S. Dalton³, G. Thomas¹, R. Bojesen⁴, M. Le Guen⁵, N. Barizien¹, R. Awasthi², E. Minnella⁴, R. van Lieshout¹, I. Gögenur⁶, C. Feo⁶, C. Johansen¹, C. Scheede-Bergdahl², R. Roumen¹, G. Schep¹ & G. Slooter¹¹Máxima Medical Centre, Eindhoven, The Netherlands, ²McGill University,Montréal, Canada, ³Danish Cancer Society Research Center, Copenhagen,Denmark, ⁴Rigshospitalet, Copenhagen, Denmark, ⁵Hospital Foch, Paris, France,⁶S. Anna University Hospital, Ferrara, ItalyThis abstract has been accepted for publication in *BMC trials* 2017.**WP75****Long-term outcome of locally advanced rectal cancer after neoadjuvant CapeOX and bevacizumab: N-SOG 03 phase II trial**K. Uehara¹, K. Hiramatsu², A. Maeda³, E. Sakamoto⁴, T. Aiba^{1,2}, T. Ebata¹ & M. Nagino¹¹Nagoya University Graduate School of Medicine, Nagoya, Aichi, Japan, ²ToyohashiMunicipal Hospital, Toyohashi, Aichi, Japan, ³Ogaki Municipal Hospital, Ogaki, Gifu,Japan, ⁴Nagoya Daini Red Cross Hospital, Nagoya, Aichi, Japan**Aim:** N-SOG 03 trial examined the safety and efficacy of neoadjuvant CapeOX and bevacizumab (Bev) without radiotherapy in patients with locally advanced rectal cancer (LARC). We previously reported the short-term outcomes including treatment compliance as the primary endpoint.**Method:** Thirty-two patients with LARC received neoadjuvant CapeOX and Bev followed by curative resection between February 2010 and December 2011. In this presentation, we report the long-term outcomes and analyse the prognostic factors. The trial is registered with UMIN, number 000003507.**Results:** Because of the disease progression during chemotherapy, 3 patients finally could not receive curative surgery. As a result, 29 patients received R0/1 resection. In entire cohort, the 5-year overall survival (OS) was 81.3%. Among 29 patients with R0/1 resection, the OS, progression-free survival (PFS), and local recurrence-free survival (LRFS) were 89.7%, 72.4% and 86.1%, respectively. In multivariate analysis, cT4b tumour was an independent poor prognostic factor for the OS and LRFS, and ypT4b tumour and absence of N-stage down-staging were independent poor indicators for the PFS.**Conclusion:** The long-term outcomes of LARC after neoadjuvant CapeOX and Bev were satisfactory. However, patients with T4b tumour were not likely to be suitable for chemotherapy alone.**WP76****Analysis of morbidity and mortality, quality of life and bowel function after total colectomy with ileorectal anastomosis compared to right and left hemicolectomy cases: a study to optimise treatment of Lynch syndrome**E. D. L. Urso¹, F. Celotto¹, G. Francesca^{1,2}, T. Gavaruzzi¹, D. B. Paola³,R. Q. Bao¹, S. Pucciarelli¹ & D. Nitti¹¹Azienda Ospedaliera Università di Padova-DISCOG, Clinica Chirurgica I^o, Padova,Italy, ²Università di Padova, Dipartimento di Psicologia dello sviluppo e dellasocializzazione, Padova, Italy, ³Istituto Oncologico Veneto, Padova, Italy**Aim:** In Lynch syndrome total colectomy with ileorectal anastomosis (IRA) is proposed as optimal treatment when surgery is required. AIM: to collect surgical and functional data after IRA versus segmental hemicolectomy to integrate informed consent**Method:** Consecutive IRA (8–15 cm from anal verge) patients (group A), matched by age, sex, BMI, ECOG performance score, cancer size and stage, technique (open/lap) with right (group B) or left (group C) hemicolectomy cases; surgery: 2001–2016. EORTC-QLQ CR-30, CR-29 and MSKCC questionnaires sent to investigate Quality of Life (QoL) and bowel function (b.f.) at 69 months (median) from surgery. Morbidity: Clavien-Dindo (C-D) classification. Statistical analysis: Mann-Whitney Test for continuous and χ -square for categorical variables.

