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Clinical Oncology Wormald Abstract Competition 2022

Does expanded access to primary prophylaxis with G-CSF decrease the burden of febrile neutropenia?

Authors: Shefali Pradeep Parikh, Yussra Mohammed, Laura Pettit, Anirban Chatterjee, Shazad Aslam

Category: Management/measurement of side-effects of treatment (acute or late), including patient-reported outcome measures (PROMs)

Purpose: Guidelines recommend primary prophylaxis (PP) with haematopoietic colony stimulating factors (CSFs) in chemotherapy with a $\geq 20\%$ risk of febrile neutropenia (FN). During the COVID-19 pandemic, guidelines temporarily supported routine use of G-CSF as PP for intermediate risk regimens. Our retrospective real-world data compares hospital admissions for FN during a period of expanded access (June to December 2020) against baseline use (June to December 2019) in a district general UK hospital.

Methods and materials: The process measure was the proportion of patients prescribed PP with G-CSF when initiating a new intermediate/low-risk regimen/month. The outcome measure was the monthly rate of hospital admissions for FN in intermediate/low-risk regimens. Statistical process control (SPC) charts and chi-square tests were used for analysis.

Results: Use of G-CSF as PP showed statistically significant special cause variation on SPC p-charts consistent with policy change. Median PP prescription rate in June to December 2019 was 0.9% (interquartile range (IQR) 0–2.6%) and June to December 2020 was 34.8% (IQR 29%–43%). Monthly G-CSF prescriptions for all indications was a median of 3% (2019) versus 70% (2020). However, the trends in admissions for FN were stable on SPC p-charts with a median monthly event rate of 0.63% in 2019 and 0.66% in 2020. Summary statistics showed 12 events/698 unique patients in 2019 (1.72%) and ten events/618 patients in 2020 (1.62%), ($p=0.8$).

Conclusion: Despite significantly increased use of PP with G-CSF for intermediate/low-risk chemotherapy, the burden of hospitalisations for FN remained unchanged and was lower than expected.

The case of need for image-guided radiotherapy training for clinical oncology specialist trainees: Impact assessment post-COVID

Authors: Jennifer King, Claire Barker, Joanna Coote, Richard Fuller, Marcel Van Herk, Ganesh Radhakrishna

Category: Educationalist/teaching

Purpose: The COVID pandemic has disrupted education at all levels. By identifying impacts on technical radiotherapy (RT) and experiential learning among specialist trainees (STs) at our centre, we aim to inform a new virtual training package.

Methods and materials: 15/17 STs completed a survey comprising 16 RT training questions using a ten-point Likert scale and a free-text response.

Results: 47% of STs rated overall RT training as poor. Comments revealed 'RT training has taken a back seat' with 'increased service provision due to the

pandemic'. All STs reported planning time difficulties; 53% interrupted every planning session, 27% never planning ≥ 3 cases per week and 66% managing this $< 50\%$ of the time. 'Opportunities have increased due to increased virtual access' with 53% included in image-guided radiotherapy (IGRT) screenshot emails $> 50\%$ of the time, but 'this should be formalised' to increase educational value. Confidence in managing IGRT issues and plan evaluation was low (4.2/10 and 3.9/10 respectively). There is good exposure to palliative RT planning (7.3/10 Likert). Regular RT teaching is lacking (2.8/10 Likert), although highlighted as beneficial. 73% felt increased consultant home-working had either enhanced or made no difference to consultant accessibility. There is a need for 'structured teaching' especially for 'patient set-up, IGRT issues and plan evaluation'.

Conclusion: These results highlight a significant opportunity to improve RT training, particularly IGRT and plan evaluation. Growth in confidence in the use of virtual education has informed our design for a high-quality and interactive training package that we intend to use to improve the ST experiential learning and competence in IGRT.

Single institution outcomes of conventional (1.8–2 Gy/Fr) and hypofractionated (2.5–3 Gy/Fr) RT in OG/GOJ cancers during COVID-19

Authors: CL Lee, Maria Hawkins, Douglas Brand, Glen Blackman, Thomas Richards

Category: Outcomes of treatment (including chemotherapy, chemo-RT and RT)

Purpose: In response to COVID, the Royal College of Radiologists (RCR) released consensus considerations on reduced fractionation aiming to reduce departmental attendances. We examine departmental dose fractionation practice during COVID for oesophageal/gastroesophageal (OG/GOJ) cancers (ca).

