BSIR IOUK ANNUAL MEETING 2022

ABSTRACT PROGRAMME

Abstract Presentation

Tuesday 7th June 2022, 14:00-15:00

Session Chair: Dr Richard Lindsay

BSIR IOUK 2022 - ABSTRACT SUBMISSIONS

SPOP003161 - Imaging follow-up in renal cell carcinoma patients treated with cryoablation - Finn Gunn
SPOP003162 - Transarterial Radioembolization for Hepatic Metastases of Pancreatic Cancer: A Systematic Review. - Harry Alexander
SPOP003169 - Use of renal tumour biopsy prior to nephrectomy - An analysis of the British Association of Urological Surgeons Nephrectomy Outcome Data from 2012-2019 - Vinson Wai-Shun Chan
SPOP003216 - Oncological and peri-operative outcomes of percutaneous cryoablation of renal cell carcinoma for patients with hereditary RCCs - An analysis of European multinational prospective EuRECA registry - Filzah Hanis Osman
SPOP003225 - Predicting prostate tumour hypoxia using MRI-based radiomics machine learning models - Predicting prostate tumour hypoxia using MRI-based radiomics machine learning models - Jim Zhong

CONTENT SUBMISSIONS FOR BSIR IOUK 2022
ABSTRACT SUBMISSION SYSTEM

Oral Presentation and Scientific Poster Reviews

SPOP003161 - IMAGING FOLLOW-UP IN RENAL CELL CARCINOMA PATIENTS TREATED WITH CRYOABLATION

Category: Interventional Oncology

Author 1: Finn Gunn, Medical Student / Foundation Doctor, Postgraduate Medical Education, NHS Greater Glasgow and Clyde. Finn.Gunn@glasgow.ac.uk

Author 2: Jeff Rudston-Brown, Specialist Registrar, Radiology, NHS Forth Valley. Jeff.Rudston-Brown@nhs.scot

Author 3: Adam Berg, Specialist Registrar, Radiology, NHS Greater Glasgow and Clyde. Adam.Berg@ggc.scot.nhs.uk

Author 4: Mark Hall, Consultant, Radiology, NHS Greater Glasgow and Clyde. Mark.Hall2@ggc.scot.nhs.uk

Author 5: Des Alcorn, Consultant, Radiology, NHS Greater Glasgow and Clyde. Des.Alcorn@ggc.scot.nhs.uk

Abstract Aims: CT-guided percutaneous cryoablation has shown great results in treating patients with small renal cell carcinomas. Currently patients at our service receive a follow-up consisting of an MRI with contrast at 3 and 6 months, then yearly until 5 years post ablation. Follow-up practice varies widely across the UK. We believe that the removal of the 6-month scan from this follow-up is both safe and economical.

Methods: A retrospective cohort who received cryoablation for renal cell carcinoma were recruited from 01/01/2015 ‚Äì 31/12/2016. Patients were excluded if they were lost to follow-up, had a history of Von-Hippel Lindau syndrome or if the procedure was abandoned. The results of all follow-up scans were reviewed for post-ablation disease recurrence.

Results: A radiology information system search identified 111 patients of which 103 were suitable for analysis. A total of 18 patients were found to have a recurrence over 5 years. 2 patients were found to have recurrence on their 6-month scan. Concern regarding recurrence was noted on the 3-month scan of 1 patient with a 6-month recurrence. 3 patients had recurrence on their 3-month scan.

Conclusion: In conclusion, we believe that the 6-month MRI scan with contrast can be removed from the follow-up protocol. This would reduce the number of MRI scans by approximately 100/year, conveying a significant cost and workload benefit without detriment to patient care.

SPOP003162 - TRANSARTERIAL RADIOEMBOLIZATION FOR HEPATIC METASTASES OF PANCREATIC CANCER: A SYSTEMATIC REVIEW.

