



## Abstracts for presentation at the BASO Annual Scientific Conference and BASO Trainees Day 19-21 November 2022

**Abstracts for BASO Trainees Audit/QiP Oral Prize Presentation at the BASO Trainees/ Skills Day: 19th November 2022**  
**13.**
**AN AUDIT OF COMPLIANCE WITH THE UPDATED POST-POLYPECTOMY AND POST-COLORECTAL CANCER RESECTION SURVEILLANCE GUIDELINES AT A DISTRICT GENERAL HOSPITAL (DGH)**

Samiul Oliver Khan, Stella Nikolaou, George Agathou, Dahlia Chakmakchi, Yan Naung Soe, Fiona Wu. *Darent Valley Hospital, Dartford and Gravesham Trust, UK*

**Background:** It is important we identify cases of premalignant polyps and stratify patients according to future colorectal cancer (CRC) risk to prevent CRC development. In 2020, the British Society of Gastroenterology (BSG) published guidelines to tailor post-polypectomy and post-CRC resection surveillance. The objective of our audit was to determine whether our department was adhering to these guidelines.

**Method:** We performed a retrospective audit of patients who had a colonoscopy at a DGH from February to June 2021. We reviewed case notes for indication, findings, and compliance to BSG's guidelines.

**Results:** A total of 578 cases were reviewed. The median age was 61 years old. Most of the referrals were via the 2-week-wait pathway. 285 had normal findings on colonoscopy, 28 had CRC, 22 had polyps meeting high risk findings, and 12 had large non-pedunculated colorectal polyps. Our unit was 93.6% (547/578) compliant with the guidelines. 6.4% (31/578) were not compliant. Of those, 18 were scheduled for a surveillance colonoscopy when the polyps did not meet the criteria, 6 colonoscopies were not booked within the appropriate timeframe, 2 did not have their 6-month site check, and 1 had a surveillance colonoscopy despite a normal index colonoscopy.

**Conclusion:** Our unit is highly compliant with BSG's guidelines. COVID-19 may have influenced the timing of colonoscopies, which could have impacted our compliance. Furthermore, there is little data on how our DGH compares to national data. We have placed the updated guidelines throughout the department to enhance awareness across the wider team.

**18.**

**ARE PREOPERATIVE FDG-PET/CT SCANS BEING DONE IN PATIENTS UNDERGOING PANCREATIC CANCER SURGERY: AN AUDIT AT A SINGLE UK HOSPITAL BETWEEN 2018 AND 2022**

Srishti Sarkar, Shoura Karar, Harout Kolanjian, Ali Arshad. *University Hospital Southampton, UK*

**Introduction:** Pancreatic cancer is the tenth most common cancer in The UK. Over 33% of patients have distant metastasis at diagnosis [1]. NICE guideline [NG85] states that patients with pancreatic cancer having surgery should undergo pre-operative FDG-PET/CT (PET-CT) for staging [2]. A study by Farma et al showed 11% of patients with pancreatic cancer had a change to their management as PET-CT detected metastasis not identified by standard protocols [3]. This audit assessed if patients were undergoing a

preoperative PET-CT as per NICE guidelines.

**Methods:** Patients who underwent surgery for pancreatic cancer at University Hospital Southampton between January 2018 to April 2022 were selected. The inpatient records were used to establish whether a PET-CT was done. Metastatic or recurrent disease within 3 months of surgery was also recorded.

**Results:** A total of 138 patients fulfilled the criteria. Overall, 42% of patients had PET-CTs done pre-operatively, none of whom developed recurrence within 3 months of surgery. 3% had metastatic or recurrent disease detected within 3 months of their operation. None of these patients had PET-CTs done pre-operatively.

**Conclusion:** PET-CT is an important staging investigation as it aids in patient selection for surgery. The 3% of patients who had metastatic or recurrent disease detected within 3 months post-operatively could have avoided surgical intervention and been managed differently. A potential barrier to all patients undergoing this investigation is cost. The use of alternate imaging modalities should be discussed in multi-disciplinary team meetings to assess for satisfactory staging prior to surgical management.

**36.**

**BLUE FLAG CLINICS – A QUALITY IMPROVEMENT PROJECT TO REDUCE REFERRAL PRESSURE ON BREAST SURGERY 2 WEEK WAIT SERVICE**

Xinting Liu, Thomas Hubbard, Polly King. *Royal Cornwall Hospitals NHS Trust, Truro, UK*

**Introduction:** The breast cancer urgent suspected cancer referral pathway is under unprecedented pressures. A Quality Improvement project implemented a new triaging criterion of 2 pathways; red flag (suspected breast cancer referral; same day triple assessment within 2 weeks) and blue flag (symptomatic breast referral; clinical assessment within 2 weeks and uncoupled imaging if required). This evaluation assesses whether the blue flag clinic reduces imaging and its safety.

**Methods:** All patients assessed in blue flag clinic between 13/05/2019- 20/12/2021 at a single UK NHS Trust were included. Patients were identified retrospectively from a prospectively gathered database (audit number 2413), and information collected from clinical systems. Follow up to 01/08/2022 identified patients initially discharged as non-cancer and subsequently diagnosed with breast cancer (symptomatic interval cancer rate)

**Results:** 1705 patients were seen in a 'blue flag clinic'. 1.06% (n=18) patients in the blue flag cohort had breast cancer, 8.6% in red flag cohort had breast cancer. Overall, 17.95% of blue flag patients had no imaging, 32.73% had mammogram only and 30.5% had ultrasound only. Of those that had an initial diagnosis of non cancer; 1 of 1687 were subsequently diagnosed as cancer within the follow up period (median follow up 28 (IQR 12-32) months; 'interval cancer' rate of 0.06%.

**Conclusion:** This QI project demonstrates the blue flag triage system is a safe pathway with an 'interval cancer' rate less than the screening program. It uncouples assessment and investigations and is an effective pathway to reduce pressures on the urgent suspected breast cancer pathway.

Demographic		
	Number	%
Total patient	1705	
Female	1425	83.58
Male	276	16.19
Presentation		
Lump	582	34.13
Pain only	603	35.37
Lumpiness / nodularity	91	5.34
Nipple problem	105	6.16
Skin lesion / dimple	40	2.35
Previous cancer - FU/ Moved / New symptom	13	0.76
Infection	21	1.23
Male breast lump	224	13.14
Axillary issue	21	1.23
Other	39	2.29
Investigation		
No imaging	306	17.95
MMG only	558	32.73
US only	520	30.50
MMG and US	233	13.67
Total MMG	811	47.57
Total US	765	44.87

### Abstracts for BASO Medical Student Oral Prize Presentation at the BASO Trainees/ Skills Day: 19th November 2022

3.

#### GREM1 IN HER2+ BREAST CANCER: WORSE PROGNOSIS, LARGER TUMOURS AND MORE BONE METASTASIS

Frank Davis, Catherine Zabkiewicz, Rachel Hargest. Cardiff University, Cardiff, UK

Breast cancer is the leading cause of female cancer deaths. Bone is the commonest site of breast cancer metastasis (40%) will be in the bone. Bone Morphogenetic Protein (BMP) antagonists have been shown to stimulate glycolysis as well as epithelial mesenchymal transition (EMT), which increases the motility of malignant cells and contributes to the development of metastases. The role of GREM1 in HER2+ breast cancer progression remains an under-researched yet promising area of study.

Bioinformatic databases were used to assess GREM1 expression in HER2+ breast cancer and its effect on prognosis. A murine in vivo primary tumour model and an in vivo metastatic model were injected with overexpressing BT474GREM1 cells as well as wild type BT474PEF. Suspected tumours were stained.

High expression of GREM1 in HER2+ breast cancers is associated with a poorer overall survival (OS) ( $P < 0.011$ ). Injection of BT474GREM1 cells into the in vivo primary tumour model produced significantly larger primary tumours than the BT474PEF group ( $P < 0.05$ ). In the in vivo metastatic model, injection of BT474GREM1 cells produced a greater number and larger size metastatic tumours than the BT474PEF group ( $P < 0.05$ ). The most common site was bone, confirmed by staining.

Gremlin-1 is correlated with poor outcomes in HER2+ breast cancer patients. It promotes breast cancer cell growth in primary tumours and increases their ability to move and form metastases, particularly in bone. The exact mechanism at which it does this is yet to be fully understood and this represents an exciting therapeutic target for the future.

46.

#### EXTENDING ADJUVANT-TEMOZOLOMIDE DOES NOT NECESSARILY IMPROVE SURVIVAL IN PATIENTS WITH NEWLY-DIAGNOSED GLIOBLASTOMA: A FIFTEEN-YEAR TERRITORY-WIDE MULTI-CENTRE RETROSPECTIVE COHORT STUDY

Arthur C.K. Lau<sup>1,2</sup>, Brandon L.H. Chan<sup>3,2</sup>, Peter Y.M. Woo<sup>2</sup>. <sup>1</sup>School of Clinical Medicine, LKS Faculty of Medicine, The University of Hong Kong, Hong Kong; <sup>2</sup>The Hong Kong Neuro-oncology Society, Hong Kong; <sup>3</sup>Faculty of Medicine, The Chinese University of Hong Kong

**Background:** First-line treatment for glioblastoma after surgery consists of concurrent chemo-radiation (CCRT) followed by 6 cycles of adjuvant-temozolomide. This study investigates the association between the duration of adjuvant-temozolomide and overall survival (OS) in glioblastoma patients.

**Methods:** This was a multi-centre retrospective review of patients with newly-diagnosed histologically-confirmed glioblastoma treated with surgery and CCRT across public neurosurgical units in Hong Kong from 2006 to 2020. Patients were stratified by the number of adjuvant-temozolomide cycles received into: incomplete (0-5), standard (6), or prolonged ( $\geq 7$ ) adjuvant-temozolomide. Primary endpoint was OS and multivariate Cox-regression was performed, adjusting for important predictors (age, sex, preoperative Karnofsky performance status, MGMT-methylation and extent-of-resection).

**Results:** Data of 465 patients were reviewed. Median OS (mOS) was 17.4 months (IQR: 19.2). OS of patients receiving less than the standard 6 cycles of adjuvant-temozolomide was significantly shorter than those who completed standard adjuvant-temozolomide (mOS: 13.0 vs 23.2 months; HR: 2.75; 95%CI: 2.22-3.43;  $p < 0.001$ ). The survival benefit of completing 6 cycles of adjuvant-temozolomide was significant both in patients with tumour MGMT-methylation (mOS: 14.2 vs 26.7 months; HR: 2.38; 95%CI: 1.70-3.35;  $p < 0.001$ ) and without MGMT-methylation (mOS: 11.9 vs 17.8 months; HR: 3.09; 95%CI: 2.21-4.34;  $p < 0.001$ ). Although patients with prolonged adjuvant-temozolomide had longer median OS than those with standard treatment, the improvement was not statistically significant (mOS: 30.8 vs 23.2 months; HR: 0.75; 95%CI: 0.51-1.10;  $p = 0.14$ ).

**Conclusion:** There is certainly survival benefit in completing the standard 6 cycles of adjuvant-temozolomide, regardless of tumour MGMT-methylation. Nevertheless, prolonging adjuvant-temozolomide beyond 6 cycles does not necessarily benefit survival.

81.

#### CAN EARLIER CONCOMITANT CHEMORADIOTHERAPY AFTER SURGERY IMPROVE SURVIVAL IN PATIENTS WITH NEWLY-DIAGNOSED GLIOBLASTOMA ? A RETROSPECTIVE ANALYSIS OF 493 PATIENTS

Arthur C.K. Lau<sup>1,2</sup>, Brandon L.H. Chan<sup>3,2</sup>, Peter Y.M. Woo<sup>2</sup>, Carly S.K. Yeung<sup>3,2</sup>. <sup>1</sup>School of Clinical Medicine, LKS Faculty of Medicine, the University of Hong Kong, Hong Kong, Hong Kong; <sup>2</sup>The Hong Kong Neuro-oncology Society, Hong Kong, Hong Kong; <sup>3</sup>Faculty of Medicine, the Chinese University of Hong Kong, Hong Kong, Hong Kong

**Background:** Maximal safe resection followed by concomitant chemoradiotherapy (CCRT) and adjuvant temozolomide is the standard-of-care first-line treatment for patients with glioblastoma. However, whether there exists an optimal interval between surgery and CCRT remains debated. Our study aims to examine whether an earlier initiation of CCRT after resection improves overall survival (OS).

**Methods:** Records of all histologically-confirmed glioblastoma patients that underwent surgery and treated with CCRT across all seven Hong Kong neurosurgical units from 2006 to 2020 were retrospectively reviewed. Multivariable Cox regression was used to analyse the association between surgery-to-CCRT interval and OS. Conventional prognostic factors were included in the multivariable model a priori, including age, gender, pre-operative Karnofsky performance status (KPS), extent of resection and tumour MGMT-methylation.

**Results:** Of the 493 patients who satisfied the inclusion criteria, the median surgery-to-CCRT interval was 6 weeks (IQR: 2.1). All patients received CCRT within 90 days. The median OS (mOS) was 16.9 months (IQR: 11.3-28.7). A surgery-to-CCRT interval of shorter than 6 weeks was not found to be prognostic for OS compared to that beyond 6 weeks (mOS: 16.2 vs 18.7 months; HR 1.13; 95%CI: 0.93-1.36). The only independent predictors for poorer OS were a KPS  $< 80$  (HR: 1.33; 95%CI: 1.10-1.61) and unmethylated-MGMT tumours (HR: 1.70; 95%CI: 1.40-2.06). Subgroup analysis for conventional prognostic factors also did not reveal an association between surgery-to-CCRT interval and OS if treatment is initiated within 90 days.

**Conclusion:** An early initiation of CCRT within 6 weeks after surgery may not improve OS in glioblastoma patients.

## Abstracts for BASO Trainees Oral Prize Presentation at the BASO Annual Scientific Meeting: 20<sup>th</sup>-21<sup>st</sup> November 2022

8.

### EVALUATING ONLINE PATIENT HEALTH INFORMATION ON PAROTIDECTOMY - IS IT READABLE AND OF GOOD QUALITY?

Jia Yin Tan<sup>1</sup>, Yi Chuen Tan<sup>2</sup>, Darren Yap<sup>3</sup>. <sup>1</sup>Leeds General Infirmary, UK; <sup>2</sup>Queen Elizabeth Hospital, UK; <sup>3</sup>John Radcliffe Hospital, UK

Parotidectomy is considered the definitive management for benign and malignant parotid gland tumours. Complications and long-term outcomes of parotidectomy can pose a massive impact on patients' quality of life. Although there are potential benefits of obtaining health information from the internet, it has its limitations on quality and accuracy of information. This research evaluates the readability and quality of online patient health information (PHI) on parotidectomy.

Top 30 websites from Google, Yahoo and Bing were analysed using readability scores of Flesch reading-ease (FRE) test and Gunning fog index (GFI). DISCERN instrument was used to assess quality and reliability. The search terms used were "parotidectomy", "parotid surgery", "parotidectomy patient information" and "parotid surgery patient information".

53 online PHIs were analysed. The average FRE score was 50.3±9.0, indicating a material that is fairly difficult to read. GFI score showed that the material was suitable for an individual above 12th grade level. DISCERN score indicated that the PHIs had a fair quality. There was a significant difference ( $p < 0.05$ ) in FRE and DISCERN tool scores according to website category using the Kruskal-Wallis test. In our readability assessment, the average grade level of the 53 websites was above 10th to 12th grade.

In conclusion, online PHIs on parotidectomy are too difficult for the public to understand and exceeds NIH-recommended reading levels. Surgeons should guide patients to a few high-quality websites and discuss the information tailored to their priorities, to equip them with sufficient knowledge to make an informed decision on their treatment.