Results: Fifty-five patients in each group; their age, sex, BMI, ECOG p.s., cancer size, open/lap ratio are not different ($P > .05$). Median hospital stay, overall and severe complications (C-D stage III-IV) and mortality: not different between the groups; surgery longer in group A than control groups ($P < .00001$) MSKCC questionnaire analysis revealed worse b.f. in group A, but QLQ CR-30 and CR-29 demonstrated worse score in group A only for bowel frequency related items.

Conclusion: IRA and segmental resections have similar complications. The worse b.f. in IRA patients do not impair severely QoL.

WP77

Timely access to care in rectal cancer treatment and the effect on quality of life

S. Walming¹, M. Block², D. Bock¹ & E. Angenete¹

¹Department of Surgery, Institute of Clinical Sciences, Sahlgrenska Academy at University of Gothenburg, SSORG - Scandinavian Surgical Outcomes Research Group, Sahlgrenska University Hospital/Östra, Gothenburg, Sweden, ²Department of Surgery, Institute of Clinical Sciences, Sahlgrenska University Hospital/Östra, Gothenburg, Sweden

Aim: Standardised referral pathways have been implemented in Sweden to improve the patients' quality of life. The aim of this study was to investigate if delay of first contact with health care or delay of diagnosis affected quality of life at diagnosis.

Method: The QoLiRECT (Quality of Life in RECTal cancer) study is a multicentre trial including 1085 patients. The data analysed included self-assessed quality of life, time between first symptom and first contact with health care and time to diagnosis.

Results: Shorter duration of symptoms (OR 0.72; CI 95% 0.55–0.97; $P = 0.028$) and shorter time to diagnosis (OR 0.69; CI 95% 0.49–0.98; $P = 0.038$) were associated with higher quality of life but in the adjusted analysis symptom duration (OR 0.89; CI 95% 0.63–1.26; $P = 0.521$) and time to diagnosis (OR 0.96; CI 95% 0.63–1.45; $P = 0.829$) were no longer significant. Comorbidity, depressed mood and palliative intention of treatment had significant influence on quality of life.

Conclusion: It is possible that further efforts to shorten delay in rectal cancer care with the aim of improving quality of life may be futile. To improve quality of life at diagnosis, prior to treatment, other interventions should be considered, such as screening for depression.

WP78

Long-term outcomes following surgical resection of primary small bowel malignancy: a 10-year study

J. Wohlgenut¹, L. Meloni², C. MacKay¹, G. Murray¹ & C. Parnaby¹

¹Department of General Surgery, Aberdeen Royal Infirmary, Aberdeen, UK, ²School of Medicine, University of Sassari, Sardinia, Italy

Aim: Primary small bowel malignancy is rare, accounting for 1% of gastrointestinal malignancies. Disease is often advanced prior to surgery due to diagnostic delays, with resultant poor prognosis. The aim of this study was to determine the incidence of primary small bowel malignancy and to report survival over a 10-year period.

Method: Retrospective review of a prospectively maintained pathology database of small bowel malignancy between 01/01/2007 and 31/12/2016 was performed. This was supplemented with clinical and demographic data from electronic clinical records.

Results: Fifty-nine patients with primary small bowel malignancy were included (incidence 12/1 000 000/year), median age 65.3 (IQR 55–75), 38 male (64%). These were composed of 41 (70%) adenocarcinomas (1 patient with FAP), 12 (20%) GIST's, 6 (10%) neuroendocrine tumours and 0 lymphomas. The majority were located in the duodenum. Overall survival was 64% at 1 year and 39% at 5 years. 1-year survival varied depending on tumour type: adenocarcinoma (22%), neuroendocrine (67%) and GIST (83%).

Conclusion: This 10-year study demonstrates that primary small bowel malignancy is rare and survival is influenced by tumour type. Given only 1 in 5 patients with adenocarcinoma are alive at 1 year, careful consideration is warranted prior to embarking on surgery with curative intent.

[Correction added on 22 September 2017, after first online publication: The name of the presenting author was spelled erroneously upon initial publication; this has now been corrected.]