Category: Interventional Oncology
Author 1: Harry Alexander, Specialist Registrar, Department of Radiology, University of Auckland. hale087@aucklanduni.ac.nz, +64276501010
Author 2: Cindy Nguyen, Specialist Registrar, Department of Surgery University of Auckland. cindyhn05@gmail.com, 0277788578
Author 3: Michael Chu, Consultant, Department of Surgery, University of Auckland. michaeljjc@gmail.com, 09 367 0000
Author 4: Gregory Tarr, Consultant, Department of Radiology, University of Auckland. gregoryptarr@gmail.com, 09 367 0000
Author 5: Catherine Han, Consultant, Department of Medical Oncology, University of Auckland. catherine@aucklandoncology.co.nz, 09 367 0000
Author 6: Robert Thomas, Consultant, Department of Radiology Imperial College London. roberththomas@gmail.com, +44 7949 117868
Author 7: Andrew Holden, Consultant, Department of Radiology University of Auckland. AndrewH@adhb.govt.nz, 09 367 0000
Author 8: Adam Bartlett, Consultant, Department of Surgery, University of Auckland AdamB@adhb.govt.nz, 09 367 0000

Abstract Aims: Liver metastases are an important cause of treatment failure for patients with pancreatic cancer (PC). Transarterial radioembolization (TARE) is an established treatment for many secondary liver cancers. The aim of this review was to assess the effectiveness and safety of TARE in the treatment of hepatic metastases from PC.

Materials and Methods: EMBASE and MEDLINE were searched from inception until April 2021, using terms related to TARE and hepatic metastases from PC. Observational studies and clinical trials reporting overall survival (OS), hepatic progression free survival (hPFS) or tumor response after TARE were included. Risk of bias was assessed using the Newcastle-Ottawa Scale (NOS).

Results: Seven studies were included, reporting outcomes for 142 patients with hepatic metastases from PC. No randomized controlled trials were identified, and only three studies were prospective. Forty-four patients (31.0%) underwent previous pancreatic resection, and 63 (44.4%) had extra-hepatic metastases at the time of TARE. Most studies (n = 6) used resin microspheres for TARE. The pooled disease control rate was 68.3%. The median OS from time of TARE was 7 months and median hPFS was 3.4 months. There were 31 grade 3-4 biochemical toxicities and 4 treatment-related deaths. The median NOS score was 5.

Conclusion: The role of TARE in patients with hepatic metastases from PC remains unclear due to low patient numbers, limited prospective data and heterogeneity in study design with moderate risk of bias. Further prospective studies are required to explore the role of TARE in carefully selected patients with liver-only metastatic disease.

SPOP003169 - USE OF RENAL TUMOUR BIOPSY PRIOR TO NEPHRECTOMY - AN ANALYSIS OF THE BRITISH ASSOCIATION OF UROLOGICAL SURGEONS NEPHRECTOMY OUTCOME DATA FROM 2012-2019

Category: Interventional Oncology
Author 1: Vinson Wai-Shun Chan, Medical Student / Foundation Doctor,c School of Medicine, University of Leeds. vinson.chan@doctors.org.uk, 07446713522
Author 2: Jon Cartledge, Consultant, Department of Urology, Leeds Teaching Hospital NHS Trust. joncartledge@nhs.net
Author 3: Selina Bhattarai, Consultant, Department of Pathology, Leeds Teaching Hospital NHS Trust. selina.bhattarai@nhs.net
Author 4: Tze Min Wah, Consultant, Department of Diagnostic and Interventional Radiology, Leeds Teaching Hospital NHS Trust. tze.wah@nhs.net

Abstract Aims: Up to 30% of treated small renal masses (SRM) are benign. This study aims to review the use of renal tumour biopsy (RTB) for SRM in the UK and its potential benefits.

Methods: The British Association of Urological Surgeons nephrectomy audit database was enquired for SRMs (T1a/bN0M0) treated by partial or radical nephrectomy from 2012-2019. Ethical approval was not required.

Results: A total of 15,320 patients (T1a:46.58%, T1b:43.51%, T1:9.92%) from across the UK are included. 12.5% (1,915/15,320) patients received a renal tumour biopsy prior to treatment. The utilisation of RTB increased from 6.7% (94/1318) in 2013 to 16.0% in 2019 (304/1594) (p<0.001). The diagnostic rate of RTBs in the series is 92% (1741/1889). In patients with no missing histological data, 11.7% (1,794/ 15,312) were treated for a benign mass, of those, 56.0% (1,005/1,794) were treated with a partial nephrectomy, and 43.9% (789/1,794) were treated with a radical nephrectomy. However, stratifying by the biopsy status, patients not undergoing RTB are significantly more likely to be treated for a benign mass, compared to those who had an RTB. (12.8% [1721/13,399] vs 3.82% [73/1.913], Chi2-p:<0.001, Logistic regression: OR:3.71, 95%CI: 2.92,Äì4.72, p<0.001). Amongst those who did not receive RTB, 10.0% (760/7,588) were overtreated with a radical nephrectomy, and 16.5% (961/5,811) were overtreated with a partial nephrectomy.