53.

### OUTCOMES FOLLOWING PLASTIC SURGICAL RECONSTRUCTION OF THE PELVIC EXTENTERATION DEFECT: 24 CONSECUTIVE CASES AT A UK CENTRE

Samuel Bostock<sup>1</sup>, Christina Okafor<sup>2</sup>, Aine Cotter<sup>1</sup>, Amer Durrani<sup>1</sup>, Animesh Patel<sup>1</sup>. <sup>1</sup>Addenbrooke's hospital, Cambridge, UK; <sup>2</sup>University of Cambridge, UK

**Background/introduction:** A retrospective study designed to assess surgical options used and outcomes following reconstruction following pelvic exenteration surgery.

**Method:** A retrospective notes review of patients who underwent pelvic exenteration surgery at our institution with subsequent need for plastic surgical reconstruction between the 2015 and 2021 was performed.

**Results/Discussion:** 82 patients underwent pelvic exenteration, 24 of whom needed plastic surgical input due to a resulting perineal or anterior abdominal wall defect (9M, 15F). Mean age at time of surgery was 63 +/- 9y. Locally advanced and invasive rectal Ca was the most common indication for surgery (N=14). 21 patients had pre-operative chemo and/or radiotherapy. 12 of the procedures were planned and split over 2 days. Procedure length ranged from 348 to 1685 mins (mean 816 +/- 336mins). Multiple reconstructive options were used - including VRAM flaps (N= 7), ALT (N=7), gluteal fold flaps (N=5), ORAM flap (N=2) and Vastus laterals flaps (N=2). 6 cases required 2 distinct flaps. The most common reconstructive complication was perineal wound dehiscence (n=20), others included partial flap necrosis or sub flap collection. 10 patients returned to theatre under the plastic surgery team. One patient died prior to discharge, for the others the mean LOS was 55 (SD +/- 33) days.

**Conclusion:** The overall rate of complication associated with pelvic exenteration is nearing 100%. However, some reconstructive complications are minor and may be managed conservatively. Patients should be counselled carefully pre-operatively regarding the complexity, risks and expected high complication rates of surgery and these conversations documented carefully.

11.

### THE EFFECT OF COVID-19 ON MULTIDISCIPLINARY TEAM (MDT) OUTCOMES FOR OESOPHAGOGASTRIC CANCER

Nadia Matias, Mohamed Alasmar, Jennifer Stockton, Mohamed Altarawani, Charef Raslan, Jess Cairney-Hill, Bilal Alkhaffaf. Salford Royal NHS Foundation Trust, UK

**Background/ Introduction:** SARS Cov-2 was classified as a pandemic by the World Health Organization in March 2020. This impacted cancer service delivery worldwide. Medical societies and associations around the world published emergency guidance to deal with cancer cases in response to the pandemic. This study evaluates its effect on new referrals, MDT outcomes and, eventually, the survival of patients at a tertiary Upper Gastro-Intestinal (UGI) centre in the UK.

**Method:** This case-control study includes all new referrals, with early and invasive lesions of the stomach and oesophagus from March to August, in years 2019 and 2020 respectively- Group 1 being the 2019 pre-pandemic control group and Group 2, the 2020 pandemic group. Data was sourced from MDT minutes, electronic patient records and NHS Spine platform.

**Results/ Discussion:** 439 new referrals were made in 2019 and 310 in 2020. 193 (43.96%) patients in Group 1 had MDT outcomes that advocated for curative treatment options as opposed to 124 (40%) in Group 2. One-year overall survival in Group 1 was 233 (53.08%) vs 157 (50.65%) in Group 2 ( $p$ -value = 0.512). Median time of death from the date of first MDT discussion was 109 and 108 days for Group 1 vs Group 2 respectively ( $p$ -value = 0.6245).

**Conclusion:** Our results demonstrate that MDT performance and one-year survival for UGI cancer was akin to pre-pandemic standards. However, a significant reduction in the number of new cancer diagnoses was noted, possibly affecting patient outcomes in the future. Further studies are needed to evaluate this.

## Abstracts for Ronald Raven Oral Presentation at the BASO Annual Scientific Meeting: 20<sup>th</sup> – 21<sup>st</sup> November 2022

16.

### COMPARING OPERATIVE TECHNIQUES FOR NON-PALPABLE BREAST TUMOURS: WIRE-GUIDED LOCALISATION VS LOCALISER

Nirav Vyas, Nader Bedwani, Mamun Dornseifer, Omar Ugas, Jasdeep Gahir, Bernadette Pereira. North Middlesex University Hospital, London, UK

**Introduction:** Wire-guided localisation (WGL) has been the standard operative technique for non-palpable breast tumours. LOCALISER is an alternative method, with a clinical effectiveness that may be equal to the standard while providing additional benefits regarding the patient experience.

**Method:** A single-centre, retrospective study of WGL vs LOCALISER from January 2020 to December 2021. We collected demographic and outcome data from electronic records. The primary outcome was rates of complications, this included seromas, haematomas, pain and re-excisions. Secondary outcomes included operative time.

**Results:** 21 WGL and 16 LOCALISER patients were identified. The average age was similar between the two groups (62 vs 61;  $P=0.291$ ). There were fewer complications in the LOCALISER group, however without statistical significance (1 vs 5;  $P=0.206$ ). The LOCALISER group had less re-excisions (1 vs 5;  $P=0.206$ ), with 3 of 5 patients requiring 2 margins to be re-excised in the WGL group. There was no difference in the operative time between the two groups (107 minutes vs 104 minutes;  $P=0.070$ ), sub-group analysis was not done to compare axillary node clearances and sentinel lymph node biopsies.

**Conclusion:** LOCALISER is as effective if not superior to WGL when measuring clinical outcomes. The data did not demonstrate statistical significance, however demonstrated differences which could become significant with larger patient cohorts. LOCALISER prevented the need for pre-operative procedures, which was particularly important during the COVID-19 pandemic as it reduced patient exposure and hospital attendances prior to surgery. A larger scale audit and assessing patients' experiences by collection patient reported outcomes measures (PROM) would be beneficial.

35.

### A NOVEL PROGNOSTIC HYPOXIA GENE SIGNATURE IDENTIFIES DE NOVO NUCLEOTIDE SYNTHESIS AS A METABOLIC VULNERABILITY IN GASTRIC CANCER

Bibek Das, Philip Leung, Stefan Antonowicz, George Hanna. *Imperial College London, UK*

**Introduction:** Gastric cancer is the third leading cause of cancer deaths worldwide. Hypoxia is a hallmark of solid cancers including gastric cancer and adaptation to hypoxia is associated with increased aggressiveness and treatment resistance. Novel therapies are urgently needed to target tumour hypoxia, therefore we aimed to develop a hypoxia gene signature to identify potential metabolic vulnerabilities of hypoxic gastric cancers.

**Methods:** Using a founder set of 611 previously published hypoxia-regulated genes, a gene co-expression network was created using The Cancer Genome Atlas (TCGA) Gastric Cancer (STAD) mRNA data as the training dataset. Two genes were defined as connected if Spearman's rho > 0.5. The network was partitioned into independent gene modules using the Louvain method and prognostic hypoxia genes (HR > 1, P < 0.05) were selected. Unsupervised hierarchical clustering was used to define hypoxia high, intermediate, and low groups for clinical and molecular comparison. The ACRG cohort (GSE62254, n=300) was used for external validation.

**Results:** A novel 11-gene gastric cancer hypoxia signature was derived and could predict overall and disease-free survival in both training and external validation datasets (p < 0.001). Gene Set Enrichment Analysis (GSEA) using Gene Ontology gene sets showed consistent enrichment of pyrimidine biosynthesis genes such as dihydroorotate dehydrogenase in hypoxic samples, revealing a new candidate metabolic vulnerability of hypoxic gastric cancers.

**Conclusion:** A novel gastric cancer hypoxia gene signature can be used for risk stratification and identify potential therapeutic vulnerabilities.

55.

### A MACHINE LEARNING APPROACH TO IDENTIFYING KEY DECISION VARIABLES WITHIN THE OESOPHAGEAL CANCER MDT

Navamayooran Thavanesan, Ganesh Vigneswaran, Timothy Underwood. *University of Southampton, UK*

**Background:** The drivers behind the Upper Gastrointestinal (UGI) multi-disciplinary team (MDT) treatment decisions are not always explicit. National guidelines steer these decisions however human decision-making is vulnerable to subconscious biases. Machine-Learning (ML) may let us uncover these potential biases using simple, explainable AI solutions. This study is the first application of ML which examines decision-making within the oesophageal cancer (OC) MDT.

**Methods:** We conducted a retrospective analysis of patients discussed at the OC MDT, who underwent resections between 2010-2020. Twenty possible pre-treatment clinical variables available to the MDT were used to develop a Decision-Tree (DT) model with cross-validation, to predict MDT treatment decisions (Surgery alone (S), Neoadjuvant Chemotherapy (C+S), Neoadjuvant Chemoradiotherapy (CRT+S)).

**Results:** We identified 399 cases (median age 66.1 years, range: 32-83). Mean Area Under the Curve for our model for CRT+S vs C+S, S vs C+S and S vs CRT+S were 64.3%, 77.4%, 80.8% respectively. Variable Importance analysis revealed 6 variables with the largest influence, accounting for 90.2% of total importance: age (22.0%), histology (17.2%), tumour location (15.5%), cT stage (15.4%), cN stage (11.1%), and performance status (9.0%).

**Conclusions:** Our DT model highlights key factors used by the MDT. While most are intuitive, our model suggests Age to be influential and may represent a potential unconscious bias towards chronological age rather than physiological age in determining operative fitness. The generation of such ML models from retrospective data allows us to both challenge assumptions inherent to current, and potentially inform, future MDT decisions.

68.

### UNIQUE VOLATILE SIGNATURES OF GASTROINTESTINAL CANCERS SUGGEST CELL AUTONOMOUS DRIVERS OF METABOLIC REPROGRAMMING WITH POTENTIAL FOR NON-INVASIVE DIAGNOSIS

Philip K.H. Leung, Athanasius Ishak, Bibek Das, Innah Kim, George B. Hanna. *Imperial College London, London, UK*

**Background:** Early cancer diagnosis through volatile organic compound (VOC) detection in breath and biofluids has high translational potential, as sample collection is acceptable to patients and applicable at scale. Greater understanding of the intrinsic volatile profiles of cancer cells may uncover novel, non-invasive biomarkers. Here we performed untargeted profiling of the volatile metabolome of five gastrointestinal (GI) cancers in vitro, using state-of-the-art two-dimensional gas chromatography-mass spectrometry (GCxGC-ToF-MS) to reveal the volatile landscape of GI cancer in unprecedented detail.

**Methods:** Conditioned culture media from three cell lines of each GI cancer were retrieved: oesophageal squamous cell carcinoma and adenocarcinoma, gastric adenocarcinoma, pancreatic adenocarcinoma, hepatocellular carcinoma and colorectal adenocarcinoma. VOCs were extracted from the headspace of the cell media by multi-phase (DVB/CAR/PDMS) HiSorb probes, and analysed by GCxGC-ToF-MS. Predictive discriminating models for the different GI subtypes were derived by tile-based fisher ratio analysis followed by machine learning utilising 10-fold cross-validation to prevent model overfitting.

**Results:** The predictive cross-validated scores demonstrated complete separation between the six different GI cancers, with 100% classification accuracy (AUC=1). The three independent cell lines of each cancer clustered with one another despite distinct derivation source, karyotypes, molecular phenotypes, and growth properties. This illustrates a volatile metabolic phenotype that is cancer cell type intrinsic, and independent of tumour microenvironmental influence.

**Conclusion:** We conclude that in vitro cancer models share cancer-specific volatile metabolic phenotypes. Further mechanistic work will investigate the cell autonomous drivers of these unique metabolic phenotypes in readiness for a clinical biomarker translation study in non-invasive matrices.

82.

### CHARACTERISTICS OF INDIAN STAGE IIIA AND IIIB OPERABLE LUNG CANCER PATIENTS. DO T-RATIO AND YOUNG AGE PREDICT LONG-TERM OUTCOMES?

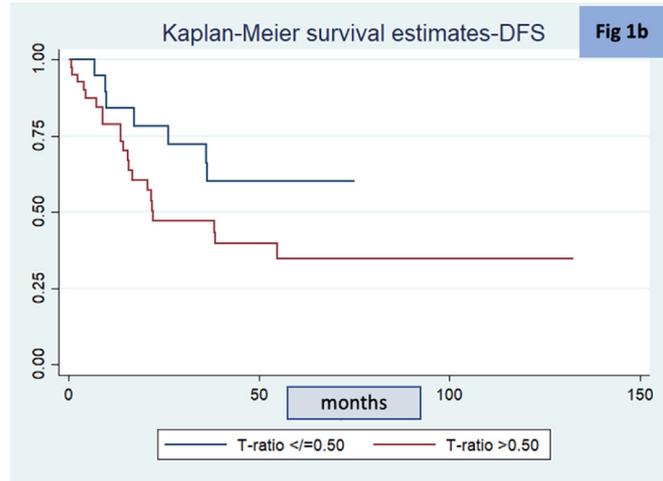
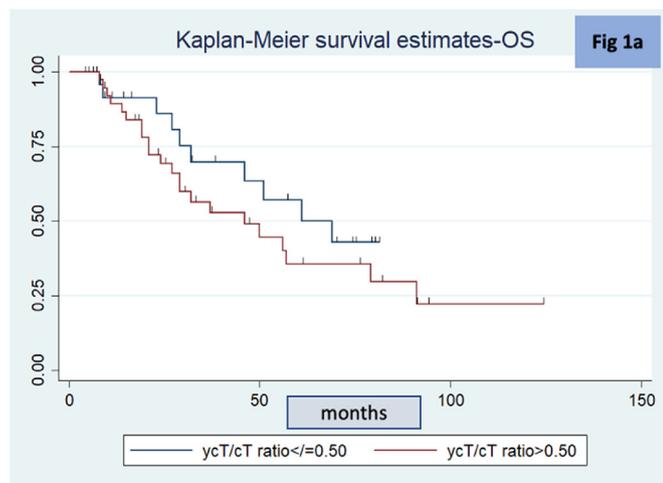
Jyotishman Saikia<sup>1</sup>, Prabhat Singh Malik<sup>1</sup>, Sachin Kumar<sup>1</sup>, Deepali Jain<sup>2</sup>, Karan Madan<sup>2</sup>, Sachidanand Jee Bharati<sup>1</sup>, Suryanarayana Deo<sup>1</sup>, Sunil Kumar<sup>1</sup>. <sup>1</sup>Institute Rotary Cancer Hospital, All India Institute of Medical Sciences, New Delhi, New Delhi, India; <sup>2</sup>All India Institute of Medical Sciences, New Delhi, New Delhi, India

**Introduction:** Young lung cancer patients are considered to be aggressive and inferior survival outcomes. However, the behavior of locally advanced (Stage IIIA-IIIB) young Indian lung cancer patients undergoing surgery has not been adequately evaluated.

**Methods:** From 2016 to 2020 patients with non-small cell lung cancer belonging to Stage IIIA and IIIB undergoing operative resection were included in the study. Data was generated prospectively from a dedicated database team who would look after the postop and follow-up details. The ratio of pre-treatment tumor size was compared with post-chemotherapy tumor size (T-ratio).

