

dramatically increased during irradiation alone; while DS treatment significantly inhibited the radiation-induced increase of IL-1 β , however, no systematic effect of DS on the expression of NF- κ B was observed. The hypoxia markers HIF-1 α and GLUT-1 showed a progressive increase during irradiation alone that, however, was also not influenced by DS.

Conclusion

DS has a significant mucoprotective effect during daily fractionated radiotherapy. This is neither based on stimulation of epithelial proliferation nor on modulation of radiation-induced hypoxic changes. In contrast, increased expression of epithelial junctions and thereby strengthened epithelial anchorage and/or reduced or modulated inflammatory processes appear to be the biological mechanisms underlying the observed mucoprotective effect.

Symposium: Brachytherapy pays

SP-0122 Introducing the Brachy-HERO initiative

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The ESTRO HERO project (Health Economics in Radiation Oncology) has the overall aim to develop a knowledge base and a model for health economic evaluation of radiation treatments at the level of individual European countries. The project deals with four dimensions organised in different work-packages: availability, resource needs, cost-accounting and economic evaluation.

This talk will introduce the Brachy-HERO project which seeks to extend the aims of the HERO project to the field of brachytherapy. Preliminary data on brachytherapy use and resource availability in Europe will be presented.

SP-0123 Review of health related quality of life measures with brachytherapy and application to QALY for economic evaluation

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Patient reported outcome using health related quality of life (HRQOL) has become an increasingly important part of assessing therapeutic choices especially in cancer treatments.

The improvement in HRQOL is one of main economic benefits of treatment and it is incorporated in economic evaluation.

In this talk, the speaker will review the followings:

1. General overview of HRQOL
 - 1) Types of quality of life scales, 2) How the utility score for a particular health state is determined, 3) How utility values are applied to treatment effectiveness.
2. Utility values related to brachytherapy
3. Literature review of economic evaluation for various cancers treated with brachytherapy
 - 1) Partial breast irradiation brachytherapy, 2) Prostate HDR brachytherapy, 3) Gynecological HDR brachytherapy, 4) Eye plaque brachytherapy
4. Limitations of current utility values in brachytherapy

SP-0124 Optimal utilisation of brachytherapy in Europe - can it be measured?

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Most of the approaches applied in order to assess the need for radiotherapy have been focused on external radiotherapy. From this perspective, there is a gap in the

evaluation of the potential need for brachytherapy in European countries. Three approaches have been used for planning radiotherapy: expert opinion, benchmarking and evidence based assessment of the indications for treatment. Benchmarking is based on the selection of one territory with appropriate level of resources for therapy and accepted as a reference for the experts, which could be used as a comparison for the rest of territories. Usually, the reference territory has data from a population based cancer registry in order to make sure that all cancer patients are included in the comparison. Evidence based indications review the evidence, using clinical guidelines and primary evidence, in order to provide the optimal treatment percentage of cases that would receive radiotherapy, as shown by the CCORE model. Both approaches have advantages and problems that will be discussed with a focus on brachytherapy.

The epidemiological data required to assess the optimal use of brachytherapy is available for some countries in Europe but there are good estimates that allow to provide data for most countries in Europe, as it has been shown in the ESTRO-HERO project carried out recently for external radiotherapy. Data on incidence and stage at diagnosis for the most frequent tumour sites are available, from population based cancer registries. In addition to the epidemiological data, the potential indications for brachytherapy are also required. The consensus over the evidence for brachytherapy indications and the potential factors explaining the gap between optimal and actual use will be discussed, using prostate cancer as a case study.

The epidemiological approach proposed to assess the need for brachytherapy is aligned to the National cancer plan requirements and could be an useful input of data to assess the gap in the actual utilization of this therapeutic strategy.

Proffered Papers: Prostate

OC-0124 Outcomes of concurrent chemo-radiotherapy in elderly patients with advanced bladder cancer

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There is little evidence to guide treatment in elderly patients with muscle invasive bladder cancer (MIBC). We aimed to assess the efficacy and tolerability of concurrent radical radiotherapy with gemcitabine radiosensitisation (GemX) in elderly patients with MIBC and correlate outcomes to those from the bladder carbogen and nicotinamide (BCON) phase III clinical trial.

Material and Methods

Data was retrospectively analysed from patients who received GemX between May 2010 and December 2014 from two oncology centres in the United Kingdom. Elderly was defined as aged ≥ 75 at the start of GemX. Following transurethral resection of bladder tumour, where appropriate, patients received neo-adjuvant platinum-based chemotherapy followed by radiotherapy (50-55 Gy/20 fractions) concurrently with weekly gemcitabine (100 mg/m²). A separate, elderly-specific analysis was performed in the BCON cohort. Overall survival (OS),

disease specific survival (DSS) and local progression free survival (LPFS) were evaluated using Kaplan-Meier methodology and Cox proportional hazards regression.

