

outcome is comparable with pelvic exenteration surgery and it is better with longer interval between two radiation schedules. However, larger series and longer follow-up of clinical outcome and late toxicities is required for further validation of current promising results.

#### OC-0089

##### Reirradiation in recurrent cervical and vaginal cancer: analysis of effectiveness and toxicity.

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**Purpose/Objective:** The aim of this retrospective study was to investigate treatment results and toxicity profile of reirradiation treatment in inoperable patients with first local recurrence of cervical or vaginal cancer. Additional analysis of clinical and dosimetric parameters was undertaken in order to define prognostic factor in this cohort.

**Materials and Methods:** Between 1997 and 2011, 20 patients have been treated at Brachytherapy Department in Warsaw for recurrent cervical (19) or vaginal (1) cancer. All patients were deemed inoperable or refused surgery. Median age of patients was 62 years (range 26-77). Three patients had adenocarcinoma, 16 - squamous cell carcinoma and one - carcinoma solidum undifferentiatum. Three patients were treated with combined EBRT and brachytherapy. In 9 patients brachytherapy was associated with hyperthermia treatment. The main technique used in brachytherapy applications was interstitial (11 patients), followed by vaginal cylinder (6) or intraoperative (3). The median EQD2 dose calculated for reirradiation treatment was 48,8Gy (range 25-91), and median cumulative EQD2 dose calculated for primary and reirradiation treatment was 133,5Gy (range 96,8-164,2). Early and late toxicity was scored with RTOG and RTOG/EORTC scales respectively. Kaplan-Meier estimates for overall survival(OS), disease free survival (DFS) and loco-regional control (LC) were calculated. Mantel-Cox's method was used to define the influence of clinical and dosimetric parameters on OS, DFS, LC and toxicity profile.

**Results:** The 3-year OS (95%CI) was 68% (44%-91%). The 2-year DFS (95% CI) was 42.1% (19.4%-64.8%). The 2-year LC (95% CI) was 45.1% (21.6%-68.6%). According to Mantel-Cox's analysis, the time to first local failure  $\leq 12$  months and tumour diameter > 3cm were both adverse prognostic factors affecting OS (p=0.001, 0,001 respectively), DFS (p=0.014,0,013 respectively) and LC (p=0.007, 0,005 respectively). Acute toxicity was acceptable, with no grade 3-4 radiation related toxic effects reported. GU and GI grade 3 late toxicity was observed in 2 patients (10%) and 1 patient (5%) respectively.

**Conclusions:** Reirradiation with the use of high quality brachytherapy is a treatment option in recurrent cervical and vaginal cancers with potential for permanent cure. Low level of severe late complications encourages total dose escalation in order to increase the chance of cure. According to the results of this analysis patients with local recurrence diagnosed during the first year of follow up or tumour diameter > 3cm should not be treated with radiotherapy again.

## POSTER DISCUSSION: 3: CLINICAL: HEAD& NECK/ LUNG

#### PD-0090

##### Altered fractionation radiotherapy for elderly patients with locally advanced head and neck cancer

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**Purpose/Objective:** Chemoradiotherapy is the standard of care for locally advanced head and neck cancer (LAHNC). However, many elderly patients are unsuitable for this approach. We report our experience of altered fractionated radiotherapy (RT) as a potential means of treatment intensification for this population.

**Materials and Methods:** A retrospective review was conducted on a prospectively assembled cohort of all newly diagnosed LAHNC (stage III-IV) in elderly patients (> 70 years old at the diagnosis) treated with RT alone in our institution between 1/1/2003 - 4/30/2010. RT regimens were not randomly assigned and were classified into 3 categories: a) standard RT (sRT) [70 Gy in 35 fractions over 7 weeks (70 Gy/35f/7w)], b) moderated accelerated RT (mRT) over 5 or 6 weeks (60 Gy/25f/5w, or 70 Gy/35f/6w), and c) very accelerated RT (vRT) over 4 weeks (64 Gy/40f/4w, twice daily). Appropriate supportive measures were provided during and after RT. Selective use of vRT was primarily in patients with good performance status but with bulky tumors. Overall survival (OS), locoregional control (LRC), distant control (DC), and actuarial late toxicity ( $\geq$ Grade 3 by EORTC/RTOG criteria) were calculated and compared among the sRT, mRT and vRT cohorts. Multivariate analysis (MVA) identified predictors for OS and LRC.