**Results:** A total of 82 total patients underwent resection. All these patients underwent some form of neoadjuvant treatment before surgery. The majority were smokers (65%) with most patients being males. The median survival was 52 months. The median T-ratio of  $\leq 0.5$  was found to be of favorable prognosis. In the post-neoadjuvant settings, a 50% reduction in T-ratio correlated trend towards improved overall survival, p=0.055 (figure

1a). The number of recurrences also increased among those with a higher T-ratio ( $p=0.064$ ), figure 1b. Patients belonging to younger age groups (<55 years) did not correlate with poor outcomes ( $p=0.821$ ).



**Figure 1. Graph showing the survival curves in the whole cohort**

**Conclusions:** Among Indian lung cancer patients' post-neoadjuvant treatment, tumor ratio plays a major role in both recurrence and overall survival. Young age did not affect outcomes in these patients suggesting the possible effect of neoadjuvant treatment. These parameters need further validation.

83.

### **SIMULTANEOUS RESECTION OF PRIMARY TUMOUR AND METASTASES FOR COLORECTAL CANCER WITH SYNCHRONOUS LIVER METASTASES: A SINGLE CENTRE EXPERIENCE.**

Elizabeth Kane, Vignesh Lakshmanan, Kulbir Mann, Eleanor James, Jane Hughes, James Arthur, Andrew Mcavoy, Robert Jones, Stephen Fenwick, Rafael Diaz-Nieto, Hassan Malik, Paul Skaife. *Liverpool University Hospitals Foundation Trust, Liverpool, UK*

**Introduction:** Approximately 22% of patients with colorectal cancer present with synchronous metastases. More patients are undergoing resection of liver metastases as surgical strategies and neoadjuvant treatments advance, shifting management from palliation to disease control. Surgical management of colorectal cancer with synchronous liver metastases is traditionally performed separately. Multiple retrospective simultaneous surgery reports deem synchronous resection feasible but outcome data are heterogeneous and limited. The aim of this study was to analyse the experience of simultaneous resection of the primary tumour and liver metastasis at a UK tertiary centre with attention to surgical, oncological

outcomes and survival benefit.

**Methods:** A prospective database between 2013–2022 was analysed for demographic, peri-operative details and surgical outcomes.

**Results/Discussion:** Ninety-seven simultaneous resections were reviewed. All patients were discussed at a regional MDT comprising colorectal, hepatobiliary and thoracic surgeons, oncologists, radiologists and pathologists. 72% were left sided (including rectal) and 28% were right sided colectomies with 69% undergoing minor and 31% undergoing major liver resections. Median operating time, blood loss and transfusion rate were comparable to non-synchronous resections. For the first 50 cases: 30-day mortality was zero and morbidity rate was 52% (Clavien Dindo III 35.5%, IV 3.2%). Stoma formation rate was 38%. Univariable Cox modelling showed survival benefit with left sided resections (HR 4.63  $p=0.006$ ) and minor liver resections (HR 4.61  $p=0.009$ ).

**Conclusion:** Simultaneous resection of colorectal cancer and liver metastases is safe with low mortality and an acceptable morbidity rate. Left sided colonic tumours and minor liver resections demonstrate better short-term survival outcomes.

**Abstracts for BASO-ACS Oral Presentation at the BASO Annual Scientific Meeting: 20<sup>th</sup>- 21<sup>st</sup> November 2022**  
29.

### **EFFECTIVENESS OF THE NEW ZEALAND MINISTRY OF HEALTH POLYP SURVEILLANCE GUIDANCE 2020 FOR SURVEILLANCE COLONOSCOPIES**

Vivien Graziadei<sup>1</sup>, Fiona Cundy<sup>1</sup>, Clare French<sup>1</sup>, Edmund Leung<sup>2</sup>. <sup>1</sup>Wairarapa Regional Hospital, Masterton, New Zealand; <sup>2</sup>Taranaki Base Hospital, New Plymouth, New Zealand

**Introduction:** In 2020 the NZ Ministry of Health set clear guidelines on surveillance colonoscopies for adenomatous and serrated polyps. The ongoing pandemic and ageing population has increased pressure on endoscopic services, making streamlining essential to balancing unnecessary colonoscopies and delayed cancer diagnosis. This study aims to determine the adherence levels to these guidelines in an accredited national bowel cancer screening unit.

**Method:** All patients due a surveillance colonoscopy from February to July 2022 are prospectively included. Recently referred symptomatic patients are excluded. Information relating to polyp number, size, histology, family history, genetic surveillance and personal history of malignancy were collected. Their scheduled colonoscopies were benchmarked against the national guidelines.

**Results:** 196 patients were identified with complete data sets. Using the guidelines, 53 (27%) colonoscopies could be taken off the register. 35 (17.86%) cases were more than 6 months overdue and 96 (48.98%) were more than 3 months. 19 (9.7%) cases could be delayed. Only 5 cases were compliant with the current guidelines ( $p=0.017$ ). Reasons for non-compliance include histology not correlating with endoscopic findings, excessive post-resectional cancer surveillance, surveillance of low-risk cases within the national bowel screening age range and surveillance of low-risk patients beyond 75 years old.

**Conclusion:** Many surveillance colonoscopies can be taken off the register using the new guidelines, avoiding unnecessary colonoscopies. Targeting the reasons for non-compliance reduces workloads and improves efficiency in an over-stretched unit. Further assessment using virtual colonoscopy for the deregistered patients to ensure no missed interval cancer is being considered.

31.

### **USE OF ICG IN ASSESSING ANASTOMOTIC PERFUSION – THE FIRST 100 CASES IN A TERTIARY COLORECTAL CANCER UNIT**

Hannah Dunlop, Peter Coyne. *Royal Victoria Infirmary, Newcastle, UK*

**Background/Introduction:** This project aimed to investigate if using intra-operative indocyanine green (ICG) fluorescence imaging to assess anastomotic perfusion in colorectal surgery affected the rate of anastomotic leak.

**Method:** Data was retrospectively collected for the first 100 patients who underwent colorectal surgery with ICG used to assess the perfusion of the anastomotic ends. The rate of anastomotic leak was calculated.

**Results/Discussion:** ICG was used in 100 patients undergoing colorectal procedures with anastomosis, from June 2016 to May 2022. 98 were elective cases, 53 patients were male with a median age of 65 years. After infusion of ICG and assessment of perfusion, the resection margin was changed in 13 procedures (13%). In cases where the resection margin was changed, there was 2 anastomotic leaks (leak rate 15%). In cases where the resection margin was unchanged, there was 3 anastomotic leaks (leak rate 3%). There was not a significant difference in the leak rate when a change in resection margin was made based on the use of ICG ( $p=0.065$ ).

**Conclusion:** The results demonstrate that the use of ICG did not significantly change the rate of anastomotic leaks in patients undergoing bowel surgery with anastomoses. However, this information indicates that poor perfusion at ICG fluoroscopy can help identify those patients at risk of leak, which can be used in post-operative monitoring of patients with cancer undergoing major colorectal surgery.

40.

#### RESECTABILITY OF PANCREATIC ADENOCARCINOMA WITHIN UK BIOBANK

Declan McDonnell<sup>1</sup>, Sam Wilding<sup>1</sup>, Christopher Byrne<sup>1</sup>, Zaed Hamady<sup>1</sup>. <sup>1</sup>University of Southampton, Southampton, UK

**Introduction:** The latest NICE guidance on pancreatic cancer states that approximately 8% of people are eligible for potentially curative surgery. We wanted to use the large UK Biobank database to determine what the operative rates were within that cohort, and what factors are associated with operability.

**Method:** The number of participants within the UK Biobank with confirmed pancreatic adenocarcinoma (PDAC) were identified by their ICD-10 code. The OPCS-4 codes for pancreatic surgery were identified amongst that respective cohort. Other factors with an established association with PDAC were also identified such as diabetes, smoking, alcohol intake, weight loss and obesity to determine their impact on pancreatic resection rates. Logistic regression was used to determine if any one factor had a greater association with operative intervention.

**Results:** 1,166 participants with PDAC were identified. 173 (14.8%) of these underwent operative intervention, of which 131 (75.7%) were Whipple's procedures. No single covariable was associated with different rates of resection.

**Conclusion:** The rates of operative intervention for PDAC within UK Biobank are almost double the figure quoted by NICE. No single factor has a particular association with resectability rates.

42.

#### MAMMAGLOBIN-A EXPRESSION IN PAIRED BREAST TUMOUR AND PLASMA SAMPLES: RELATIONSHIP TO PATHOLOGY AND 10-YEAR SURVIVAL

Liz Baker, Deborah Wilson, Pud Bhaskar. University Hospital of North Tees, Stockton on Tees, UK

**Background/Introduction:** Human mammaglobin-A is specifically expressed in breast tissue, over-expressed in some breast cancers and associated with less aggressive phenotypes. However, previous studies have predominantly determined mammaglobin-A mRNA rather than the protein expression. Therefore, this study determined mammaglobin-A protein expression in breast tumour and plasma samples and correlated these with tumour histopathology and 10-year survival.

**Method:** Breast tumour tissue and pre-operative plasma samples from 80 patients (benign or breast cancer) were analysed for mammaglobin-A protein expression by immunohistochemistry and ELISA respectively. Expression was compared with histological and clinical parameters including tumour grade, type, size and receptor status (where available). Ten-year survival analysis was also performed ( $P<0.05$  Kaplan Meier). The study had ethics approval.

**Results/Discussion:** Positive mammaglobin-A expression was observed in 52% breast tissue samples and 81% pre-operative plasma samples. There were no significant associations with tumour histopathology; e.g. for

histological grade, positive mammaglobin expression was observed in 50% benign tissue samples, 50% grade 1, 58% grade 2 and 42% grade 3 tumour samples and in plasma; 75% benign, 87% grade 1, 86% grade 2 and 71% grade 3 tumours.

The 10-year survival status was 12/80 patients had died, 8 patients were alive but had cancer recurrence and 9 were lost to follow-up. Pre-operative plasma mammaglobin-A levels significantly correlated with overall survival, with patients with low plasma levels having better survival outcome.

**Conclusions:** Pre-operative plasma mammaglobin-A levels did correlate with overall 10-year survival, however, a larger sample is needed to determine the prognostic relevance.

51.

#### FACILITATING DRAIN FREE MASTECTOMIES (+/- AXILLARY CLEARANCE): DOES THROMBIN SPRAY REDUCE POST-OPERATIVE SEROMA RATE?

Maha Buhleigah, Eleanor van der Zanden, Charles Zammit, Samy Shaheed. University Hospital Sussex, Brighton, UK

**Introduction:** Seromas are collections of serous fluid in dead space between skin flaps; a common complication post mastectomy, affecting post-operative recovery and can delay adjuvant therapy. Methods exist to prevent seromas; drains, quilting sutures or sealant sprays such as thrombin. Thrombin spray promotes haemostasis and skin flap adherence, reducing dead space. This study aims to determine if thrombin spray reduces seroma formation post mastectomy.

**Method:** This single centre prospective audit included patients undergoing a mastectomy, +/- axillary clearance, for breast carcinoma over a 10-month period. Data was collected regarding closure techniques; thrombin spray, quilting + drain or drain only. Primary outcome was seroma formation and whether they required aspiration. Secondary outcomes were length of hospital stay and breast centre drop-in clinic attendances.

**Results:** 43 female patients were included. 37 single and 6 bilateral mastectomies. 7 had axillary node clearance. 57% (11/19) of breasts with thrombin application developed a seroma, 5 requiring aspirations. 23% (3/13) seroma rate in quilting + drain group, no aspirations. 46% (6/13) of drain only breasts developed a seroma, 3 aspirations. The drain only group had the highest multiple aspiration rate, 15%, compared to 10.5% in thrombin group and none in quilting + drain group. Thrombin patients had reduced length of hospital stay and fewer attendances to the drop-in clinic.

**Conclusion:** The use of thrombin spray did not reduce seroma formation in this cohort. The fewest seromas were seen in the quilting + drain group. However, thrombin had a positive effect on secondary outcomes with reduced hospital stay and drop-in clinic attendance.

87.

#### INTEGRATED ANALYSIS OF TRANSCRIPTOMICS AND METABOLOMICS DEMONSTRATES THE ROLE OF CEREMIDE PHOSPHOETHANOLAMINES AND PHOSPHATIDYLCHOLINES IN CONFERRING RESISTANCE TO FIRST-LINE CHEMOTHERAPY IN PATIENTS WITH OESOPHAGEAL ADENOCARCINOMA

Anuja T. Mitra<sup>1</sup>, Stefan Antonowicz<sup>1</sup>, Julian Griffin<sup>1,2</sup>, George B. Hanna<sup>1</sup>. <sup>1</sup>Imperial College London, London, UK; <sup>2</sup>Rowett Institute, Aberdeen, UK

**Introduction:** Chemotherapy resistance is a major obstacle in the treatment of oesophageal adenocarcinoma patients (OAC). There is an unmet need for personalised tools that identify chemoresistant patients, so effective oncological strategies can be implemented.

**Aim:** to develop a predictive chemoresponse gene signature (CRGS) and identify metabolites that confer chemoresistance within OAC microenvironments.

**Methods:** OAC transcriptomes with matched clinical metadata were used to construct the CRGS using two datasets. Pathway enrichment analysis determined the bioinformatics functions of the CRGS. Comprehensive lipidomic profiling was performed on pre and post chemotherapy OAC

tissue (n= 40) using state-of-art ultra-high-performance time-of-flight ion-mobility liquid-chromatography mass spectrometry in positive and negative modes. Data analysis was performed on the bespoke Konstanz Information Miner KNIME platform. Metabolites were annotated against three lipidomic databases to ensure robust and accurate identification.

**Results:** LASSO regression modelling identified a 9-gene signature (EFCAB6/SNORA16B/ZFY.AS1/UPK1B/ANKS4B/F5/ZNF772/SLC4A4/AKR1B10/CA2/ACER2) demonstrating 91% sensitivity, 92% PPV and 75% NPV of predicting chemoresponse. This was independently validated with 82% accuracy. The biological relevance of the CRGS related to lipid metabolism and MD2 regulated lipid regulation domains. Principal component analysis revealed distinct lipidomes between chemoresponse and non- responders (R2X0.68, Q2X0.56). Differential lipidomic analysis demonstrated levels of ceramide phosphoethanolamines (PEcer14:2(4E,6E)/23:0),  $p < 0.03$  and phosphatidylcholines (PC16:0/ 22:5 & PC 16:0/ 18:2,  $p < 0.001$ ) were significantly higher in tumour microenvironments of non- responders.

**Conclusion:** This predictive CRGS provides a useful tool towards personalised treatment modalities in OAC. The role of ceramide phosphoethanolamines and phosphatidylcholines in conferring chemoresistance should be explored through further functional and mechanistic studies.

#### Abstracts for Poster Presentation at the BASO Annual Scientific Conference & BASO Trainees Day: 19th-21st November 2022

4.

#### DO TWO-WEEK WAIT (2WW) REFERRALS FOR BREAST PAIN ALONE CORRELATE WITH CANCER DIAGNOSIS? A DEPARTMENTAL REVIEW AND QUALITY IMPROVEMENT PROJECT

Clarissa Hjalmarsson, Jamie Banks, Emmanouil Chatzakis. Homerton Hospital, UK

**Background/Introduction:** Our department has an increasing caseload of two-week wait (2WW) referrals to the breast outpatient clinic. A proportion are referred with breast pain as their only symptom/clinical finding. A recent BJGP study demonstrated that breast pain alone correlates poorly with cancer diagnosis, despite comprising 18% of referrals. Furthermore, breast pain alone does not meet NICE criteria for 2WW referral.

This project reviews a snapshot of breast clinic referrals and evaluates the case for a breast pain (only) outpatient clinic at our hospital.