WP79

Ileostomy is associated with chronically impaired renal function after rectal cancer surgery

R. Woods, A. Fielding, S. R. Moosvi, R. Wharton, I. Shaikh, J. Hernon,

S. Lines & A. Stearns

Norfolk and Norwich University Hospital, Norwich, UK

Aim: High output is common with loop ileostomy after total mesorectal excision (TME/LI). Uncontrolled cohort studies report renal impairment rates of 19%. This

study evaluated renal function in patients following TME/LI compared to high anterior resection (HAR) and abdominoperineal resection (APR).

Method: Patients treated for rectal cancer at a single University Hospital were retrospectively reviewed. Co-morbidities, post-operative complications and readmissions were analysed. Estimated glomerular filtration rate (eGFR) was calculated pre-operatively, and immediately prior to ileostomy closure or for control patients (HAR and APR) at 6-months post-operatively. Changes in eGFR were expressed as a percentage of pre-operative eGFR.

Results: Three hundred and ninety patients were identified (TME/LI-215, APR-70, HAR-105). There were more readmissions ($P < 0.0006$) after TME/LI (0.455 readmissions/patient) and APR (0.406) versus HAR (0.164). Declines in eGFR $>20\%$ were observed in 37/211 patients after TME/LI (17.5%) versus 5/64 after APR (7.8%) and 4/105 after HAR (3.8%, $P = 0.001$). Multivariate regression analysis identified age ($P = 0.019$), presence of ileostomy ($P = 0.013$), and tumour stage ($P = 0.050$) as independently correlated with declines in eGFR. Adjuvant therapy was inversely associated ($P = 0.004$).

Conclusion: Presence of an ileostomy after rectal surgery is independently associated with chronic post-operative decline in renal function. Strategies to improve ileostomy function may have long-term benefits after rectal resection.

WP80

Management of anal HPV-Lesions – single centre data from 12 years

S. Czipin^{1,2}, U. Juen², M. Ninkovic^{1,2} & I. Kronberger^{1,2}

¹Visceral, Transplantation- and Thoracic Surgery, Innsbruck, Austria, ²Medical University of Innsbruck, Innsbruck, Austria

Aim: A retrospective analysis of our patient pool treated for anal HPV-lesions over the last 12 years was done to find out more about recurrence and success of treatment.

Method: Clinical data from all patients undergoing an operative treatment for anal HPV at our department from January 2004 to December 2016 retrospectively were analysed. Clinical data, recurrence rate and success of recurrent treatment were analysed using Chi-Square test, dependence of factors using linear regression.

Results: Two hundred and eighty-six patients underwent at least one ablative therapy for anal HPV-lesion, 223 were male (78%), 74 patients were HIV positive (26%) and 65 (23%) had HSIL as primary finding. Recurrence rate was 60% during a mean follow-up of 27.5 months (3–150 months). Neither the primary histological finding, gender nor CD4-cell-count showed significant influence on recurrence. Patients treated with ablative surgery and following conservative therapy had a significant better success rate concerning a recurrent disease. Nearly 30% of patients got lost during planned 9-months follow up.

Conclusion: Patients undergoing ablative treatment for anal HPV lesions may benefit from adjuvant ointment therapy. The high drop-out rate might be crucial in planning a prospective study to differ the success of treatment regimes.

WP81

Fistulectomy versus excision and paramedian primary closure for pilonidal sinus: a randomized controlled trial

A. Ferrario di Tor Vajana, B. Pravini, A. Colombo, M. Schmalzbauer,

A. Posabella, R. Rosso & D. Christoforidis

Ospedale Regionale di Lugano, Lugano, Switzerland

Aim: We aimed at comparing conventional fistulectomy (F) to excision and paramedian primary closure (EPC) for the treatment of chronic pilonidal sinus.

Method: Patients with chronic symptomatic, non-recurrent pilonidal sinus were randomized to F or EPC. Scalpel and diathermy were used for F to minimally excise infected tissue. EPC was performed with cleft lift effect and a vertical suture at approximately 1 cm lateral to the midline. Patients were followed up at a wound clinic until healed and contacted at 3, 6 and 12 months for follow-up. The primary end-point was the rate of patients healed at 3 weeks.