Conclusion: RTBs are underutilised before nephrectomy, resulting in at least 1,721 patients (12.8%) overtreated in 7-years with potentially life-changing nephrectomy for a benign tumour. This study highlights the importance of RTB before treatment decisions for SRMs.

SPOP003216 - ONCOLOGICAL AND PERI-OPERATIVE OUTCOMES OF PERCUTANEOUS CRYOABLATION OF RENAL CELL CARCINOMA FOR PATIENTS WITH HEREDITARY RCCS - AN ANALYSIS OF EUROPEAN MULTINATIONAL PROSPECTIVE EURECA REGISTRY

Category: Interventional Oncology

Author 1: Filzah Hanis Osman, Medical Student / Foundation Doctor, School of Medicine, Faculty of Medicine and Health, University of Leeds. filzah.osman@nhs.net, 07742214670

Author 2: Vinson Wai-Shun Chan, Medical Student / Foundation Doctor, School of Medicine, Faculty of Medicine and Health, University of Leeds. vinson.chan@doctors.org.uk

Author 3: Francis Xavier Keeley Jr, Consultant, Bristol Urological Institute, North Bristol NHS Trust. frank@keeleyurology.mygbiz.com

Author 4: Brunolf Lagerveld, Consultant, Department of Urology, OLVG b.lagerveld@olvg.nl

Author 5: David J Breen, Consultant, Department of Radiology, Southampton University Hospitals. David.Breen@uhs.nhs.uk

Author 6: Alexander King, Consultant, Department of Radiology, Southampton University Hospitals. Alexander.King@uhs.nhs.uk

Author 7: Tommy Nielsen, Consultant, Department of Urology, Aarhus University Hospital. tommy.nielsen@skejby.rm.dk

Author 8: Marco van Strijen, Consultant, Department of Radiology, St. Antonius Hospital. marcovanstrijen@kpnmail.nl

Author 9: Julien Garnon, Consultant, Department of Interventional Radiology, Nouvel Hospital Civil. juliengarnon@gmail.com

Author 10: Des Alcorn, Consultant, Department of Interventional Radiology, Gartnavel General Hospital. des.alcorn@ggc.scot.nhs.uk

Author 11: Ole Graumann, Consultant, Department of Radiology, Odense University Hospital. Ole.Graumann@rsyd.dk

Author 12: Eric de Kerviler, Consultant, Radiology Department, Saint-Louis Hospital. kerviler@aphp.fr

Author 13: Patricia Zondervan, Consultant, Department of Urology, Amsterdam UMC. p.j.zondervan@amsterdamumc.nl

Author 14: Miles Walkden, Consultant, Department of Imaging, University College London Hospitals NHS Foundation Trust. miles.walkden@nhs.net

Author 15: Giovanni Lughezzani, Consultant, Department of Urology, Vita-Salute San Raffaele University. giovanni.lughezzani@hunimed.eu

Author 16: Tze Min Wah, Consultant, Department of Diagnostic and Interventional Radiology, Institute of Oncology, St. James's University Hospital, Leeds Teaching Hospitals NHS Trust. tze.wah@nhs.net

Abstract Aims: To report oncological and peri-operative outcomes of percutaneous cryoablation (PCA) of small renal masses (SRMs) for patients with inherited RCC syndromes.

Materials and Methods: From 2015 to 2021, patients with hereditary RCC undergoing PCA for SRMs (<7cm) from 11 institutions within the European Registry for Renal Cryoablation (EuRECA) were included in the retrospective study.