**Method:** All patients referred on 2WW pathway to the breast one-stop clinic during 17/11/2021-30/11/ 2021 were screened for inclusion. Data collected included age and GP reason for referral. For those referred with breast pain only, symptoms, imaging/biopsies undertaken, and diagnosis were recorded.

**Results/Discussion:** Of the 102 patients who met the inclusion criteria, 11 were referred exclusively with pain. Ten received imaging, and one underwent a biopsy.

Zero patients referred with pain alone were diagnosed with breast cancer. Diagnoses included cysts, calcification, and nil pathology.

These results suggest that pain only correlates poorly with incidence of breast cancer. A larger cohort of patients is needed to confirm results.

**Conclusion:** Although our sample size is small, it supports the finding that referrals for breast pain alone do not correlate with breast cancer diagnosis. In addition, all patients presenting with only pain are currently receiving imaging; this represents unnecessary radiation exposure and radiology workload.

The department is now trialling a new dedicated clinic for pain-only referrals.

6.

#### A MULTICENTRE INTERNATIONAL COLLABORATIVE COHORT STUDY ON THE MANAGEMENT AND OUTCOMES FOR T1 OESOPHAGOGASTRIC CANCER (CONGRESS)

Philip Pucher<sup>1</sup>, Sivesh Kamarajah<sup>2</sup>, Natalie Blencowe<sup>3</sup>, Ewen Griffiths<sup>2</sup>, Richard Evans<sup>2</sup>, Sheraz Markar<sup>4</sup>, Tom Crosby<sup>5</sup>, Pradeep Bhandari<sup>1</sup>, Nigel Trudgill<sup>2</sup>, Tim Underwood<sup>6</sup>, James Gossage<sup>7</sup>. <sup>1</sup>Portsmouth University Hospital NHS Trust, UK; <sup>2</sup>Birmingham,

UK; <sup>3</sup>Bristol, UK; <sup>4</sup>Oxford, UK; <sup>5</sup>Cardiff, UK; <sup>6</sup>Southampton, UK; <sup>7</sup>St Thomas's Hospital, London, UK

**Background:** Controversy remains surrounding the optimal management of patients with T1N0 early oesophagogastric (OG) cancer. Individual units may see only low numbers of patients with early stage disease; published outcome data are limited to smaller cohorts or less granular administrative databases. The endoscopic resection, esophagectomy or gastrectomy for Early oesophagogastric cancers (CONGRESS) collaborative multicentre retrospective audit aims to characterise the impact of different management strategies, including endoscopic resection (ER) and radical surgery, for early OG cancer on a large scale.

**Methods:** An international multicentre retrospective audit will be performed globally, including all patients diagnosed with T1N0 OG cancer from 2015 to 2022. Led by local and regional collaborators, centralised anonymised data capture will include all relevant diagnostic, demographic, treatment, and outcome data. Treatment will be compared to current guidelines. For cT1a disease, ER may be carried out if they are clearly confined to the mucosa, well differentiated,  $\leq 2$  cm and non-ulcerated. For cT1b disease, radical esophagectomy or gastrectomy is indicated. Treatment and disease factors will be compared to outcomes using appropriate logistic and cox regression methodology.

**Conclusion:** This will be an international audit of ER and curative surgery practice for early OG cancers. Individualised unit data will be distributed to the respective contributing sites. An overall anonymised report will be made available to contributing units. Results of audit will be published in peer reviewed journals with all collaborators acknowledged. Key information and results from the audit will be disseminated at relevant scientific meetings.

7.

#### AUDIT OF RISK FACTORS TO PREDICT THE RECURRENCE OF SALIVARY GLAND PLEOMORPHIC ADENOMAS

Jasleen Gabrie<sup>1</sup>, Soudeh Chegini<sup>1</sup>, Mark McGurk<sup>1</sup>, Simon Morley<sup>1</sup>. <sup>1</sup>University College London, UK

Recurrent pleomorphic adenomas (rPA) are often numerous, multifocal, and located distant from their original tumour site, despite their benign nature. There is a lack of consensus on the management of recurrences. This study is the largest case series published to date. This study aims to characterise the time-to-recurrence rPA, associated risk factors and multinodular nature.

A retrospective data analysis was conducted consisting of 60 cases with a diagnosis of rPA from January 2010 to March 2021 from two hospital databases. The majority of patients were referred to the senior author following incidence of rPA. Information regarding patient demographic, surgical procedures and characteristics of recurrent nodules were collated. The study cohort was stratified into subgroups and analysed for significance between risk factors (such as age, gender and surgical technique), time-to-recurrence and number/size of nodules.

The type of initial operations included 8 parotidectomy (13.33%), 35 superficial parotidectomy (56.67%), 5 extra-capsular dissection (8.33%) and 9 'other' (15%). No significant difference was found between the type of surgical procedure and rPA. Patients aged 40 and younger have a statistically shorter time-to-recurrence ( $p < 0.0001$ ). Females have an association with a shorter time-to-recurrence (0.0692). Patients with larger rPA nodules are statistically more likely to have multi-nodular disease ( $p < 0.001$ ).

These results advise clinicians to monitor younger patients closely for early recurrence. This risk may be higher in female patients. It is also advisable to anticipate multiple nodules in patients with a large rPA recurrence, even if they are not present on pre-operative imaging.

10.

#### DESMOID FIBROMATOSIS INFILTRATING LEFT ADRENAL GLAND AND KIDNEY

Sui Wu Tee, Avisha Richards, Yi Han Tan, Dhinisa Jeyabalan, Gunaseelan Durairaj. Serdang Hospital, Malaysia

Desmoid fibromatosis is a rare, benign, locally aggressive fibroblastic proliferation that may occur in almost any anatomical location. Due to its rarity and unpredictable clinical course, there has not been a standard guideline for treatment. We encountered a case of desmoid fibromatosis in our center. A 25 years old lady with no previous comorbid was referred for a symptomatic, rapidly growing left-sided abdominal mass. Otherwise, she denied any bowel-related symptoms or constitutional manifestation. Clinically, the abdominal was soft, but a 10x10 cm mass was palpable over the left flank. Imaging showed a large well-defined lobulated solid-cystic mass extending from vertebral level T10 to L5, measuring 10.5x15x23cm. The mass was in close proximity to the left adrenal gland, left kidney, pancreas, and spleen. Ultrasound guided biopsy interpreted it as a fibroblastic or myelofibroblastic tumour, favouring desmoid fibromatosis. Surgery was then performed where the mass was removed along with the left adrenal gland and kidney. Post-operative care was complicated with pulmonary embolism, pancreatitis, and abdominal collection, which was subsequently drained under ultrasound guidance. She was then referred to the oncology team for radiotherapy.

14.

**THE CREATION OF A NOVEL, TARGETED LIVER SURGICAL HANDBOOK AND COMPLIMENTARY TEACHING PROGRAMME UTILIZING A COMBINATION OF PEER-TO-PEER AND SENIOR-LED PRESENTATION DESIGNS TO OPTIMALLY UPSKILL NEW FOUNDATION TRAINEES**

Andrew Daley. Queen Elizabeth Hospital, Birmingham, UK

Foundation placements in Liver Surgery at specialist, tertiary centres demand an understanding of initial and long-term management of benign and malignant HPB conditions, procedures and complications, including liver transplantation. The breadth of knowledge required has frequently left trainees feeling overwhelmed and unprepared. This has inevitably resulted in: unnecessary escalation of trivial clinical issues; slowed decision making and, ultimately, sub-optimal teamworking and patient care. Demonstrating the need for, targeting and then implementing a pilot handbook and teaching programme at a large tertiary centre in Birmingham. Secondly, proving efficacy and evidence basis for implementation at other tertiary centres.

The need for intervention was confirmed by surveying past and present foundation trainees. Targeting of content was subsequently achieved through more detailed surveying of foundation trainees, nursing colleagues, allied health practitioners and registrars. Using this information, a handbook and, subsequently, a teaching programme was created with senior support.

Users have overwhelmingly reported that both the programme has expanded their knowledge base and improved confidence in general clinical tasks, in addition to key deficits identified in surveying which included: prescribing tasks; HPB-specific ward jobs; common surgical procedures and acute management of post-operative complications. Users have also reported increased interest in HPB surgery and increased engagement in clinical work.

1. Foundation teaching programmes improve trainee understanding, confidence, perceived competence, and speciality engagement.
2. Our work can provide a template for implementation in other centres/specialties.
3. Targeting of content to trainee needs; combining senior-led/peer-to-peer sessions and multimodality teaching are key to achieving optimal outcomes.

15.

**MICAP FLAP AS AN ALTERNATIVE TO THE GRISOTTI FLAP FOR THE RECONSTRUCTION OF THE AREOLA AFTER CENTRAL QUADRANCTOMY – PRELIMINARY EXPERIENCE**

Fabio Rapisarda, Riccardo Bonomi. University Hospitals Sussex NHS Foundation Trust, Worthing, UK

**Introduction:** The Grisotti Flap is an excellent oncoplastic option for patients with retro-areolar cancer, whereas a short nipple areolar complex (NAC) to inferior mammary fold (IMF) distance pose a challenge to the

surgeon due to lack of skin that can be transposed with the rotational flap. In this case series we are describing the use of a paddle of skin from the MICAP flap to reconstruct the areola in patients with retro areolar cancer and a short NAC to IMF distance.

**Methods:** Five patients have been diagnosed with retro-areolar breast cancer in our institution between October 2020 and December 2021. All of them required a central quadrantectomy and had a distance of NAC to IMF of less than 7 cm.

None of these patients received preoperative systemic chemotherapy or endocrine therapy. The decision whether the NAC could be preserved was preoperatively evaluated clinically and on imaging.

A standard MICAP flap was used, preserving a paddle of skin at the distal end of the flap to reconstruct the areola. Early and delayed complications were prospectively collected.

**Results:** We had one delayed haematoma (day 5 postoperative) with necrosis of the areolar skin paddle, no significant seroma and no infections.

**Discussion:** Central quadrantectomy without areola reconstruction results in poor cosmetic outcomes. Unfortunately, not all the patients are suitable for a Grisotti Flap and MICAP flap is a useful technique for those cases.

**Conclusion:** MICAP flap is a simple and reliable alternative to Grisotti flap for areolar reconstruction after central quadrantectomy.

23.

**EVALUATION OF A PILOT OF COMMUNITY VIRTUAL TRIAGE FOR BREAST SYMPTOMS**

Siobhan Laws<sup>1</sup>, Elizabeth Buse<sup>2</sup>, Kelly Spiller<sup>2</sup>, Christine Glew<sup>3</sup>. <sup>1</sup>Hampshire Hospitals NHS trust, Winchester, UK; <sup>2</sup>Wessex Rapid Investigation Service, Southampton, UK; <sup>3</sup>Winchester Rural North and East Primary Care Network, UK

**Introduction:** Breast pain alone is not a symptom of breast cancer and management outside of secondary care could increase capacity for more rapid cancer diagnosis.

Two GP clusters (population ~88,000) diverted women over 30 years with new breast symptoms to a virtual triage service. Triage was performed by specially trained nurses from the Rapid Investigation Service using a pro forma designed in collaboration with primary and secondary care. The service responded within one working day and patients were allocated primary or secondary care appointments or given advice on self-management.

A significant advantage of this project was using staff outside of current pathways.

**Method:** Outcomes in primary and secondary care were audited and patient experience independently monitored.

**Results:** In the first six months, 395 women were assessed virtually.

	Secondary care	Primary Care	Self management
First contact	201	112	56
Review	18	8	
Total	219 (55%)	120 (28%)	56 (17%)

Of 204 women seen in NHS secondary care, 11 were diagnosed with breast cancer, 5% conversion rate. It was considered that 69 could have been managed in primary care. 22/69 were for pain alone.

No cancers subsequently detected in those triaged to self-management or GP review.

29 / 31 people contacted by Wessex Voices were satisfied with the pilot. Most would recommend it to others. Timely review gave people reassurance and allayed anxieties.

**Conclusions:** Breast pain only symptoms can safely be self-managed with appropriate advice and guidance. Refinement of the process may reduce the number of women seen unnecessarily in secondary care.

30.

### A REVIEW OF THE ROLE OF TRANSFER RNAs WITHIN EXTRACELLULAR VESICLES AS A POTENTIAL MARKER IN CANCER DIAGNOSTICS

Qi Zhi Clayton Yang<sup>1</sup>, Daniel S.K. Liu<sup>1</sup>, Mohammad Asim<sup>2</sup>, Jonathan Krell<sup>1</sup>, Adam E. Frampton<sup>1</sup>. <sup>1</sup>Imperial College London, UK; <sup>2</sup>University of Surrey, UK

**Background/Introduction:** Extracellular vesicles (EVs) are present in diverse biofluids and are essential cargo carriers for intercellular communication in multi-cellular organisms. Current advances in RNA sequencing and bioinformatics have drawn attention to the wide range of small RNAs, in particular transfer RNAs (tRNAs), which represent a potential novel biomarker with unique cancer-specific profiles.

**Method:** Our systematic review was conducted in accordance with PRISMA guidelines, and a literature search using MEDLINE and EMBASE electronic databases was performed on 1 January 2022. A total of 685 papers were screened independently by 2 reviewers identifying 19 studies primarily focussing on EVs in oncological disease.

**Results/Discussion:** Studies investigating EV tRNAs in cancer accounted for 31.7% of included studies. Blood and cell culture were the most common sources (94.7%) analysed, using methods such as precipitation (57.9%) and ultracentrifugation (31.6%) for EV isolation. The largest study investigated breast cancer (BC) patients (n=176 BC, n=140 control) and found tRF-Ser-TGA-001 and tRF-Ser-TGA-002 within plasma EVs, involved with tight junction regulation, significantly lower in BC patients compared to controls. Six studies also investigated gastrointestinal cancers (stomach, oesophagus, liver and pancreas), finding large proportions of tRNAs (27%) from bile EVs and four tRNA-fragments (tRNA-Val-TAC-3, tRNA-Gly-TCC-5, tRNA-Val-AAC-5, and tRNA-Glu-CTC-5) significantly expressed in liver cancer patients.

**Conclusion:** Cancer associated EV tRNAs are novel disease biomarkers with specific expression profiles, with breast cancers and gastrointestinal cancers showing particular promise. Utilisation of EV sequencing workflows that combine these with other markers may lead to improved diagnosis and treatment for cancer patients.

34.

### KEYNOTE-689: A PHASE 3 STUDY OF NEOADJUVANT AND ADJUVANT PEMBROLIZUMAB PLUS STANDARD OF CARE (SOC) IN RESECTABLE, LOCALLY ADVANCED (LA) HEAD AND NECK SQUAMOUS CELL CARCINOMA (HNSCC)

Arkadiy Klochikhin<sup>1</sup>, Robert I. Haddad<sup>2</sup>, Amichay Meirovitz<sup>3</sup>, Sufia Safina<sup>4</sup>, Irene Brana<sup>5</sup>, Christophe Le Tourneau<sup>6</sup>, Ravindra Uppaluri<sup>7</sup>, Nancy Y. Lee<sup>8</sup>, Ezra E.W. Cohen<sup>9</sup>, Rebecca Chernock<sup>10</sup>, William Westra<sup>11</sup>, Hong Liu<sup>12</sup>, Burak Gumuscu<sup>12</sup>, Kimberly Benjamin<sup>12</sup>, Douglas Adkins<sup>10</sup>. <sup>1</sup>Yaroslavl Regional Clinical Oncology, Russian Federation; <sup>2</sup>Dana-Farber Cancer Institute, Harvard Medical School, Boston, USA; <sup>3</sup>Hadassah University Medical Center, Jerusalem, Israel; <sup>4</sup>Republican Dispensary of Tatarstan MoH, Kazan, Russian Federation; <sup>5</sup>Vall d'Hebron Institute of Oncology (VHIO), Barcelona, Spain; <sup>6</sup>Institut Curie, Paris, France; <sup>7</sup>Dana-Farber Cancer Institute and Brigham and Women's Hospital, Boston, USA; <sup>8</sup>Memorial Sloan Kettering Cancer Center, New York, USA; <sup>9</sup>UC San Diego, La Jolla, USA; <sup>10</sup>Washington University School of Medicine, St Louis, USA; <sup>11</sup>Icahn School of Medicine, New York, USA; <sup>12</sup>Merck & Co., Inc., Rahway, USA

**Introduction:** The randomized, open-label, phase 3 KEYNOTE-689 trial (NCT03765918) is designed to evaluate neoadjuvant pembrolizumab and adjuvant pembrolizumab plus SOC in previously untreated LA HNSCC.