Results: Analysis after inclusion of 58 patients showed that 3(11%) F-patients and 15(53%) EPC-patients were healed at 3 weeks ($P = 0.001$). In the EPC group, 12 (43%) presented some suture dehiscence. Median time to complete healing was 34 (13–141) after EPC versus 54(23–328) days, ($P = 0.025$). Number of visits at the wound clinic, time off work, requirement of analgesics, and recurrence rates at 12 months (EPC: 2(8%) vs 3(13%), $P = 1$) were similar between groups.

Conclusion: Excision and paramedian primary closure for pilonidal disease, despite frequent small wound dehiscence, leads to faster healing than after fistulectomy, with a similar health burden for the patient.

WP82**Statistical analysis of risk factors for failure of LIFT method**

Y. A. Shelygin, A. Y. Titov, I. S. Anosov, I. V. Kostarev, L. A. Blagodarniy & V. A. Kozlov

State Scientific Centre of Coloproctology, Moscow, Russia

Aim: The aim of this study was to find out the risk factors affecting the efficiency of LIFT procedure.

Method: From 2014 to 2016 50 patients with transsphincteric and suprasphincteric fistulae were operated by LIFT method. The following characteristics were analysed: sex, age, BMI, duration of anamnesis, previous surgery of fistula, location of the internal fistula opening, fistula length, abscess cavities, and location of the fistula tract relative to anal sphincter. For the statistical analysis of the results, the following methods were used: cross-tabs with χ^2 - Pearson criteria, general *t*-tests and Welch's *t*-tests, non-parametric Mann-Whitney *U*-test for small samples, Spearman correlation, ROC-Curve, Logistic regressions.

Results: The healing rate was 74%. The study includes 6 (12%) patients with suprasphincteric fistula track, 25 (50%) had abscess cavities and 19 (38%) were operated earlier. On the model of logistic regression only fact of suprasphincteric track (OD 12.5–14), presence of abscess cavities (OD 17–31), and fact of previous surgery (OD 20–25) were the independent risk factors for the failure of LIFT method.

Conclusion: Results of statistical analysis showed, that the best results of LIFT can be achieved for patients with transsphincteric anal fistulae without abscess cavities and not operated earlier.

WP83**Long term follow up of video-assisted anal fistula treatment (VAAFT) – Whiston experience**

M. A. Javed, F. Cheung, N. Appleton, S. Rout, R. Kalaiselvan, A. Samad, M. Chadwick & R. Rajaganeshan

Whiston Hospital, Prescot, UK

Aim: Perianal fistulae are associated with significant morbidity, recurrence and adverse impact on patients' quality of life. Video-assisted Anal Fistula Treatment (VAAFT) is a novel technique that has been used for the management of this challenging pathology. We describe our experience of patients undergoing VAAFT for perianal fistulae.

Method: A prospective electronic database of all patients undergoing VAAFT between November 2015 to June 2016 at St. Helen's and Knowsley NHS Trust was maintained. Data regarding patient demographics, peri-operative variables and post-operative follow up were recorded.

Results: Seventy-eight patients had VAAFT, complete follow-up data were available for 74 patients, with median follow-up of 14 months (IQR: 7–19). Fifty-seven patients (77%) had recurrent disease, having had previous fistula surgery. At follow-up 59 (79.7%) patients reported themselves 'cured' (asymptomatic) including five patients with Crohn's disease and one patient who had previously undergone ten surgical procedures. Logistical stepwise regression did not demonstrate any factors (age, gender, diabetes, previous incision and drainage, Crohn's, diabetes, smoking, type of fistula) which reached significance in relation to outcome.

Conclusion: VAAFT is an effective treatment for the management of perianal fistulae and can be used regardless of co-morbidity status, underlying pathology or type of fistula.