Methods and materials: Single-centre retrospective data collection (1 January 2020 to 31 December 2021) of patients with biopsy-proven OG/GOJ ca planned for radical treatment, including radiotherapy (RT) only or neoadjuvant, definitive chemo-RT. Key outcome measure was progression-free survival (PFS) at 24 weeks, an accepted surrogate for outcome.

Results: 27 patients met the inclusion criteria. Median age was 71 years; 70% are male; all were performance status 0–1. 63% received hypofractionated RT, of which most had adenocarcinoma (65%) and locally advanced, inoperable disease (70%). 53% in the hypofractionated group received chemo-RT, of which 1/9 were neoadjuvant and 8/9 in definitive setting. The preferred concurrent chemotherapy used in the hypofractionated group was weekly taxol-carbo (100%), compared with cisplatin-capecitabine in the conventional group (90%). Mean tumour length (gross tumour volume) in the hypofractionated group was 7.3 cm (53.7 cm³) versus 5.6 cm (24.6 cm³) in the conventional group. Most patients completed radiotherapy within the planned time frame. At 24 weeks, PFS was not significantly different for conventional (80.8%, 95% CI 42.3–94.9%) versus hypofractionated (68%, 95%

CI 39.5–85.7%) log rank $p=0.172$. This compares with an overall 72% benchmark in a SCOPE-1 trial, where all received definitive chemo-RT.

Conclusion: There was heterogeneous use of hypofractionation and taxol-carbo regime in our centre during COVID. All patients completed treatment as intended and PFS at 24 weeks was maintained in the hypofractionated cohort.

Does variation in swallowing organs-at-risk (SWOAR) delineation impact on predicted swallowing dysfunction for PATHOS trial patients?

Authors: Emma Higgins, Nachi Palaniappan, Zohal Nabi, Kate Elliott, Liz Miles, Rikki Lad, Lisette Nixon, Jo Canham, Chris Hurt, Christie Heiberg, Matthew Beasley, Terry Jones, Richard Webster, Mererid Evans

Category: Clinical trials development/outcomes

Purpose: To determine if variation between gold standard (GS) SWOAR contours and submitted on-trial outlines led to significant differences in normal tissue complication probability for physician-scored radiation-associated dysphagia at six months (NTCPD6).

Methods and materials: The dataset consisted of 78 patients recruited into arms B1 and C2 of the trial from July 2007 to February 2020 who had submitted SWOAR contours available for review. Retrospective analysis, based on visual evaluation, determined that protocol violations in SWOAR contours existed. Submitted contours (SC) (guided by the PATHOS swallowing atlas) were compared against GS contours outlined on all 78 cases by a single investigator (EH). The mean dose of the supraglottic larynx and superior pharyngeal constrictor was determined for both the GS and SC, then used to calculate the predicted NTCPD6 for each by applying the predicted model of Christianen et al. The difference between the two NTCPD6 for each case was then calculated.

Results: The mean NTCPD6 for all GS contours was 17% risk of dysphagia at six months. The difference between GS and SC mean was 0.3% (95% CI 14.8–18.6; SD 8.4; $p=0.775$). The individual differences for each GS versus SC ranged between –2.9% to 6.2% with only two cases having a difference greater than 4%.

Conclusion: We have shown that while protocol deviations did exist for on-trial cases, there was no statistically significant impact on predicted NTCPD6. Our findings widen the applicability of previously published data on benchmark cases to patients recruited to an ongoing UK prospective clinical trial.

Outcomes following implementation of a specialist protocol for radiation-induced oesophageal strictures following radical radiotherapy

Authors: Ganesh Radhakrishna, Chiuyan Chan, Philip Borg, Lubna Bhatt, Hamid Sheikh, Hans-Ulrich Laasch

Category: Outcomes of treatment (including chemotherapy, chemo-RT and RT)

Purpose: Radiation-induced oesophageal strictures following radical radiotherapy for oesophageal cancer is an uncommon but debilitating complication of treatment. Evidence for an optimal approach for this complication is limited, leading to variations in practice.

Methods and materials: A defined protocol of endoscopic surveillance and systematic incremental dilatation procedures was implemented. Following implementation of a regional service at our centre to manage this complication based on national guidelines¹ we analysed the outcomes of patients treated using a defined protocol as part of prospective audit, with institutional review board approval.