**Methods:** Approximately 704 patients with newly diagnosed, resectable, LA HNSCC (stage III oropharyngeal p16-positive disease [T4 (NO-N2), M0]; stage III/IVA oropharyngeal p16-negative; or stage III/IVA laryngeal or hypopharyngeal disease or disease of the oral cavity, independent of p16 status), evaluable disease, and ECOG PS 0/1 will be randomly assigned 1:1 to arm A (200 mg Q3W neoadjuvant pembrolizumab [2 cycles], surgical resection, then 200 mg Q3W adjuvant pembrolizumab [15 cycles] plus SOC) or arm B (surgical resection then adjuvant SOC). For low-risk disease, SOC is adjuvant radiotherapy, 60 Gy total, 30 fractions; for high-risk

disease, SOC is adjuvant chemoradiation, 3 cycles of 100 mg/m<sup>2</sup> Q3W cisplatin plus 66 Gy total, 33 fractions; for gross residual disease, SOC is adjuvant radiation, 70 Gy total, 35 fractions. Stratification factors are primary tumor site (oropharynx/oral cavity vs larynx vs hypopharynx), tumor stage (III vs IVA), and PD-L1 status (TPS ≥50% vs TPS <50%). Primary end points: major pathologic response and EFS per RECIST v1.1. Secondary end points: OS, pathologic CR, HRQoL, and safety. End points except safety will be evaluated in the total population and PD-L1 CPS ≥1 tumors.

**Results:** Enrollment is ongoing at sites in Asia, Australia, Europe, North America, and South America.

**Conclusions:** Results will provide clarity on efficacy and safety of neoadjuvant and adjuvant pembrolizumab plus SOC in patients with LA cSCC.

37.

### SHORT AND LONG TERM OUTCOMES AFTER SURGICAL RESECTION OF TUMOURS OF THE SPLENIC FLEXURE – A TWO INSTITUTIONS' EXPERIENCE

Ashwin Rajendiran<sup>1</sup>, Ahmed Dorra<sup>2</sup>, Ahmed Abdalla<sup>2</sup>, Rami Ahmed<sup>3</sup>, Anwar Hussain<sup>2</sup>. <sup>1</sup>Whiston Hospital, Merseyside, UK; <sup>2</sup>Leighton General Hospital, Crewe, UK; <sup>3</sup>Royal Blackburn Hospital, UK

**Background:** This study was conducted as a part of our service evaluation of colorectal resections. Our primary outcomes were 30 day mortality, 90 day mortality, complication rate and recurrence rates at 3 and 5 years. The secondary outcomes were lymph node harvest >12 and length of stay.

**Methodology:** Retrospective data collection from a prospectively maintained database across two trusts over a period of 7 years (2015 - 2021). Tumors with site recorded as splenic flexure, distal transverse and proximal descending were included. Our team comprised of 30 colorectal surgeons with comparable level of experience. Data collected was processed using SPSS ver 23.

**Results:** 69 patients were included in the study. 82.6% presented with symptoms and 14.5% were from the asymptomatic screening pathway. 95.6% (66/69) were curative resections and 4.4% (3/69) were palliative. 85.5% of the patients had extended right hemicolectomy, 10.1% had left hemicolectomy and 2.9% had segmental colectomy. Out of the curative resections, 30 day mortality was 4.3% and 90 day mortality was 5.7%.

72.4% of the tumours were Duke's stage B and C1, 72.5% showed moderate differentiation. 88.4% of patients had > 12 lymph nodes harvested and 26% had harvest >25. Details regarding resection margins were available for 41/69 and 40 were R0 resections. 5.8% of patients had post op leak and 8.7% had chest complications. Median length of stay was 10 days. Recurrence rate was 2.9% at 3 years and 5.8% at 5 years.

**Conclusion:** We present our two-institutional data on resections of tumor of the splenic flexure

38.

### DID COVID-19 PANDEMIC IMPACT ON IMMEDIATE IMPLANT BREAST RECONSTRUCTION OUTCOMES: INFECTION-READMISSION-REOPERATION AND IMPLANT LOSS?

Waleed Fahmy<sup>1</sup>, Ameer Tawfeeq<sup>1</sup>, Ameer Alhusny<sup>2</sup>. <sup>1</sup>Kettering General Hospital NHS Foundation Trust, Kettering, UK; <sup>2</sup>Faculty Of Medicine University Of Queensland, Brisbane, Australia

**Introduction:** Due to Covid-19 pandemic, the Association of Breast Surgery published new guidelines in management of breast diseases including breast reconstruction.

The aim was to determine the impact of Covid-19 pandemic on immediate implant breast reconstruction outcomes.

**Methods:** Data was collected from (pre pandemic from March 2019 to February 2020) and (during pandemic from March 2020 to February 2021). The immediate breast reconstruction outcomes were recorded in the early (3 months) and delayed (one year) post operative periods, from a single General District Hospital electronic records data. All reconstructions were pre-pectoral, expanders or implants with TiLoop mesh+/-Dermal sling. Fisher Exact test was used.

**Results:** No significant associations, Table 1 and 2.

**Table 1**  
Association of the immediate breast reconstruction outcomes-early periods.

	Early Pre-COVID (n = 28)	Early COVID (n = 18)	FEp
Infection	3 (10.7%)	1 (5.6%)	1.000
Readmission	2 (7.1%)	2 (11.1%)	0.639
Reoperation	2 (7.1%)	2 (11.1%)	0.639
Implant Loss	2 (7.1%)	2 (11.1%)	0.639

FE: Fisher Exact

p: p value

**Table 2**  
Association of the immediate breast reconstruction outcomes-delayed periods.

	Delayed Pre-COVID (n = 28)	Delayed COVID (n = 18)	FEp
Infection	3 (10.7%)	1 (5.6%)	1.000
Readmission	3 (10.7%)	3 (16.7%)	0.666
Reoperation	3 (10.7%)	3 (16.7%)	0.666
Implant Loss	3 (10.7%)	3 (16.7%)	0.666

FE: Fisher Exact

p: p value

**Conclusion:** Covid-19 pandemic had no impact on immediate implant breast reconstruction outcomes. Limitations were small sample/single Centre. Covid infection is fluctuating globally (time/places). A larger study is advisory for guidelines updates.

39.

#### PROPHYLACTIC OOPHORECTOMY IN COLORECTAL CANCER RESECTION - 5 YEAR SURVIVAL FROM A RURAL CENTRE IN NEW ZEALAND.

Sophie Alpen<sup>1</sup>, Vivian Graziadei<sup>2</sup>. <sup>1</sup>Taranaki Base Hospital, New Plymouth, New Zealand; <sup>2</sup>Wairarapa Hospital, Masterton, New Zealand

**Introduction:** There is controversy whether prophylactic oophorectomy in postmenopausal women should be part of the standard of care during colorectal cancer (CRC) resection. The risk of ovarian metastasis from CRC is rare with occurrence from 0.8 to 7.4%. However, the prognosis is poor with median survival being 20 months. Current guidelines do not advocate for prophylactic oophorectomy but support removal if tumour appears to involve the ovary intraoperatively. This study aims to revisit the feasibility of ovarian preservation during CRC resection.

**Method:** 67 postmenopausal women with CRC resection between 2016 and 2017 from a regional centre in New Zealand are identified. Primary outcome parameters include overall (OS), disease-free survival (DFS) and 30-day complications rates.

**Results:** For colon cancer, DFS was 65% and 37% at 3 and 5 years respectively. For rectal cancer, DFS was 69% and 56% at 3 and 5 years respectively. x/67 had oophorectomy. Immediate complication rate was 31% for colon resection and 50% for rectal resections e.g. wound complications, anastomotic leak, abdominal collections. 1 ovary showed CRC metastasis. None of the 66 with ovaries post resection developed ovarian metastasis within 5 years. OS for colon cancer was 71% at 3 years and 59% at 5 years whereas OS for rectal cancer was 75% at 3 years and 69% at 5 years.

**Conclusion:** Our data confirms feasibility of ovarian preservation despite safe prophylactic oophorectomy. We concur the current guidelines for prophylactic oophorectomy only in selected cohort.

41.

#### DRAIN COMPLICATIONS IN BREAST CANCER SURGERY - A QUALITY IMPROVEMENT STUDY

Ryo Yoshimura, Kimberley Edwards. York and Scarborough Teaching Hospitals NHS Foundation Trust, York, UK

**Aim:** Surgical drains help facilitate healing and prevent complications after breast cancer surgery. However, there is no standard approach to drain

care and drain management is mostly guided by anecdotal evidence and clinical experience. This quality improvement study aimed to evaluate drain complications and to optimise postoperative drain care through an educational intervention.

**Methods:** A prospective baseline audit was carried out after local approval. This was exempt from ethical approval. All drains from mastectomies, axillary node dissections and breast reconstruction were recorded. For any drain issues, the type of drain complication was recorded. The number of patients repeatedly seen in the surgical assessment unit for drain complications were also recorded (as recurring drain complications).

The intervention was an educational poster, designed to guide drain management for out of hours doctors and nurses. This was distributed to surgical assessment units across two hospitals. The audit loop was closed by reassessing drain complications after implementing the intervention.

**Results:** A total of 165 patients were included in this audit, pre-intervention (N=108) and post-intervention (N=57). There was no significant change in the rate of drain complications (from 47% to 54%, p >0.4). However, the proportion of drain complications that were recurring significantly decreased (from 43% to 19%, p <0.05).

**Conclusions:** A significant proportion of drain complications were recurring drain complications. This can be addressed through a simple educational poster, with potential use across other trusts. Additional intervention is required to reduce the overall complication rate.

43.

#### PRE-OPERATIVE PLASMA MARKERS IN COLORECTAL CANCER: RELATIONSHIP TO TUMOUR PATHOLOGY AND 5, 10 AND 15-YEAR SURVIVAL ANALYSIS

Liz Baker<sup>1</sup>, Norma Robinson<sup>1</sup>, David Leaper<sup>2</sup>. <sup>1</sup>University Hospital of North Tees, Stockton on Tees, UK; <sup>2</sup>Newcastle University, Newcastle upon Tyne, UK

**Background/Introduction:** Tumour invasion and metastasis involves complex interactions between many different biological factors including proteinases, proteinase inhibitors and growth factors. The balance in the levels of these different factors will influence colorectal cancer progression.

**Method:** Preoperative plasma samples from 76 patients undergoing surgery for colorectal cancer were analysed by ELISA to determine levels of matrix metalloproteinases (MMP-1, -3, -7), tissue inhibitors (TIMP-1, -2), urokinase plasminogen activator (uPA), PA inhibitor-1 (PAI-1) (ng/ml), and growth factors (pg/ml), vascular endothelial (VEGF), transforming (TGF-β1) and basic fibroblast (bFGF). Plasma levels were correlated with the tumour pathology (Spearman's correlation coefficient) and survival analysis was performed at 5, 10 and 15-years post-operatively (Kaplan Meier, p<0.05). The study had ethics approval.

**Results/Discussion:** Preoperative plasma levels of bFGF, VEGF, TGF-β1 and PAI-1 demonstrated a significant positive correlation and TIMP-2 and uPA a negative correlation with tumour differentiation. VEGF levels also significantly correlated with vascular invasion.

The median age at surgery was 69 (range, 40-88) and at 5-year and 15-year follow-up, 30 patients and 56 patients had died respectively. The cause of death was cancer related in approximately 50% of these cases.

Plasma levels of MMP-7 correlated with overall survival analysis at 10 and 15 years and plasma-VEGF with disease-free survival at 5, 10 and 15-year survival; with patients with high plasma levels of these factors having poorer survival outcome

**Conclusion:** Pre-operative plasma levels of several biological factors, in particularly VEGF, significantly correlated with the tumour histopathology, disease-free and overall survival.

45.

#### KEYNOTE-630: PHASE 3 STUDY OF ADJUVANT PEMBROLIZUMAB IN HIGH-RISK LOCALLY ADVANCED (LA) CUTANEOUS SQUAMOUS CELL CARCINOMA (CSCC)

Jenny Lee<sup>1</sup>, Marcin Dziennis<sup>2</sup>, Chrysalyne Schmults<sup>3</sup>, Michael Schenker<sup>4</sup>, Åse Bratland<sup>5</sup>, Mikhail Klochikhin<sup>6</sup>, Markus Gifoni<sup>7</sup>, Dmitry Kirtbaya<sup>8</sup>, Julian Rivera-Diaz<sup>9</sup>, Mitchell Chipman<sup>10</sup>, Jessica L.

Geiger<sup>11</sup>, Anne L.S. Chang<sup>12</sup>, Gregory A. Daniels<sup>13</sup>, Ezra E.W. Cohen<sup>13</sup>, Lili Yao<sup>14</sup>, Burak Gumuscu<sup>14</sup>, Jianda Yuan<sup>14</sup>, Alexander Guminski<sup>15</sup>. <sup>1</sup>Chris O'Brien Lifehouse, Camperdown, Australia; <sup>2</sup>Gold Coast University Hospital, Southport, Australia; <sup>3</sup>Dana-Farber Cancer Institute, Boston, USA; <sup>4</sup>University of Medicine & Pharmacy of Craiova, Craiova, Romania; <sup>5</sup>Oslo University Hospital, Oslo, Norway; <sup>6</sup>Yaroslavl Regional SBH Clinical Oncology Hospital, Yaroslavl, Russian Federation; <sup>7</sup>Oncocentro Ceara, Fortaleza, Brazil; <sup>8</sup>Oncological Dispensary #2 of Ministry of Health of Krasnodar region, Sochi, Russian Federation; <sup>9</sup>Oncologos del Occidente S.A.S., Pereira, Colombia; <sup>10</sup>Alfred Health, Melbourne, Australia; <sup>11</sup>Cleveland Clinic, Cleveland, USA; <sup>12</sup>Stanford University Medical Center, Stanford, USA; <sup>13</sup>UC San Diego, La Jolla, USA; <sup>14</sup>Merck & Co., Inc., Rahway, USA; <sup>15</sup>Royal North Shore Hospital, St Leonards, Australia

**Introduction:** Durable antitumor activity has been observed with cemiplimab and pembrolizumab in advanced metastatic cSCC. The randomized, double-blind, phase 3 KEYNOTE-630 study (NCT03833167) will evaluate adjuvant pembrolizumab in resectable, high-risk, LA cSCC.