WP84**Evaluation of spontaneous healing of perianal fistulae in ano: a retrograde analysis**

L. B. Johnson¹, M. Bohe¹, C. Johansson², M. Ekelund¹, O. H. Nielsen³ & A. Zawadzki¹

¹Pelvic floor Centre, University Hospital of Malmö, Malmö, Sweden, ²Danderyd Hospital, Karolinska Institute, Stockholm, Sweden, ³Herlev Hospital, University of Copenhagen, Copenhagen, Denmark

Aim: Evaluation of spontaneous healing of perianal fistulae without surgical intervention.

Method: Review of 374 patients with anal fistula referred to the Pelvic Floor Centre, Malmö between 2013–2014 without any prior surgical intervention. 175 patients were analysed after excluding patients with earlier or ongoing drainage of fistulae, fistula surgery and inflammatory bowel disease. Earlier incisions for perianal abscesses without any attempt to explore the anal canal for presence of fistulae were accepted for inclusion. Hospital records including surgery and 3 D endo-anal ultrasound recordings were examined up to the end of December 2016.

Results: Five patients out of 175 patients were classified as having spontaneous healing of perianal fistulae. However only 1 out of the group was verified at surgery. The remaining 4 patients declined surgery as they had no symptoms, thus no clinical evaluation of state of healed fistulae. Median length of time from debut of symptoms to surgery was 13 months (1–360 months).

Conclusion: Two years after diagnosis of perianal fistula, only 3% of fistulae heal spontaneously. Clinical verification of healed state is only 0.5%. Surgical management of fistulae in ano seems to be still the treatment of choice.

WP85**Rectal Dieulafoy's lesions: a systematic review of 107 patients**

E. Gundogan, C. Kayaalp, A. Aktas & F. Sumer
Inonu University, Malatya, Turkey

Aim: Rectal Dieulafoy's lesion (RDL) is a rare cause of lower gastrointestinal tract bleeding (LGITB). We aimed to analyse the studies related to RDLs to reveal the demographic features of the disease and to examine the factors affecting diagnosis, morbidity, and mortality.

Method: Pubmed and Google Scholar databases were scanned. The age, gender, type of hospital admission, comorbidity, diagnostic method, the number of diagnostic attempts, treatment methods, their success rates, morbidity, and mortality were examined.

Results: Total 133 RDL bleeding episodes in 107 patients from 81 papers were analysed. Median age was 72 (5–89) and 35.8% were already hospitalized, patients. A considerable part of patients (59%) were in hemorrhagic shock. Diagnostic accuracy of colonoscopy in the first attempt were only 56% and when diagnosed, endoscopic treatment was successful in 92% of the patients with a 21% re-bleeding risk. Surgery required %16 of the bleedings. Eighty-three percent of the RDLs were within 7 cm from the anal verge. The overall mortality rate was 6.8%.

Conclusion: In massive LGITB, repeated colonoscopies with retroflex examinations were the best diagnostic tools. Surgery for RDL was not uncommon. Before the decision of laparotomy, examination under anesthesia of the rectum can provide the diagnosis of RDL and its treatment.

WP86**Systematic proctologic screening of HIV-positive MSM reveals 49% of HPV-related incidental anal pathologies!**

C. Maurus¹, S. Baumeler², I. Brenner³, S. Bischofberger¹, W. Brunner¹, P. Schmid⁴, J. Borovicka², A. J. Schmidt⁴ & L. Marti¹

¹Department of Surgery, St. Gallen, Switzerland, ²Department of Gastroenterology, St. Gallen, Switzerland, ³Pelvic floor center, St. Gallen, Switzerland, ⁴Department of Infectiology, St. Gallen, Switzerland

Aim: HIV-positive men having sex with men (MSM) have an increased risk for anal dysplasia and anal cancer. This study evaluates HPV-related proctologic findings in HIV-positive MSM without anal complaints.

Method: All HIV-positive MSM followed by the infectiology outpatient clinic are offered proctologic evaluation, including high-resolution anoscopy.