Results: 20 patients were treated as per the protocol between March 2019 and March 2022. 13 patients received chemoradiation (CRT) and seven radical radiotherapy (RT). A total of 124 procedures were carried out on these patients (119 dilatations, two biodegradable stents and three temporary stents). 11 (55%) patients are alive (7 CRT, 4 RT), recurrence free and swallowing most foods normally (O'Rourke dysphagia score of 1 or less). None of these patients have a stent or any other feeding tubes in situ. One (5%) patient had a perforation treated conservatively and is now swallowing normally.

Seven patients had local recurrence (five CRT, two RT) of which five were detected as part of the surveillance from this protocol.

Conclusion: These results demonstrate the safe and effective use of a systematic specialist service for the management of radiation-induced oesophageal strictures following definitive radiotherapy for oesophageal cancer. Further study is warranted in a broader cohort to validate the approach.

Reference:

1.Sami SS, Haboubi HN, Ang Y et al. UK guidelines on oesophageal dilatation in clinical practice. *Gut* 2018; **67**(6):1000–1023.

Hypofractionated radiotherapy for pancreatic cancer

Authors: Deirdre Margaret Lynskey, Lizzie Tait, Hannah Buckley, Hannah Chantler, June Dean, Cristina Ferreira, Sarah Knight, Donna Routsis, Nisarg Pipalia, Thankamma Ajithkumar

Category: Outcomes of treatment (including chemotherapy, chemo-RT and RT)

Purpose: Hypofractionated (5#) radiotherapy for non-metastatic pancreatic cancer was introduced during the COVID-19 pandemic as an alternative to conventional treatment pathways. This study was performed to evaluate clinical outcomes and acute toxicity of 5# radiotherapy.

Methods and materials: We retrospectively identified pancreatic cancer patients treated with 5# radiotherapy at Addenbrookes Hospital from March 2020 to September 2021. Patient characteristics, response on follow-up computed tomography (CT) scans, dosimetry and toxicity data were analysed using Excel and SPSS.

Results: 40 patients were treated with 5# radiotherapy; 60% ($n=24$) had locally advanced pancreatic cancer, 30% ($n=12$) operable disease, 7.5% ($n=3$) postoperative recurrences and 2.5% ($n=1$) borderline resectable disease. 45% of patients ($n=19$) had induction chemotherapy. Radiotherapy was delivered as 35 Gy (67.5%, $n=27$) and 30 Gy (32.5%, $n=13$) in 5# in 1.5 weeks using volumetric-modulated arc therapy (VMAT) technique. Median overall survival (mOS) for all patients was 14.2 months (95% CI 10.3–15.6 months). For induction chemotherapy + radiotherapy versus radiotherapy alone, mOS was 14.2 months (95% CI 8.2–17.7 months) versus 13.9 months (95% CI 10.3–15.7 months); $p=0.97$. Median progression-free survival (mPFS) for all patients was 10.2 months (95% CI 8.0–11.9 months). For induction chemotherapy + radiotherapy versus radiotherapy alone, mPFS was 10.5 months (95% CI 9.5–12.4 months) versus 10.1 months (95% CI 5.5–10.4 months); $p=0.99$. There were no grade 3 acute toxicities. When compared to 28# radiotherapy, the 5# regimen reduced patient hospital visits by 82%.

Conclusion: The observed mOS is comparable with mOS of conventional 28# radiotherapy (14.2 versus 15.2 months (SCALOP trial)); 5# radiotherapy for non-metastatic pancreatic cancer is a safe alternative treatment pathway.

Internal mammary radiotherapy planning: A single-centre experience

Authors: Devashish Tripathi, Pavithra Gayani

Category: New radiotherapy techniques/implementation/QA

Purpose: To evaluate the radiation technique used to treat internal mammary chain (IMC) in breast cancer patients treated at New Cross Hospital, Wolverhampton, between August 2020 and August 2021.

Methods and materials: All consecutive cases treated with breast/chest wall (CW) and IMC radiation were evaluated for indications, prescribed dose and dose distribution to planning target volumes (PTVs) and organs at risk (OARs).

As per our local guidelines, patients had high-risk (T4 and/or N2+) invasive breast cancers.

All patients were treated using volumetric arc therapy to achieve the standard Royal College of Radiologists (RCR) constraints.

Contouring was done using European Society for Radiation and Oncology (ESTRO) guidelines.

Results: 23 patients were treated in the given time period.

12/23 were <60 years of age, 4/23 were <40 years of age.

9 (39%) patients had left-sided treatment.