**Methods:** Key eligibility criteria include LA cSCC with  $\geq 1$  high-risk feature: histologically involved nodal disease with extracapsular extension, with  $\geq 1$  lymph node  $> 2$  cm in diameter or  $\geq 2$  lymph nodes involved; any index tumor with  $\geq 2$  of the following: tumor  $\geq 4$  cm with  $> 6$ -mm depth or invasion beyond subcutaneous fat, multifocal perineural invasion for nerves  $< 0.1$  mm in diameter ( $\geq 3$  foci) or any involved nerve  $\geq 0.1$  mm in diameter, poor differentiation and/or sarcomatoid and/or spindle cell histology, recurrent disease, satellite lesions and/or in-transit metastases, lymphatic or vascular involvement; any gross cortical bone, skull base, and/or skull base foramen invasion. Patients must have received adequate post-operative dose of hypofractionated or conventional RT, undergone complete macroscopic resection, and completed adjuvant RT  $\geq 4$  and  $\leq 16$  weeks from randomization. Patients will be randomly assigned 1:1 to pembrolizumab 400 mg IV Q6W or placebo for  $\leq 9$  cycles (1 year). Randomization will be stratified by extracapsular extension, cortical bone invasion, and prior systemic therapy (all, yes vs no). Primary end point: RFS. Secondary end points include OS, HRQoL, and safety.

**Results:** Planned enrolment is ~570 patients and is ongoing at sites in Asia, Australia, Europe, and North and South America.

**Conclusions:** Results will provide clarity on efficacy and safety of pembrolizumab as adjuvant treatment in patients with high-risk, LA cSCC.

50.

#### STREAMLINING THE BREAST ONCOPLASTIC MDT (OPMDT)

Louise Merker, Aqelah Almutairi, Naren Basu. University Hospitals Birmingham, UK

**Introduction:** Multidisciplinary team meetings (MDT) are recognised as the gold standard of care in a successful cancer service. They are associated with improved outcomes and patient experience. Oncoplastic breast surgery is increasingly varied with multiple techniques (breast conservation and reconstruction) available to provide oncologically safe and cosmetically acceptable long-term results. Many breast units will work closely with the local or regional plastics service to provide the full spectrum of services. The GIRFT report highlighted the importance of an OPMDT aimed at providing transparent decision making, standardisation of care and consolidating oncoplastic multidisciplinary working between breast and plastic surgeons. However, a previous audit confirmed poor attendance and structure which lacked any contemporaneous documentation.

**Method:** A simple proforma was created using Microsoft Excel incorporating key patient identifiers, cancer diagnosis, reconstructive question and logistical items such as operation date and operating surgeons.

**Results:** The proforma was prepopulated as part of the email referral and acted as a guide for the team member chairing the OPMDT. The proforma was updated in real time during the OPMDT to capture the reconstructive decisions made, any outpatient appointments required or theatre list allocation.

**Conclusion:** Following the introduction of the new proforma patient discussion has improved in quality, with the required patient information readily at hand to make accurate and safe reconstructive decisions. Administrative errors have decreased by clarifying outpatient

appointments, operating list allocation and surgeon availability thereby improving the patient experience. Our next step will be to integrate the proforma into our electronic patient system.

52.

#### DOES THROMBIN SPRAY FACILITATE MASTECTOMY (+/- AXILLARY CLEARANCE) AS A DAY CASE? A SINGLE CENTRE PROSPECTIVE AUDIT

Eleanor van der Zanden, Maha Buhleighah, Charles Zammit, Samy Shaheed. University Hospital Sussex, Brighton, UK

**Introduction:** Day case surgery improves patient outcomes, satisfaction and reduces associated costs. The British Association of Day Surgery recommends up to 70% of mastectomies could be a day case procedure. Key barriers to achieving this target lie in concerns regarding post-operative bleeding and consequent use of drains; usually requiring an overnight hospital stay. Thrombin spray is a sealant that promotes skin flap adherence, opposing the need for drains thus facilitating mastectomies as a day case procedure.

**Method:** This prospective audit includes all patients who underwent a mastectomy +/- axillary clearance at a teaching hospital over a 10month period. Data was collected on use of thrombin spray, quilting sutures + drain, drain only, and length of hospital stay and drop-in clinic attendances post discharge.

**Results:** 43 female patients were included. 37 single mastectomies and 6 bilateral cases. 7 also had axillary node clearance. 86% (12/14) of thrombin spray patients were day cases, compared to 42% (5/12) in the quilting + drain group and 15% (2/13) who had a drain only. 14% (2/14) of thrombin patients required an overnight stay compared to 58% (7/12) of quilting + drain patients; none in these groups required more than one night. 69% (9/13) of drain only patients stayed overnight with 2 further patients requiring over 2 nights. Thrombin patients had less drop-in clinic attendances post-operatively, with drain only patients having the most.

**Conclusion:** Thrombin spray increased the day case mastectomy rate of this cohort as well as reducing further care required at drop-in clinic attendances post discharge.

57.

#### PROSTATE CANCER DIAGNOSIS: THE PROMISE OF URINE BIOMARKERS

Narmina Chamedova. UEA, Norwich, UK

**Background:** Prostate Cancer (PCa) is the second most common malignancy in UK with highly heterogenous presentation and outcomes. Its heterogeneity poses a significant diagnostic challenge in accurate PCa evaluation. Particularly, as current biomarker, prostate specific antigen (PSA), is not specific or sensitive enough. Nonetheless, non-invasive urine biomarkers seem to have addressed this dilemma and this poster aims to assess their credibility.

**Methods:** Three RNA-based PCa urine biomarkers were reviewed. Prostate-specific DD3PCA3 gene transcripts were measured in non-malignant and malignant prostate specimens and in urine samples of 108 men utilizing RT-PCR. TMRSS2:ERG fusion transcripts were isolated from 19 PCa patient urines and quantified using quantitative PCR with confirmatory fluorescent in situ hybridisation (FISH). Prostate Urine Risk (PUR) signatures were derived from 535 extracellular vesicle (EV)-RNA expression profiles and assessed in the test and active surveillance cohorts. PUR signatures included: PUR-1: normal tissue, PUR-2: D'Amico low-risk, PUR-3: intermediate risk and PUR-4: high-risk PCa.

**Results:** All three urine markers have shown specificity in PCa diagnosis. DD3PCA3 was upregulated in prostate tumours by 66-times, consistently in 95% of all studied PCa specimens. Meanwhile, TMRSS2:ERG was detected in 42% of studied PCa men urine samples with correlating FISH results. Likewise, each PUR category displayed a compelling association with its respective clinical category ( $P < 0.001$ ) and ability to anticipate the presence of high-risk disease.

**Conclusions:** Urine-derived RNA biomarkers provide valuable information in PCa diagnosis. With larger multicentre studies and combination of

multiple tests there is a feasibility to optimize PCa detection and predict its aggressiveness.

59.

#### A SINGLE CENTRE REVIEW OF PATIENT REPORTED OUTCOME MEASURES (PROMS) USING THE BREAST-Q FOLLOWING DELAYED IMMEDIATE SUBCUTANEOUS IMPLANT BREAST RECONSTRUCTION

Louise Alder, Ammal Qureshi, Elaf Osman, Lucy Mansfield, Avi Agrawal, Edward St John. *Portsmouth Hospitals University NHS Trust, Portsmouth, UK*

**Introduction:** Delayed immediate subcutaneous implant (DISI) breast reconstruction can be used to bridge high-risk primary oncological breast surgery through adjuvant treatment and towards definitive reconstruction. This utilises a temporary pre-pectoral approach without an acellular dermal matrix. Our aim was to review the in-situ subcutaneous implants, assess the adherence to standards, and obtain PROMS.

**Method:** Between 2015–2020, 65 patients had DISI-based reconstruction. Median follow-up was 31 months. The Breast-Q PROMS assessment was sent to 61 consecutive patients, excluding those with implant failure or who were not alive. Post-operative reconstruction domains assessed were satisfaction with breasts, implants and abdomen. Further standards were assessed from national guidance.

**Results:** 57%(n=37) remained with subcutaneous implants(DISI) in situ whilst 35%(n=23) had had "definitive"/second-stage surgery. Breast-Q response rate was 25%(n=15), of these 66.7%(n=10) had definitive surgery, whilst 33%(n=5) had the DISI in-situ. Mean Breast-Q satisfaction with breasts across this group was 58(SD18). In the definitive surgery group this was 60(SD18), versus 52(SD11) in the DISI group (p=0.4).

**Discussion/Conclusion:** Seth et al, 2021 reported a score for Breast-Q Satisfaction with Breasts across 42 studies as 51.1–82.0, our figure was similar. There was no significant difference in those with definitive surgery versus DISI with breast satisfaction. The response rate was low but similar to reported response rates. Patients who had "definitive" surgery had a higher response rate to PROMS. Further review of patient satisfaction and rationale behind not having their definitive surgery is warranted.

60.

#### IS GROUPING AND SAVING ACTUALLY COSTING? RATIONALISING GROUP AND SAVE FOR ELECTIVE RIGHT HEMICOLECTOMY

William Thompson, Hse Juinn Lim, Mohamad Kamarizan, Palanichamy Chandran. *Wrexham Maelor Hospital, Wrexham, UK*

**Introduction/ Background:** Most hospitals in the UK send group and save (G&S) samples prior to elective right hemicolectomy. With cost implications. We looked at right hemicolectomy outcomes to assess whether this test necessary pre operatively.

**Methods:** Retrospective analysis of Wrexham Maelor patients aged 18 years or over undergoing elective right hemicolectomy from January 2019 to December 2019. G&S and crossmatch requests, pre and post-op haemoglobin levels and transfusion data and costs recorded.

**Results:** Thirty-seven patients had an elective right hemicolectomy (27 malignancy, 2 inflammatory bowel, 8 other.) Mean age 71 (range 23–89 years), 19 male (51.4%), 18 female (48.6%). All patients had a pre-operative G&S processed and 3 patients (8.1%) had a crossmatch.

Seventy two G&S (93.5%) and 3 crossmatch samples were processed pre operatively. Mean haemoglobin level pre-op 122 g/L (range 90–146 g/L), post-op 111 g/L (range 87–136 g/L). There were no intra operative blood transfusions, 1 patient received 1 unit of blood post operatively (2.7%). Total cost G&S (£2126.16) and crossmatch (£83.43.)

**Discussion:** Evidence for pre-operative G&S for elective surgical procedures is limited. Decision based on clinical judgement/ preference of the operating surgeon.

Blood transfusion is uncommon for an elective right hemicolectomy. Major intra-operative bleeds are managed using O negative and Rhesus negative

blood, available in operating theatres, negating the need for routine G+S. **Conclusion:** One or less G&S samples would be adequate for elective right hemicolectomy, reducing cost.

61.

#### REGIONAL IMMEDIATE DEEP INFERIOR EPIGASTRIC PERFORATOR (DIEP) FLAP FOR IMMEDIATE BREAST RECONSTRUCTION: A COLLABORATIVE MULTIDISCIPLINARY COMPARATIVE AUDIT IN THE INFORMATION TRANSFER IN LOCAL VERSUS REGIONAL REFERRALS

Elaf Osman<sup>1</sup>, Matthew Archer<sup>2</sup>, Jamie Mawhinney<sup>2</sup>, Louise Alder<sup>1</sup>. <sup>1</sup>Portsmouth Hospitals University NHS Trust, Portsmouth, UK; <sup>2</sup>Wessex Deanery, Hampshire, UK

**Introduction:** DIEP autologous breast reconstruction is considered the "gold" standard - maintaining good oncological outcomes, cosmesis and patient satisfaction following mastectomy. Portsmouth Hospitals University NHS Trust(PHU) has had an increase in the regional referrals with ongoing local population demand. Our aim is to ensure excellent standards for both regional and local referrals and introduce a high quality of information transfer checklist for an accelerating regional service.

**Method:** This was a retrospective cohort audit between April 2021–May 2022 for all immediate DIEPs with mastectomy for B5a/b or B3 lesions, patient choice or BRCA patients. Local and regional referral information was reviewed including radiological images, histopathology reports, MDT and the referral letter for discussion of breast cancer details, axillary options, and MDT discussion.

**Results:** There were 33 patients resulting in 41 mastectomies and 45 DIEPs. 66%(n=22) were for cancer (B5a/b), 3%(n=1) for B3 papillomatosis, 30%(n=8 BRCA, n=2 patient choice) were for risk reduction. 64%(n=21) of the patients were local referrals, whilst 36%(n=12) were regional referrals across Hampshire and Dorset. Local referrals met the standards in all parameters except documentation of axillary options. For regional referrals we received only 8.3%(n=1) of MDT records, 16.7%(n=4) of axillary options discussion and 75%(n=9) of online radiology and referral letters discussing options.

**Conclusion:** Following focus group meetings in the regional network, an internal checklist and external referral pathways are being developed to ensure high standards of care for local and regional referrals alike with a view to re-audit.

62.

#### THE INFLUENCE OF ANATOMICAL SPACES ON CANCER PROGNOSIS

Avani Shanbhag. *School of Anatomy, University of Bristol, UK*

**Background:** Anatomical spaces are defined by the author as permanently present spaces in the body and are further categorised into true and physiological. True anatomical spaces are formed by the borders of other structures, while physiological anatomical spaces are of hollow viscera. This study aims to investigate the influence of true and physiological anatomical spaces on cancers associated with a poor prognosis, specifically their role in causing diagnostic delay, asymptomatic disease progression and presentation at advanced stages.

**Methodology:** A systematic review was completed through Web of Science. The literature explored tumours of the following anatomical spaces: ovarian fossa, lesser sac, pyriform sinus, maxillary sinus, oesophagus and bladder. To justify comparisons, all tumours explored were carcinomas, specifically selected due to their poor prognosis.

**Results:** The literature suggests that successful completion of the invasion-metastasis cascade is likely to have a greater significance in causing a poor prognosis than the presence of an anatomical space. However, the associated space in ovarian, pyriform sinus, maxillary sinus and oesophageal carcinomas could have a role in the successful completion of this cascade and therefore silent advancement of the tumour. Additionally, difficult visualisation of true spaces may be a key factor in causing delayed diagnosis.

**Conclusion:** There is difficulty in comparing the impact of anatomical spaces on poor prognosis, although it is possible that true anatomical spaces have a greater negative impact compared to physiological spaces.

However, further research is required to control other significant variables and identify the true implications of anatomical spaces in cancer prognosis.

63.

#### A RETROSPECTIVE ANALYSIS OF IMMUNOTHERAPY TOXICITIES IN SOLID TUMOUR PATIENTS

Avani Shanbhag<sup>1</sup>, Omar Khan<sup>2</sup>. <sup>1</sup>University of Bristol Medical School, Bristol, UK; <sup>2</sup>Great Western Hospital, Swindon, UK

**Background:** Immunotherapy is a new cancer treatment which, unlike cytotoxic chemotherapy or targeted agents, works by removing checkpoint blockade utilised by tumours to evade the immune response. The aim of this retrospective analysis was to evaluate the toxicities in solid tumour patients treated with immunotherapy.

**Methodology:** A background literature search was completed through Web of Science and the relevant papers were reviewed. Clinical records were accessed from the Medway electronic database of patients who received immunotherapy at Great Western Hospital NHS Foundation Trust in 2019 and toxicities were collated. Information collected included tumour site, type of immunotherapy, reason for discontinuation as well as incidence, type, grade and time to onset of toxicity.

**Results:** Data from 73 patients were analysed. 75% of them had lung cancer and almost two-thirds received Pembrolizumab. Patients stopped treatment due to either disease progression (35.6%), unacceptable toxicity (49.3%) or completing the 2-year treatment course (16.4%). Although 27.4% of patients experienced no toxicities during treatment, 72.6% of patients experienced at least one toxicity, with only 2.6% of all toxicities recorded as grades 3 and 4 according to the CTCAE classification. The most common toxicity observed was dermatological (30.1%), which were all grades 1/2 and on average presented 11.7 weeks after starting treatment.