Results: From January 2016 to April 2017, 53 HIV-positive MSM were referred. 26 men (49%) showed incidental and previously undiagnosed findings: condylomata acuminata (14), low-grade AIN (5), high-grade AIN (4) and anal carcinoma (2). Treatment included excision, CO₂-laserablation and cryotherapy for condylomata, excision and additional cryotherapy for AIN and radiochemotherapy for anal carcinoma. The median year of HIV diagnosis was similar in men with (2005, range 1992–2016) and without incidental findings (2007, range 1989–2015). Men with incidental findings showed more additional related diagnoses in their history such as syphilis, hepatitis, lymphoma, condylomata and rectal ulcers. Stable partnerships tended to be more frequent in men with (46%) than in men without (36%) incidental findings.

Conclusion: Almost half of HIV-positive MSM without anal complaints present with incidental anal pathologies, some (23%) as serious as high-grade AIN and anal carcinoma. A screening program for this group of patients at risk is highly supported by these figures.

WP87**Chronic wounds perineum and anal canal**

S. Nekhriko & A. Titov

State Scientific Center of Coloproctology, Moscow, Russia

Aim: to Improve the results of treatment of non-healing (chronic) wounds after perineum and anal canal surgery.

Method: Two hundred and eighty five patients after surgery for anal fissures, haemorrhoids, rectal fistula were included in the study (December 2010–2016). Treatment group - 141 patients with chronic wounds, control group - 144 patients with uneventful postoperative recovery. History of STDs was revealed in 42.6% patients of the treatment group and in 3.5% patients of control ($P < 0.001$). Bacteriological, bacterioscopic, cytological, pathomorphological studies, PCR were performed in all cases.

Results: In a cytological study of wounded discharge, giant cells such as foreign bodies were found in 91.5% patients of the treatment group. All patients in the control group had active repair by day 25 ($P < 0.001$). Microorganisms belonging to

STDs were revealed in all patients in the treatment group (98.4% of them were pathogenic). In the control group only opportunistic STIs (Mycoplasma, Ureaplasma, Gardnerella, Candida) were revealed in 22.2% of patients ($P < 0.01$). Treatment of chronic wounds was performed according to sensitivity of microorganisms and specific therapy of STDs. Patients of treatment group were recovered of 22 ± 6.9 days after treatment of STI.

Conclusion: STI has stopped the epithelialization of the wounds after perineum and anal canal surgery.

WP88

Effectiveness of a screening program for anal cancer prevention in hiv-infected women: 10 years of clinical experience

B. Revollo^{1,2}, D. Parés³, S. Videla^{1,4}, M. Pino^{1,3}, A. Tarrats^{1,5}, F. Garcia-Cuyas^{1,3}, A. Orneals¹, J. Coll^{1,6}, R. Cranston¹, B. Clotet^{1,6} & G. Sirera^{1,2}

¹Iluita Contra La Sida Foundation. Hospital Germans Trias i Pujol. Universitat Autònoma de Barcelona, Badalona, Barcelona, Spain, ²HIV Clinical Unit. Department of Medicine. Hospital Germans Trias i Pujol. Universitat Autònoma de Barcelona, Badalona, Barcelona, Spain, ³Colorectal Surgery Department. General Surgery Department. Hospital Germans Trias i Pujol. Universitat de Barcelona, Badalona, Barcelona, Spain, ⁴Department of Experimental and Health Sciences. Faculty of Health and Life Sciences. Universitat Pompeu Fabra, Barcelona, Spain, ⁵Department of Gynecology. Hospital Germans Trias i Pujol. Universitat Autònoma de Barcelona, Badalona, Barcelona, Spain, ⁶Retrovirology Laboratory. IrsiCaixa Foundation, Badalona, Barcelona, Spain

Aim: To estimate the incidence of invasive anal squamous cell carcinoma (IASCC) in HIV-infected women with 10 years of follow-up.

Method: A retrospective analysis was conducted in all HIV-infected women who were offered routine anal cancer screening at a single HIV clinical site between 2005 and 2014. Screening involved anal cytology, high-resolution anoscopy with biopsy of lesions suspicious for high-grade squamous intraepithelial lesions (HSIL) and ablation of HSIL if was present. The analysis compared women who participated in the screening program to women who declined participation.