Results: 53 patients with inherited RCC syndromes (41 VHL, 1 HLRCC, 2 HRPC, 9 BHD) with 85 tumours received PCA in 68 sessions, with mean follow-up duration of 30.4 months (SD ¬± 22.0). Mean RCCs per patient was 1.6 (SD ¬±1.0) with a mean tumour size of 2.4cm (SD ¬± 1.0). In 75 tumours with available follow-up data, 94.7% achieved primary technical success, while overall technical success rate was 99%. Out of 64 sessions with available intra operative data, none had intra-operative complications. Four out of 58 sessions had post-operative complications, out of which two were Clavien-Dindo (CD) Grade-1 and one CD-3. Mean post operative reduction of eGFR was 6.75 ml/min/1.73 m2 (SD ¬ ±19.49). In 27 patients who had undergone 35 treatment sessions with available peri-operative eGFR, 10 patients had >10% reduction in renal function. 5-year local-recurrence free survival (LRFS), metastasis-free survival (MFS), cancer-specific survival, (CSS) and overall survival (OS) are 96.0% (CI 0.75-0.99), 96.4% (CI 0.77-0.99), 90.9% (CI 0.51 ,Äì 0.99) and 90.9% (CI 0.51 ,Äì 0.99) respectively.

Conclusion: PCA of RCCs for patients with hereditary RCC SRMs is safe and offers low complication rates, renal function preservation and good oncological outcomes.

SPOP003225 - PREDICTING PROSTATE TUMOUR HYPOXIA USING MRI-BASED RADIOMICS MACHINE LEARNING MODELS

Category: Non-Vascular - GI/HPB/GU/Gynae

Author 1: Jim Zhong, Specialist Registrar, Institute of Medical Research, University of Leeds. j.zhong.edinburgh@gmail.com, 07411952808

Author 2: Andrew Scarsbrook, Consultant, Radiology, University of Leeds. a.scarsbrook@nhs.net, 0113 2068212

Author 3: Ann Henry, Consultant, Clinical Oncology, University of Leeds ann.henry2@nhs.net, 0113 2067630

Author 4: David Buckley, Medical Physics, University of Leeds d.l.buckley@leeds.ac.uk, 0113 2067630

Author 5: Peter Hoskin, Consultant, Clinical Oncology, University of Manchester peterhoskin@nhs.net, 01619187939

Author 6: Ananya Choudhury, Consultant, Clinical Oncology, University of Manchester. ananya.choudhury@nhs.net, 01619187939

Author 7: Catharine West, Radiobiology, University of Manchester. catharine.west@manchester.ac.uk, 01619187939

Author 8: Sarah Brown, Clinical Trials Unit, University of Leeds. s.brown@leeds.ac.uk, 0113 343 1472

Author 9: Russell Frood, Specialist Registrar, Radiology, University of Leeds. russellfrood@nhs.net, 07411952808

Abstract Background/ Aims: Tumour hypoxia is associated with disease progression and treatment resistance in prostate cancer. Methods to assess hypoxia are invasive, requiring biopsies to identify gene-based hypoxia biomarkers. This technique is also hindered by sampling errors due to multifocal and heterogeneous tumours. Magnetic Resonance Imaging (MRI) is a potential non-invasive way of assessing hypoxia. Radiomics is a type of quantitative imaging analysis. The aim of this retrospective radiogenomics study was to develop and validate an MRI-based radiomic signature predictive of hypoxia.

Materials and Methods/Results: Two independent cohorts of patients from Leeds and Christie (n=203) with histologically confirmed prostate cancer were included. All patients were dichotomised as normoxia or hypoxia based on their pre-treatment prostate biopsy which was tested for the presence of a validated 32-gene prostate hypoxia signature based on pimonidazole staining (Ragnum signature). The whole gland and tumour were manually segmented from axial T2w-MRI using Raystation software (v.9.1). Radiomic analysis was undertaken using Python/ Pyradiomics (v.3.3). Following identification of the most robust radiomic features, several machine learning techniques will be used to incorporate these features into a binary classifier for distinguishing patients grouped into hypoxia or normoxia. Diagnostic performance of each model will be evaluated and tested using an independent dataset of unseen data.

Conclusion: Identification of tumour hypoxia using non-invasive imaging methods will allow for adapted and personalised treatment options, including aiding patient selection and treatment optimisation in interventional oncology therapies, for which examples will be given.

To receive CPD or Certificate of Attendance please complete the evaluation tab on Meeting & Webinar section of bsir.org website

British Society of Interventional Radiology

For further information please contact:
British Society of Interventional Radiology (BSIR)
63 Lincoln's Inn Fields, London WC2A 3JW
Tel: +44 (0)20 7406 5998 | Email: meeting@bsir.org
www.bsir.org