Results

Out of 167 patients, 61 (36.5%) were elderly with a median age of 78 years (range 75-89). Elderly patients had worse performance status ($p=0.02$) and co-morbidities ($p=0.03$). A similar proportion of patients received planned dose radiotherapy in both groups ($p=0.26$), although fewer elderly patients received all four cycles of concurrent chemotherapy ($p=0.014$) due to toxicity. With a median follow-up time of 38 months for those alive; hazard ratios (HR) comparing younger and elderly for OS, DSS and LPFS were 1.04 (95% CI 1.00-1.08; log-rank $p=0.068$), 1.00 (95% CI 0.95-1.04; log-rank $p=0.916$) and 1.00 (95% CI 0.95-1.04; log-rank $p=0.899$) respectively (Figure 1). Late grade 3/4 genitourinary (GU) or gastrointestinal (GI) toxicity was reported in three patients in the younger group and none in the elderly group. Age was not a significant prognostic factor in univariate analysis. In the CON arm of the BCON trial, elderly patients demonstrated similar LPFS (HR 1.03, 95% CI 0.99-1.06; log-rank $p=0.145$), but worse OS (HR 1.05, 95% CI 1.02-1.08; log-rank $p=0.002$) compared to their younger counterparts. Overall survival and LPFS in elderly patients were comparable between CON and GemX (HR 1.13, 95% CI 0.69-1.85; log-rank $p=0.616$ and HR 0.85, 95% CI 0.41-1.74; log-rank $p=0.659$) respectively (Figure 2).

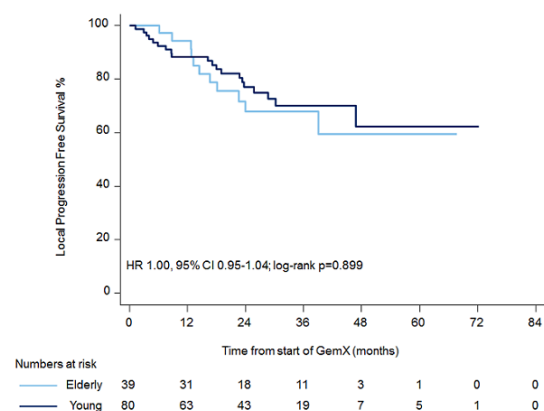


Figure 1. Kaplan-Meier curves for local progression free survival for elderly (light blue line) and younger (dark blue line) groups. Hazard ratio (HR), 95% confidence intervals (CI), log-rank p value and number of patients at risk against yearly intervals are shown. GemX, concurrent chemo-radiotherapy with gemcitabine radiosensitisation.

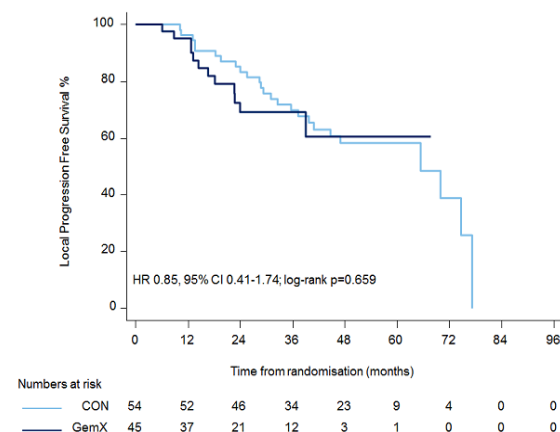


Figure 2. Kaplan-Meier curves for local progression free survival for elderly patients who received radiosensitisation with CON (light blue line) or GemX (dark blue line) (B). Hazard ratio (HR), 95% confidence intervals (CI), log-rank p value and number of patients at risk against yearly intervals are shown. CON, carbogen, oxygen and nicotinamide; GemX, concurrent chemo-radiotherapy with gemcitabine radiosensitisation.

Conclusion

Radiosensitisation is safe and effective and should be considered for fit elderly patients with MIBC.

OC-0125 Relevance of central pathology review in prostatectomy specimens: data from the SAKK 09/10 trial.

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Purpose or Objective

To conduct a central pathology review within a randomized clinical trial on salvage radiation therapy (RT) in the presence of biochemical recurrence after prostatectomy to assess whether this results in shifts of histopathological prognostic factors such as the Gleason Score.

Material and Methods

A total of 350 patients were randomized and specimens of 279 (80%) of the patients were centrally reviewed by a dedicated genitourinary pathologist. The Gleason Score, tumor classification and resection margin status were reassessed and compared with the local pathology reports. Agreement was assessed using contingency tables and Cohen's Kappa. Additionally, the association between other histopathological features (e.g. largest diameter of carcinoma) with rising PSA (up to 6 months after salvage RT) was investigated.

Results

There was good concordance between central pathology review and local pathologists for seminal vesicle invasion [pT3b: 91%; $k=0.95$ (95% CI 0.89, 1.00)], for extraprostatic extension [pT3a/b: 94%; $k=0.82$ (95% CI 0.75, 0.89)], and for positive surgical margin status [87%; $k=0.7$ (95% CI 0.62, 0.79)]. Agreement was lower for Gleason score [78%; $k=0.61$ (95% CI 0.52, 0.70)]. The median largest diameter of carcinoma was 16 mm (range, 3-38 mm). A total of 49 patients (18%) experienced a rising PSA after salvage RT. Largest diameter of carcinoma [odds ratio (OR): 2.04 (95% Confidence interval (CI): 1.30, 3.20); $p=0.002$], resection margin status [OR: 0.36 (95% CI: 0.18, 0.72); $p=0.004$]