**Conclusion:** Although immunotherapy has a high incidence of toxicities, the majority are mild to moderate with only 2.6% graded as severe, which is remarkably similar to other published studies. Further research into the causes of these toxicities is required to aid in preventing them.

64.

#### BLADDER CANCER OUTCOMES ARE DISPROPORTIONATELY POORER IN FEMALES AND YOUNGER PATIENTS: A CONTEMPORARY REVIEW OF OUTCOMES AT A TERTIARY REFERRAL CENTRE FOR CYSTECTOMY

Madhavi Natarajan<sup>1</sup>, Nicola Annels<sup>2</sup>, Wissam Abou-Chedid<sup>1</sup>, Dimitrios Moschonas<sup>1</sup>, Krishna Patil<sup>1</sup>, Murthy Kusuma<sup>1</sup>, Ben Haagsma<sup>1</sup>, Hardev Pandha<sup>1</sup>, Matthew Perry<sup>1</sup>. <sup>1</sup>Royal Surrey Hospital, Guildford, UK; <sup>2</sup>University of Surrey, Guildford, UK

**Introduction:** Bladder cancer is diagnosed in 28 patients/ day in the UK (male:female ratio = 3:1). A quarter of these patients have muscle-invasive bladder cancer (MIBC) which has a 5-year disease free survival of 45%. Neoadjuvant chemotherapy improves overall survival by 6% in patients with MIBC. Females and younger patients present with more aggressive disease and have a disproportionately worse mortality rate.

**Methods:** Contemporary review of histology and 5-year overall survival of patients undergoing radical cystectomy at a UK tertiary referral centre between 2013 and 2018.

**Results/Discussion:** 196 males and 61 females underwent radical cystectomy during the period analysed. 110 (56%) males had MIBC; of these 51 (46%) received neoadjuvant chemotherapy. 44 (72%) females had MIBC; 16 (36%) had neoadjuvant chemotherapy. 15/17 (88%) females <65 years of age undergoing cystectomy had MIBC, vs. 31/60 (52%) males (p<0.005). 5-year overall survival for patients with MIBC aged <65 at surgery is a third higher for males vs females.

**Conclusions:** The reasons behind the discrepancy in outcomes for females and younger patients is unclear. Contributing factors may include access to healthcare, management of urinary tract infection, as well as immunological differences between patient groups. Furthermore, neoadjuvant

chemotherapy uptake amongst patients with MIBC differs between males and females for multifactorial reasons. This warrants further investigation of patient and clinician-led factors that could improve detection of bladder cancer and treatment strategies for patients with more aggressive disease.

65.

#### DOES MAGSEED GUIDED LOCALISATION OF IMPALPABLE BREAST LESIONS REDUCE RE-EXCISION RATES FOLLOWING BREAST SURGERY? – EARLY EXPERIENCE OF 100 CASES

Sunita Shrotria, Omer Husain. Breast Unit, Ashford & St Peters NHS Trust, Middlesex, UK

Breast surgery for impalpable breast cancer and B3 lesions has been traditionally done with wires to localise the lesion. This has drawbacks with patients experiencing pain, problems with organising radiology, migration potential, delays in scheduling etc, however the surgeon has to estimate the depth of the wire tip to avoid cutting into the lesion. The availability of magseed address the above, but the crucial test is whether it helps identify and remove the lesion with precision.

**Patients:** The magseed technique was introduced in the department in late 2019. We included the last 100 patients from 2017 - 2019 who had wire localisations and the first 100 who had magseed guided surgery in 2019 - 2020. The procedures were carried out by the same team of 5 surgeons and 3 radiologists.

**Results:** The median age of patients was 65 vs 60 years in the wire vs magseed group. The groups had similar finding of invasive disease (70% vs 65%) and 7% had positive sentinel nodes. The rate of DCIS was higher in the magseed group (22% vs 12%). The tumour size range was 1.2 mm to 62 mm. The re-excision rate was 14% in the wire vs 7% in the magseed group. The tumour grade and receptors showed no significant difference.

**Conclusion:** The Magseed technique for localising impalpable breast lesions has shown significant reduction (nearly 50%) in reoperation for margins. This early experience shows Magseed has merit, not just for logistical reasons but more importantly for accurately accessing and removing the target lesion.

66.

#### SCARLESS AXILLARY SURGERY - AVOIDING AXILLARY INCISION FOR RETRIEVING LYMPH NODES IN BREAST CANCER SURGERY

sunita shrotria. Breast unit, Ashford & St Peters NHS Trust, Middlesex, UK

Breast surgery for cancer involves removal of tumours either by wide excision or mastectomy with sentinel node biopsy or clearance. The axillary exploration is useful for staging and for local control. The axillary scar may often be painful with problems like restricted arm movement, frozen shoulder, inability to remove hair in the armpit etc. Patients are advised to avoid deodorants and antiperspirants near the scar.

For access the use of two incisions one for the breast and one for the axilla is common. I have tried to avoid the axillary incision - instead I have used the breast incision in suitable patients.

**Patients:** Breast tumours are accessed through several incisions. The peri-areolar incision was described in my early paper on minimising breast incisions. In 12 patients operated for cancer - the surgery was through the peri-areolar incision in 8, reduction (therapeutic mammoplasty) incision in 2 and mastectomy incision in two. The patients were asked for feedback during clinical review. Complications were recorded and information about pain and change in sensation obtained.

**Results:** All patients reported relief at not having an axillary incision. The most frequent complication was seroma which settled without intervention. One patient needed axillary clearance later. In one patient with high BMI, conversion to an axillary scar was required. The arm mobility remained good for all patients.

**Conclusion:** Access to the axilla is achievable through breast incisions with careful patient selection and suitable instruments. The benefits of avoiding an axillary incision justify attempts to explore the axilla through minimal scars.

67.

### RECONSTRUCTIVE CHALLENGES OF DERMATOFIBROSARCOMA PROTUBERANS IN THE FEMALE BREAST FOLLOWING SLOW MOHS SURGERY: A CASE SERIES

Serena Li<sup>1</sup>, Animesh Patel<sup>2,1</sup>. <sup>1</sup>University of Cambridge, Cambridge, UK; <sup>2</sup>Addenbrooke's Hospital, Cambridge, UK

**Introduction:** DermatoFibroSarcoma Protuberans (DFSP) is a rare, slow-growing, locally aggressive skin sarcoma. Slow Mohs surgical excision of DFSP is the accepted gold-standard management. However, as this can result in significant defects, DFSP specifically in the female breast presents reconstructive challenges due to the cosmetically sensitive nature of the region. Furthermore, the literature surrounding breast DFSP is scarce. We report a case series of three female patients who underwent slow Mohs excision of breast DFSP followed by delayed reconstruction

**Method:** Patient records were reviewed retrospectively from presentation to their most recent clinic visit post-reconstruction. The outcome was measured using two aspects, surgical (by recurrence) and cosmetic (by the BREAST-Q).

**Results:** The patients were diagnosed between 2017 and 2019 and biannual follow ups have shown no recurrences so far. The patients were aged 34, 34 and 81 at time of diagnosis. Slow Mohs excisions resulted in large skin and volume defects.

Reconstruction was carried out within three weeks after excision (after histological confirmation of clear margins), and utilised a pedicled ThoracoDorsal Artery Perforator (TDAP) flap, a free microsurgical Anterolateral Thigh (ALT) flap and a split skin graft for the 3 patients respectively. All wounds healed uneventfully.

All patients reported scores of greater than 90/100 regarding satisfaction with the surgical team and 80/100 or more for physical wellbeing of their chest.

**Conclusion:** Mohs excisions of breast DFSP results in complex defects. The reconstructive surgeon should be familiar with the full range of reconstructive options to satisfactorily replace skin and restore breast contour.

69.

### AN INSTITUTIONAL SHIFT FROM ROUTINE TO SELECTIVE DIVERSION OF LOW ANASTOMOSIS IN TME SURGERY FOR RECTAL CANCER PATIENTS USING THE KHANS TECHNIQUE – A SINGLE-CENTRE, RETROSPECTIVE STUDY

Rauand Duhoky, Marieke Rutgers, Ioannis Mykoniatis, Najaf Siddiqi, Syed Naqvi, Jim Khan. *Portsmouth Hospitals University NHS Trust, Portsmouth, UK*

**Introduction:** In recent years there has been a change in practice for diverting stoma's in rectal cancer surgery, shifting from routine diverting stoma's to a more selective approach. More and more studies suggest that the benefits of temporary ileostoma's don't live up to its risks, such as high output stoma's, stoma dysfunction, and reoperation.

**Methods:** We included all rectal cancer patients treated with a robotic resection in Portsmouth from 2013 to 2021. In 2016 our unit made a shift to a more selective approach in temporary diverting ileostoma's. We divided our cohort up into a routine diversion group treated before 2016 (group A) and a selective diversion group treated after 2016 (group B). We analyzed these groups for short-term outcomes and morbidities.

**Results:** In group A, 63/70 patients (90%) had a diverting stoma compared to 98/135 patients (72.6%) in group B ( $p=0.004$ ). The only significant difference in baseline characteristics was in neoadjuvant treatment (17.1% in group A vs 7.4% in group B,  $p=0.011$ ). There were no significant differences between the groups in anastomotic leakages (11.8% vs 17.8%,  $p=0.312$ ) or other complications ( $p=0.117$ ). There were also no significant differences in readmission (2.9% vs 5.2%,  $p=0.721$ ) or reoperation (2.9% vs 1.5%,  $p=0.607$ ) after stoma closure. After 1 year 71.6% and 71.9% ( $p=1.000$ ) of patients were stoma-free.

**Conclusion:** Our study shows that a more selective approach in diverting stoma's for robotic rectal cancer patients does not lead to more complications or leaks, and can be considered in the treatment of rectal cancer tumours.

70.

### THE USEFULNESS OF THE APACHE II SCORE AS A PROGNOSTIC INDICATOR OF SSI OCCURRENCE IN PATIENTS AFTER COLORECTAL SURGERY

Georgios-Ioannis Verras<sup>1</sup>, Francesk Mulita<sup>1</sup>, Konstantinos Bouchagier<sup>1</sup>, Vasiliki-Danai Dafnomili<sup>1</sup>, George Skroubis<sup>1</sup>, Dimitrios Velissaris<sup>2</sup>, Karolina Akinosoglou<sup>2</sup>, Ioannis Maroulis<sup>1</sup>. <sup>1</sup>Department of Surgery, General University Hospital of Patras, Patras, Greece; <sup>2</sup>Department of Internal Medicine, General University Hospital of Patras, Patras, Greece

**Background:** The APACHE II score is a well-known clinical predictor of the physiological status of severely ill patients. It is also widely implemented in the monitoring of postoperative surgical patients. The scope of this single-center retrospective study is to evaluate the utility of the APACHE II score in predicting the occurrence and severity of SSIs in colorectal patients.

**Methods:** In total, data from 402 consecutive colorectal surgical patients from the General University Hospital of Patras were studied. The inclusion period was a three-year time span, from 2019 to 2022. The definition of SSI incidence was based on WHO's classification of SSI and determined by a team of attending physicians. APACHE II score measurements were obtained for each patient on the 1st, 3rd, and 5th postoperative days. The association between APACHE II score and SSI incidence was examined with the Chi-Squared test for statistical significance when considering the score value as a categorical variable. A comparison of average APACHE II scores was done with the Mann-Whitney U test.

**Results:** On univariate analysis, the APACHE II score was not found to have a statistically significant association with the occurrence of SSI in colorectal surgical patients. Comparison of categorical APACHE II values on the 1st, 3rd, and 5th postoperative days returned p-values of 0.083, 0.382, and 0.365. There is no evidence of a systemic correlation between physiological compromise and SSI incidence.

**Conclusions:** The APACHE II score was not associated with SSI incidence in postoperative colorectal surgery patients.

71.

### A SIGNIFICANT ASSOCIATION OF THE APACHE II PHYSIOLOGICAL SCORE WITH THE DEVELOPMENT OF COMPLICATIONS IN THE POSTOPERATIVE COLORECTAL PATIENT

Georgios-Ioannis Verras<sup>1</sup>, Francesk Mulita<sup>1</sup>, Konstantinos Bouchagier<sup>1</sup>, Vasiliki-Danai Dafnomili<sup>1</sup>, Ioannis Perdikaris<sup>1</sup>, Panagiotis Perdikaris<sup>1</sup>, Dimitrios Velissaris<sup>2</sup>, Karolina Akinosoglou<sup>2</sup>, Ioannis Maroulis<sup>1</sup>. <sup>1</sup>Department of Surgery, General University Hospital of Patras, Patras, Greece; <sup>2</sup>Department of Internal Medicine, General University Hospital of Patras, Patras, Greece

**Background:** The APACHE II clinical score is one of the most widely utilized clinical scores for disease severity and early prognostic predictor of mortality. This retrospective study aims to examine whether there is an association between the calculated APACHE II score and the development of septic complications in colorectal surgical patients.

**Methods:** The corresponding data were collected from consecutive colorectal surgical patients in a single institution for a three-year period. Septic syndrome was defined in accordance with the latest Sepsis-3 definitions. 43 patients developed septic complications, of which 17 (39.5%) were attributed to postoperative leaks. These patients were compared with a control cohort of 357 patients who were uncomplicated. APACHE II scores were calculated on the 1st, 3rd, and 5th postoperative days.

**Results:** The APACHE II scores were significantly associated with the presence or not of septic complications. APACHE II scores differed significantly in septic vs non-septic patients on the 1st postoperative day ( $p<0.001$ ), 3rd postoperative day ( $p<0.001$ ), and 5th postoperative day ( $p<0.001$ ), with septic patients scoring higher, irrespective of their day of complication occurrence. This difference also held true when septic patients secondary to leakage were compared to the control cohort ( $p$ -values of 0.032, 0.023, and 0.017 respectively).

**Conclusions:** The APACHE II clinical score is an easy-to-calculate, zero-cost clinical tool that is strongly positively associated with the development of

septic complications in colorectal patients. Its usefulness could be utilized in the development of predictive tools.

72.

### THE SIMULTANEOUS USE OF APACHE II AND NEWS II CLINICAL SCORES IN POSTOPERATIVE MONITORING OF THE COLON AND RECTUM SURGICAL PATIENT

Francesk Mulita<sup>1</sup>, Georgios-Ioannis Verras<sup>1</sup>, Konstantinos Bouchagier<sup>1</sup>, Vasiliki-Danai Dafnomili<sup>1</sup>, George Skroubis<sup>1</sup>, Ioannis Perdikaris<sup>1</sup>, Panagiotis Perdikaris<sup>1</sup>, Dimitrios Velissaris<sup>2</sup>, Karolina Akinosoglou<sup>2</sup>, Ioannis Maroulis<sup>1</sup>. <sup>1</sup>Department of Surgery, General University Hospital of Patras, Patras, Greece; <sup>2</sup>Department of Internal Medicine, General University Hospital of Patras, Patras, Greece

**Background:** Although highly popular among clinicians and intensive care specialists, the APACHE II and NEWS II clinical scores are not widely documented in the monitoring of complications during the postoperative period of colorectal surgical patients. The rationale behind the present study is to see whether the simultaneous evaluation of a multitude of clinical parameters, as provided by both these scores, could be associated with the development of postoperative septic complications.

**Methods:** We evaluated data from 403 consecutive colorectal surgical patients from a single institution. In order to evaluate the correlation between the development of septic complications and clinical scores, we constructed a binomial logistic regression model, utilizing the daily recorded values of postoperative APACHE II and NEWS II scores, incorporating the measurements of all recorded physiological parameters for each score.