**Results:** A total of 294 patients were included (48 sRT, 178 mRT and 68 vRT). Disease sites were: oropharynx (113, HPV positive 38, negative 32, unascertained 43), larynx (93), oral cavity (33), unknown primary (23), hypopharynx (25), and nasal cavity (7). Six patients (2 sRT and 4 mRT) did not finish the RT and 77 patients (14 sRT, 46 mRT, 17 vRT) had unplanned breaks during RT. The vRT patients were younger (median age: vRT 74.9, sRT 75.2, mRT 76.5 years, p<0.01). Smoking pack-years and the proportions of oropharyngeal cancer, T4 and N2b-N3 category disease were similar among the 3 cohorts. Of the 183 deaths, 24/35 (69%) sRT, 64/107 (60%) mRT, and 22/41 (53%) vRT cases died of their index cancer. 3-year outcomes for the 3 cohorts are listed in table 1. MVA revealed mRT was associated with better OS (HR 0.62, p=0.02) and LRC (HR 0.49, p<0.01) vs sRT, while vRT was also associated with better OS (HR 0.49, p<0.01) and marginally improved LRC vs sRT (HR 0.66, p=0.19) when controlling for T- & N-category, age, smoking pack-years, and disease site.

Table 1. 3-year Outcomes of Patients Treated with Various Radiotherapy Regimens

| 3-year Outcome % (95% CI)     | Overall Survival | Loco-regional Control | Distant Control | Late Toxicity |
|-------------------------------|------------------|-----------------------|-----------------|---------------|
| sRT                           | 32 (21-50)       | 53 (36-66)            | 87 (72-94)      | 24 (12-47)    |
| mRT                           | 44 (37-53)       | 71 (64-77)            | 84 (78-89)      | 16 (10-24)    |
| vRT                           | 54 (43-68)       | 64 (51-74)            | 82 (70-89)      | 19 (11-32)    |
| p-value                       | 0.055            | 0.041                 | 0.945           | 0.641         |
| <b>Multivariate Analysis:</b> |                  |                       |                 |               |
| mRT vs. sRT                   | 0.62 (0.42-0.92) | 0.49 (0.28-0.84)      | N/A             | N/A           |
| p-value                       | 0.018            | 0.009                 |                 |               |
| vRT vs sRT                    | 0.49 (0.30-0.80) | 0.66 (0.36-1.22)      |                 |               |
| p-value                       | 0.004            | 0.190                 |                 |               |

Abbreviations: sRT: standard radiotherapy; mRT: moderated accelerated radiotherapy; vRT: very accelerated radiotherapy; 95% CI: 95% confidence interval

**Conclusions:** This non-randomized assigned cohort study demonstrates an association between altered fractionation RT schedules and outcome in elderly patients with LAHNC, without significantly increased late toxicity. The benefit of vRT is uncertain, since the observations are likely confounded by selection bias (bulkier tumor on the one hand and younger fitter patients on the other) and small sample size. With appropriate patient selection, altered fractionation RT is a valid treatment intensification option for the older population in the setting of appropriate supportive management during and following RT.

#### PD-0091

##### Plasma EBV DNA assay in post-treatment remission nasopharyngeal cancer patients- a prospective multi-center study

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**Purpose/Objective:** To investigate the clinical value of the plasma EBV DNA (pEBV DNA) assay in patients with nasopharyngeal carcinoma (NPC) after curative treatment.