Purpose: To determine the rates of neutropenia, neutropenic sepsis and mortality within 30 days of chemotherapy in patients receiving up-front docetaxel for hormone-naive metastatic prostate cancer or selected locally advanced prostate cancer at the Edinburgh Cancer Centre (ECC).
Methods: 68 patients received up-front docetaxel at ECC between July 2015 and June 2017 for the indications above. 11 patients had locally advanced disease. Using TRAK and Chemocare software, the date of diagnosis, performance status, TNM staging, Gleason grade and pre-treatment PSA (where available) were recorded. The number of cycles of docetaxel received, number of delayed cycles, dose reductions, rates of hospitalisation within 30 days of chemotherapy, neutropenia, neutropenic sepsis and mortality within 30 days of chemotherapy were recorded.
Results: The median time to starting chemotherapy after ADT was 63 days (IQR = 53–83), 16 patients started after 12 weeks. The full 6 cycles of docetaxel were given to 83.8% ($n = 57/68$) of patients. A dose reduction was required in 26.5% ($n = 18/68$). Neutropenia was recorded in 38.2% ($n = 26/68$) and 20.6% ($n = 14/68$) were treated for neutropenic sepsis. Of these patients, 8 went on to complete the planned 6 cycles of docetaxel. 2.9% ($n = 2/68$) died within 30 days of receiving chemotherapy; both had metastatic disease. Therefore, in our cohort 14.3% ($n = 2/14$) of patients who developed neutropenic sepsis died.
Conclusion: Up-front docetaxel for the management of metastatic and selected locally advanced prostate is generally well-tolerated, with most patients completing 6 cycles of treatment; however, 26.5% required a dose reduction and 16.2% did not complete chemotherapy. A significant proportion developed neutropenic sepsis, with 2 deaths related to treatment. Pending cost analysis, prophylactic GCSF for this cohort of patients should be considered. We intend to evaluate progression-free survival to compare our data with that of the published trials.

Variability Analysis of Clinical Target Volume Outlining for Prostate Stereotactic Body Radiotherapy within the Multicentre PACE Trial

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Purpose: The PACE trial is a randomised multicentre trial comparing stereotactic body radiotherapy (SBRT) with conventional treatment in low- and intermediate-risk prostate cancer. SBRT is associated with a small margin for error, and it is therefore vital to ensure accuracy of clinical target volume (CTV) delineation. As part of the PACE trial quality assurance programme, centres are required to successfully complete a benchmark planning exercise using CT and MRI from a set intermediate-risk cases. The aim of this study was to analyse CTV outlining variability between centres.
Methods: Imaging and structure sets from 21 centres were uploaded using VODCA (Visualisation and Organisation of Data for Cancer Analysis) software. The investigational CTV, prostate and proximal seminal vesicles (pSV) contours were compared with reference PACE volumes using conformity indices [1–3]: DICE similarity coefficient; Geographical Miss Index (GMI); and Disconcordance Index (DI).
Results: The median volumes of the investigational CTV, prostate and pSV contours were greater than the reference contours by 9.7 cm^3, 7.7 cm^3 and 1.7 cm^3, respectively. The median DICE coefficient (ideal value 1) was 0.72 (0.39–0.86) for pSV contouring, compared with 0.88 (0.82–0.91) for CTV and 0.905 (0.87–0.93) for prostate contouring, demonstrating that pSV contours had the least similarity to reference contours. The level of geographical miss was relatively low, reflected by low median GMI: CTV 0.06 (0.01–0.15), prostate 0.03 (0.01–0.09), pSV 0.15 (0.03–0.66). Median DI values were higher: CTV 0.17 (0.07–0.23), prostate 0.15 (0.04–0.22), pSV 0.31 (0.03–0.62), demonstrating that, overall, investigational contours were excessive compared with reference contours, particularly for pSV contouring.
Conclusion: The use of conformity indices has shown that CTV contouring variability between centres in the PACE trial is most evident with regard to pSV delineation. This highlights the need for a standard pSV delineation method to improve consistency in further prostate SBRT trials.
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Less to Hold – a Comparison of Bowel and Bladder Toxicities in Patients Undergoing Prostate Radiotherapy between those Treated with an Empty Bladder and those Following a Bladder Filling Protocol

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Purpose: Radical radiotherapy to the prostate is conventionally treated with a full bladder to minimise dose to bladder and bowel. Patients' tolerance of the bladder filling protocol varies and 'accidents' during treatment can cause undue distress to patients and increased pressure on the radiotherapy department. Several UK centres report treating with an empty bladder. We carried out a feasibility study of full bladder versus empty bladder to ascertain if we can safely change our practice.
Methods: 50 patients receiving radical radiotherapy to the prostate were randomised in a 1:1 manner to control and empty bladder groups. The control group followed the conventional drinking protocol at our centre (200 ml pre-treatment) and the empty bladder group was instructed to void prior to treatment. Baseline, end of treatment and 6 week follow-up scores were prospectively collected for IPSS, LENT SOMA bowel toxicity and quality of life questionnaires. Bowel and bladder DVH achievements were assessed.
Results: 50 patients were enrolled between March 2017 and January 2018. The mean increase in IPSS score from baseline to end of treatment was 2.12 for patients on the drinking protocol and 3.22 for those on the empty bladder protocol; this was not statistically significant ($P = 0.68$). At 6 weeks of follow-up, mean IPSS scores improved compared with baseline in the control group (−0.33) but worsened (+2.86) in the empty bladder group. This was once again not statistically significant ($P = 0.08$). No difference was seen in bowel toxicity, quality of life or dose to OARs between the 2 groups.
Conclusion: An empty bladder approach in prostate radiotherapy has no significant difference on acute bowel and bladder toxicity or OAR dose constraints. Empty bladder treatment can improve patient comfort and efficiency in our department. We continue to monitor patients in order to determine impact on long-term toxicity.

A Phase II Trial of Triamcinolone with Hormone Therapy for Prostate Cancer (TRICREST) in Chemotherapy Naive Metastatic Castration Resistant Prostate Cancer

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Purpose: To evaluate the efficacy of intramuscular triamcinolone in chemo-naive metastatic castration resistant prostate cancer (CRPC).
Methods: We conducted a phase II study of intramuscular triamcinolone administered monthly in metastatic CRPC. Triamcinolone has putative advantages over commonly used steroids, including lack of weight gain and an inability to stimulate mutated androgen receptors. 55 patients were recruited over 2012–2016. Imaging was performed every 3 months. The primary end point was radiological and symptomatic progression-free survival (PFS). Secondary end points included PSA progression, weight changes and toxicity. Steroid androgenic precursors, cortisol and circulating tumour cells were assessed prior to and 1 month after triamcinolone to see if they correlated with PFS.
Results: Median follow-up time was 21.3 months (95%CI: 13.2–24.5). The median radiological PFS was 9.4 months (95%CI: 7.0–20.1) and the 6 month PFS rate was 67.3% (95%CI: 0.53–0.78). The 50% PSA response rate was 31/55 = 56% (95%CI: 42–70%). There were no treatment-related deaths. The most common grade 3 toxicity was hypertension 40%, but only 5 patients (11%) required concomitant medication. Proximal myopathy (grade 2) was seen in 22 patients (40%). Skin toxicity (grade 2; bruising) was seen in 7 patients (12%). One patient had a gastrointestinal bleed. Hyperglycaemia developed in 3 patients (5%) There was no evidence of weight gain (mean weight 83.5 kg pre-study and 79.4 kg post-study).