**Results:** In total, 43 patients developed septic complications within our cohort. NEWS II score on admission was an independent factor associated with the development of postoperative sepsis [OR: 1.65 (95% CI: 1.10-2.49)]. Significance was also proven for the correlation between NEWS II score on the 3rd postoperative day and occurrence of sepsis [OR: 1.70 (95% CI: 1.09-2.63)]. APACHE II scores were not correlated with sepsis development on any postoperative day, as an independent prognostic factor.

**Conclusions:** When examined simultaneously, the NEWS II scores on admission, and on the 3rd postoperative day of colorectal surgical patients, were significantly and independently associated with the development of postoperative sepsis.

73.

### DEVELOPMENT OF A PREDICTIVE MODEL FOR SURGICAL SITE INFECTIONS IN COLORECTAL PATIENTS BASED ON BUTYRYLCHOLINESTERASE PLASMA LEVELS

Georgios-Ioannis Verras<sup>1</sup>, Francesk Mulita<sup>1</sup>, Konstantinos Bouchagier<sup>1</sup>, Vasiliki-Danai Dafnomili<sup>1</sup>, George Skroubis<sup>1</sup>, Ioannis Perdikaris<sup>1</sup>, Levan Tchabashvili<sup>1</sup>, Elias Liolis<sup>2</sup>, Charalampos Kaplanis<sup>1</sup>, Karolina Akinosoglou<sup>2</sup>, Dimitrios Velissaris<sup>2</sup>, Ioannis Maroulis<sup>1</sup>. <sup>1</sup>Department of Surgery, General University Hospital of Patras, Patras, Greece; <sup>2</sup>Department of Internal Medicine, General University Hospital of Patras, Patras, Greece

**Background:** The present study is the first to evaluate the use of BChE as an indicator of infectious ailments, and more specifically surgical site infections (SSI) in postoperative colorectal patients.

**Methods:** We amassed the results of 403 postoperative patients in total. 61 of which developed postoperative SSI. A binomial, multiple logistic regression model was constructed, using BChE levels on the 1st, 3rd, and 5th postoperative days as the basic predictors. The predictors evaluated, included the operation's duration, patient gender, age, presence or not of malignancy, emergency or elective operation, open or laparoscopic operations, length of hospital stay, number of transfused pRBC units, and ASA score.

**Results:** After applying the stepwise regression algorithm, the predictors that comprised the best fit model, were BChE levels on the 1st, 3rd, and 5th postoperative days, patient gender, age, ASA score, presence of malignancy, and length of hospital stay (AIC: 97.1, McFaddens R2: 0.735). BChE levels on the 1st and 3rd postoperative days were significant independent predictors

of SSI ( $p < 0.001$ ). ASA score and malignancy status were also significant independent predictors, with OR for SSI development: 0.138 (95%CI 0.0385 – 0.495) for ASA < 2, and 0.190 (95%CI 0.052 – 0.687) for non-malignancy vs malignancy. Overall, the model achieved an accuracy of 95.2%, with a specificity of 85.2% and sensitivity of 97.8%, with an AUC of 0.981.

**Conclusions:** Postoperative BChE levels were not only an independent predictor for SSI incurrence but showcased excellent predictive capabilities for SSI incurrence in postoperative colorectal patients.

74.

### BUTYRYLCHOLINESTERASE LEVELS AS A PREDICTIVE FACTOR OF SEPTIC COMPLICATIONS DEVELOPMENT IN THE POSTOPERATIVE PERIOD OF COLORECTAL PATIENTS: UNIVARIATE ANALYSIS AND PREDICTIVE MODELING

Francesk Mulita<sup>1</sup>, Georgios-Ioannis Verras<sup>1</sup>, Konstantinos Bouchagier<sup>1</sup>, Vasiliki-Danai Dafnomili<sup>1</sup>, Ioannis Perdikaris<sup>1</sup>, Panagiotis Perdikaris<sup>1</sup>, Angelos Samaras<sup>1</sup>, Andreas Antzoulas<sup>1</sup>, Fotios Iliopoulos<sup>1</sup>, Karolina Akinosoglou<sup>2</sup>, Dimitrios Velissaris<sup>2</sup>, Dimitrios Bousis<sup>2</sup>, Ioannis Maroulis<sup>1</sup>. <sup>1</sup>Department of Surgery, General University Hospital of Patras, Patras, Greece; <sup>2</sup>Department of Internal Medicine, General University Hospital of Patras, Patras, Greece

**Introduction:** Despite the multiple associations with several inflammatory states, Butyrylcholinesterase (BChE) is not yet studied in the surgical population. The scope of our study is to examine the association between serum BChE levels and the development of postoperative septic complications.

**Methods:** Data collected included serum BChE levels on the 1st, 3rd, and 5th postoperative days.

**Results:** After a 3-year period, we collected data on 402 patients. Of them, 43 developed postoperative sepsis, and 359 had uncomplicated postoperative courses. In the univariate analysis, average BChE levels did not differ significantly on the 1st postoperative day between the two groups (4.61 KU/L vs 4.68 KU/L,  $p=0.904$ ). However, on the 3rd postoperative day, BChE levels were significantly lower in patients with septic complications (4.22 KU/L vs 4.54 KU/L,  $p=0.015$ ), a difference that also persisted on the 5th postoperative day (4.45 KU/L vs 4.73 KU/L,  $p=0.029$ ). On the multivariate analysis, after adjusting for gender, age, malignancy status, length of hospital stay, ASA score, elective vs emergency status, and laparoscopic vs open approach, the BChE levels on the 3rd and 5th postoperative days, remained significant negative predictors of septic complication incurrence. Lastly, the resulting model had a high predictive value for septic complications, with an overall accuracy of 83.8%, specificity of 91.4%, the sensitivity of 72.2%, and an AUC of 0.886.

**Conclusions:** Serum BChE level is a widely available, low-cost biomarker that is of high prognostic significance in the development of septic complications in colorectal patients.

78.

### DEEP LEARNING FOR COLON CANCER: OUR EXPERIENCE AND A REVIEW OF THE LITERATURE

Francesk Mulita<sup>1,2</sup>, Georgios-Ioannis Verras<sup>1</sup>, Konstantinos Kotis<sup>2</sup>, Christos-Nikolaos Anagnostopoulos<sup>2</sup>. <sup>1</sup>Department of Surgery, General University Hospital of Patras, Patras, Greece; <sup>2</sup>Intelligent Systems Lab, Department of Cultural Technology and Communication, University of the Aegean, Mytilene, Greece

**Introduction:** Colorectal cancer (CRC) is one of the most common types of gastrointestinal cancer with high incidence and mortality rates in developed countries. This type of malignancy ranks third in the USA among cancers diagnosed in both men and women. Deep learning (DL) is one of the most widely used tools of artificial intelligence (AI), and it is a sub-branch of machine learning (ML). Generally, DL is a method of automatically extracting useful features by arranging multiple linear and nonlinear processing units in a deep architecture.

**Methods:** We systematically searched PubMed from inception to 30 August 2022 for primary studies developing a DL model for the

histopathological interpretation of large intestine biopsy tissues and CRC. The search was conducted on 4 September 2022.

**Results:** Our systematic search returned 201 articles, 106 of which were selected for full-text screening. Finally, 96 articles were considered eligible for our systematic review according to our criteria of eligibility. A detailed description of the study selection process can be found in the PRISMA flowchart.

**Conclusions:** When dealing with human disease, particularly cancer, we need in our armamentarium all available resources, and DL applications have recently become very popular in medical image analysis due to the effects and successes it has achieved in the early detection and screening of cancerous tissue or organ.

80.

#### HIGHER INCIDENCES OF THROMBOCYTOPAENIA, LYMPHOCYTOPAENIA AND LEUKOPAENIA OBSERVED IN GLIOBLASTOMA PATIENTS TREATED WITH MORE THAN SIX CYCLES OF ADJUVANT-PHASE TEMOZOLOMIDE: A SYSTEMATIC REVIEW AND META-ANALYSIS

Arthur C.K. Lau<sup>1</sup>, Man-toi Chiu<sup>2</sup>, Ho-fung Leung<sup>2</sup>. <sup>1</sup>School of Clinical Medicine, LKS Faculty of Medicine, the University of Hong Kong; <sup>2</sup>Faculty of Medicine, the Chinese University of Hong Kong

**Background:** Six cycles of temozolomide is the standard adjuvant-phase therapy for patients with newly-diagnosed glioblastoma after surgery and concomitant chemo-radiotherapy. Nevertheless, if well-tolerated, adjuvant-phase temozolomide is often continued beyond six cycles. While it remains inconclusive whether prolonged adjuvant-phase temozolomide improves survival, the haematological toxicities associated with lengthening the adjuvant therapy remained understudied.

**Method:** This study was conducted in accordance with the PRISMA and MOOSE guidelines. All original studies published prior to 30 July 2022 were searched from four databases, and those comparing the haematologic derangements between glioblastoma patients that received 6 and >6 cycles of adjuvant-phase temozolomide were included. The Mantel-Haenszel method was used to analyse haematologic data extracted.

**Result:** Among the fourteen studies comparing survival outcomes of patients receiving 6 and >6 cycles of adjuvant-phase temozolomide, only six (n=385) reported haematologic derangements and were included. Upon meta-analysis, patients receiving >6 cycles of adjuvant-phase temozolomide showed significantly higher incidences of thrombocytopenia (6 studies, n=385)(HR:1.97; 95%CI:1.32-2.94; p<0.001), leukopenia (3 studies, n=272)(HR:1.55; 95%CI:1.00-2.38; p=0.05) and lymphocytopenia (2 studies, n=217)(HR:1.66; 95%CI:1.24-2.24; p<0.001), than those that only with 6 cycles. However, lengthening adjuvant-phase temozolomide beyond 6 cycles was not associated with higher rates of anaemia (5 studies, n=371)(HR:1.05; 95%CI:0.42-2.66; p=0.91) nor neutropenia (6 studies, n=385)(HR:1.30; 95%CI:0.68-2.49; p=0.43).

**Conclusion:** Adjuvant-phase administration of temozolomide beyond six cycles was significantly associated with higher incidences of thrombocytopenia, lymphocytopenia and leukopenia, but there was no obvious association with anaemia or neutropenia. Further studies are needed to better investigate haematologic toxicities with lengthened adjuvant-phase temozolomide.

84.

#### 'ONE-STOP' URGENT CANCER PATHWAYS IN UROLOGY: WHAT DO PATIENTS REALLY WANT?

Etienne Chew, Kelvin Adasonla, James Green. Department of Urology, Whipps Cross Hospital, Barts Health NHS Trust, London, UK

**Background / Introduction:** Expanding one-stop clinics in urology outpatients is a key GIRFT recommendation. Similarly, a 'straight-to-test' model has been proposed to allow access to radiological investigations in primary care. However, there is a paucity of data regarding patient perspective on the issue. We therefore aimed to assess patient perspectives regarding one-stop clinics for suspected urological cancers and the concept of straight-to-test.

**Method:** We recruited 119 patients being investigated on local two week wait pathways, with 79 patients referred to the two-stop haematuria clinic and 40 post local anaesthetic transperineal prostate biopsy on the raised PSA pathway at a district general hospital. Semi-structured questionnaire was used to collect baseline data and preferencing for various service designs.

**Results/Discussion:** A majority of patients in both haematuria (79.7%) and PSA (67.5%) clinics preferred a one-stop service, even when this involves a five-hour-long visit. Interestingly, patients with clinical frailty scores  $\geq 4$  preferred multiple appointments (p=0.03), perhaps reflecting their inability to tolerate longer appointments. 35.0% of patients from the haematuria clinic also preferred a straight-to-test approach as opposed to 65.3% of patients from the PSA clinic (p=0.002).

**Conclusion:** One-stop services remain popular among most patients worked up for urological cancers. However, increasing frailty appears to be associated with preference for multiple clinics – cancer pathways therefore need to reflect the diversity of patient perspectives. Further research should incorporate qualitative data, and consider the impact of socio-cultural barriers and remote consultation on outpatient service design.

85.

#### DO GP TRAINEES NEED MORE BREAST LEARNING?

Sam Gottardi, Charles Zammit. University Hospitals Sussex NHS Foundation Trust, Brighton, UK

**Background / Introduction:** Recent research has indicated a health inequality gap in conditions relating to women's health, including the management of breast conditions by doctors in the UK. This project set out to assess the confidence of breast management in current GP trainees.

**Method:** A cohort of GP trainees attending a regional teaching day were surveyed with an anonymous questionnaire. They were asked to provide information on their previous training, to rate their subjective confidence in breast management and provide an opinion on whether more training in Breast ought to be provided to GP trainees. Full and part completed questionnaires were used for analysis.

**Results:** A total of 24 questionnaires were collected from a mixed level cohort of GPST1-3s. At medical school 58% reported attending breast clinic, 25% breast MDM and 33% breast theater, and 5% reported breast experience during Foundation. Average confidences on a 1 (low) to 5 (high) were recorded as follows: general management (2.75), examination (3.5), awareness of referral guidelines (3.5) and personal referral threshold (2.2). 92% supported more breast exposure in GP training with 71% in favor of a breast unit attachment.

**Discussion/ Conclusion:** This snap shot survey is obviously limited in its scope, but indicates a current lack of sufficient breast teaching at all levels of training for GPs. As per the recent government publication of the first Women's Health Strategy in England, more needs to be done to close this gap in future primary care physicians.

86.

#### ROBOT-ASSISTED PELVIC NODE DISSECTION HAS SIMILAR OPERATIVE AND MELANOMA OUTCOMES TO OPEN PELVIC NODE DISSECTION WITH SHORTER HOSPITAL STAYS

Bhumi Shah<sup>1</sup>, Ben Lamb<sup>2</sup>, Amer Durrani<sup>2</sup>, Amit Roshan<sup>2</sup>, Animesh Patel<sup>2</sup>. <sup>1</sup>University of Cambridge, Cambridge, UK; <sup>2</sup>Addenbrookes Hospital, Cambridge, UK

**Background:** Robot-assisted pelvic lymph node dissection (rPLND) has been employed for the surgical management of enlarged lymph nodes to reduce treatment related morbidity. With the adoption of adjuvant systemic therapy in melanoma reducing surgical indications, we set out to investigate its benefits and long-term outcomes compared to open pelvic lymph node dissection (oPLND).

**Methods:** A single-institution retrospective cohort study comparing perioperative outcomes and survival between rPLND and oPLND was conducted.

**Results:** Between 2012 and 2021, a total of 19 patients with melanoma were identified who underwent PLND, with 12 performed in conjunction

with an open superficial groin dissection (rPLND=11(57.9%), oPLND=8(42.1%)). The rPLND and oPLND cohorts were matched for key melanoma outcome determinants including age, Breslow thickness, ulceration, mitotic index and sentinel lymph node status ( $P=0.87, 0.70, 0.23$  &  $0.31, 0.17$  respectively). There was no difference in median lymph node yield (oPLND=6.5 vs rPLND=6.0,  $P=0.587$ ), or operative time (oPLND 130.0min vs rPLND 143.0min,  $P=0.94$ ), but rPLND had a shorter hospital stay (median oPLND 5.0 days vs rPLND 2.0 days,  $P=0.0172$ ). No Clavien-Dindo complications  $\geq$ Grade III were observed in either group, or

conversion to oPLND in the rPLND group. There was no difference in Kaplan-Meier survival estimates in either melanoma specific survival (MSS) (oPLND 25.7 vs rPLND 18.1 months, Log rank  $P=0.855$ ) or regional recurrence free survival (RFS) (oPLND 4.6 vs rPLND 14.2 months, Log rank  $P=0.420$ ).

**Conclusion:** Robot-assisted pelvic node removal achieved similar MSS and RFS melanoma outcomes with a shorter hospital stay compared to open pelvic node dissection.