Results: A total of 830 women with a median age of 46 (range 23–62) years were offered anal cancer screening. Of these, 539 (65%) completed at least 12 months in the screening program. Baseline anal cytology in this cohort showed atypical squamous cells of undetermined significance (13%), low-grade SIL (16%) and HSIL (7%). The cumulative incidence of IASCC was 0% (95% confidence interval (CI):0.0–0.8%) in the screening cohort and 0.7% (2 IASCCs, 95%CI:0.2–2.5%) in the non-screening cohort, P -value:0.123.

Conclusion: Anal cancer screening with ablation of HSIL may contribute to reducing the incidence of IASCC in Spanish HIV-infected women with at least 1 year of follow up in a screening program.

WP89

The level of mesh placement as predict factor of prosthesis effectiveness in post-hysterectomy rectocele cases complicated by obstructed defecation

S. Podpriatov^{1,2}, S. Podpriatov^{1,2}, I. Bielousov^{1,2}, V. Salata^{1,2}, N. Kohan^{1,2}, V. Korchak^{1,2}, V. Ivakha^{1,2}, O. Sydorenko¹, V. Shchepetov¹ & S. Bryzhatiuk¹

¹Clinical research centre of bonding/welding surgery and new surgical technologies, Kyiv, Ukraine, ²Kyiv municipal hospital clinic #1, Kyiv, Ukraine

Aim: To estimate the effectiveness of total mesh rectovaginal space prosthesis for posterior and vault vaginal prolapse causes obstructed defecation in elderly.

Method: We investigated obstructed defecation symptoms had caused by post-hysterectomy rectocele in 12 women 65–78 y.o. during 2000–2017. All women had prolapsed Ap, Bp points for II-III grade (POP-Q), and D point prolapsed also. The intraabdominal posterior mesh placement we combined with perineum autoplasty (Method 1) and compared to transperineal rectovaginal placement from sphincters up to vaginal perineum ligaments (Method 2). The partially absorbable light mesh was used. The Modified ODS Longo Score questionnaire and balloon test were used to estimating.

Results: According to the scoring, the Method 2 more effectively eliminated obstructive symptoms: 3 points versus 10 from initial 20 ($P < 0.05$). The balloon test confirms decreasing of trigger and residual stool volumes, rectal sensitivity restoring to normal in all Method 2 and 68% Method 1 cases. Local vaginal erosion defects in 68% Method 2 cases were healed and didn't decrease the life quality.

Conclusion: The total mesh prosthesis of rectovaginal space up to side ligaments is completely effective for defecation restore in obstructive cases after hysterectomy in elderly. Credibly, the mesh fixation of vaginal points Bp and D are key points of effectiveness.

WP90

Fine adjustment in the level of sphincterotomy in chronic anal fissure treatment; pressure controlled or classic? A prospective randomised controlled study

K. Tavukçu¹, S. Leventoglu², H. Göbüt³, A. Yıldız³, B. Mentec⁴ & B. Aytac²
¹Kangal State Hospital, Sivas, Turkey, ²Gazi University School of Medicine, Ankara, Turkey, ³Yildirim Beyazit University Training and Research Hospital, Ankara, Turkey, ⁴Memorial Hospital, Ankara, Turkey

Aim: In our study, 'pressure-controlled LIS' was performed to standardise the sphincterotomy level and to try to find a method to prevent incontinence.

Method: Sixty-three patients who completed the follow-up for 6 months between January and July 2014 were taken into the study. Randomization was performed with the envelope extraction method to decide the type of operation of the patients. Group 1, Fissure Apex Group (FAG) and Group 2 was called as Pressure Controlled Group (PCG). The patients were evaluated on postoperative 7th, 28th day, and on the 2nd, 6. month. Preoperative maximum resting pressure (MRP), maximum squeeze pressure (MSP) (mmHg), duration of postoperative pain (days), objective recovery (postoperative 28th day, 2nd month) postoperative MRP-MSP (mmHg), (7 day, 28 day, 2 month and 6 month) and the 6 month recovery rates were evaluated.

Results: It has been shown that pressure-controlled limited sphincterotomy reduces the likelihood of postoperative anal incontinence.

Conclusion: Pressure-controlled sphincterotomy has positive results in terms of anal incontinence and treatment failure, but it is still necessary to examine larger patient series and patient follow-up data that have filled at least 1 year.