interval [CI]: 64.8%-89%) and 95.8% (95% CI: 90-100%) respectively. Thirteen pts presented LR failures, of which 4 had isolated local failure, 4 had isolated regional failure, 2 had local and regional failures, and 3 had simultaneous LR and distant relapses. Of 13 pts with sequela of failure, 5 (38.5%) had marginal failure, with the remaining 92% failing truly in-field within the high-dose region. No patient recurred in vicinity of spared PG, SMG or OC. Surgical salvage for LR failure was attempted in 5 pts. Contralateral PG was spared in 98% of pts and ipsilateral PG in 54%. Concerning SMGs, 18 (26%) contralateral SMGs were spared and the ipsilateral SMG was spared in 5 pts. In other 13 (19%) pts doses to the SMGs below 50 Gy were obtained. The OC was spared to a dose ≤40 Gy in 26 pts (37%). None of the pts developed permanent xerostomia higher than grade 2 at the last follow-up visit.

Conclusions: The majority of LR failures occurred in-field within the high dose region. Sparing SMGs and OC in addition to PGs does not seem to jeopardize the LR control in HNC IMRT.

PO-0672
The prognostic impact of pretreatment dual-phase 18F-FDG-PET SUVmax in nasopharyngeal carcinoma
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Purpose/Objective: To evaluate the role of pretreatment dual-phase 18F-FDG-PET maximum standardized uptake (SUVmax) in predicting the outcome of nasopharyngeal carcinoma (NPC).

Materials and Methods: A total of 140 patients with newly diagnosed NPC were prospectively treated with IMRT plus neoadjuvant or concurrent chemotherapy between January 2006 and December 2008. Pretreatment SUVmax at 60 minutes (SUV1) and 150 minutes (SUV2) after injection of 18FDG were collected. We investigated the effects of SUVmax of primary tumor (SUV1-primary, SUV-2-primary) and neck lymph nodes (SUV1-neck, SUV2-neck) on locoregional failure-free survival (LRFFS), distant metastasis failure-free survival (DMFFS) and overall survival (OS).

Results: In univariate analysis, the 5-year rate of OS for patients with SUV1-primary <12.9 was significantly higher than those with SUV1-primary ≥12.9 (87.0% and 72.2%, p=0.044). SUV2-primary, SUV1-neck and SUV2-neck did not affect OS significantly. All SUVs of primary tumor and neck lymph nodes have significant effects on DMFFS (SUV1-primary <vs. ≥12.5, 89.1% vs. 70.8%, p=0.004; SUV2-primary <vs. ≥12.8, 88.6% vs. 76.4%, p=0.022; SUV1-neck <vs. ≥71.8%, p=0.003; and SUV2-neck <vs. ≥80.5%, p=0.024, respectively). All SUVs had no significant effect on LRFFS. In multivariate analysis, except for N stage, SUV1-primary, SUV2-primary and SUV1-neck were significantly independent predictors of DMFFS (hazard ratio=4.313, 95% CI=1.447-12.855, p=0.009; hazard ratio=3.769, 95% CI=1.548-9.285, p=0.004 and hazard ratio=3.769, 95% CI=0.985-14.420, p=0.053, respectively).

Conclusions: The SUV1- primary predicts OS by univariate analysis. The SUV1-primary, SUV2-primary and SUV1-neck were independently prognostic factors of distant failure.

PO-0673
Accelerated Helical Tomotherapy versus RapidArc in a head and neck cancer treatment planning study
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Purpose/Objective: To create Helical Tomotherapy (HT) plans for t

Materials and Methods: We made both a double arc RA plan on Eclipse and a standard HT plan on TomoHD™ according to the ICRU 83 guidelines in 5 OPC patients. In 32 fractions, a simultaneous integrated boost technique was planned to deliver 69.12 Gy (2.16 Gy / fraction) to the high risk volume (PTV of the GTV + 1cm) and 56 Gy (1.75 Gy / fraction) to the PTV of the remaining primary tumor region and the bilateral elective lymph node regions. Guidelines for all the organs at risk (OARs) were given. By modifying the beam width from 2.5 cm to 5.0 cm, elevating the pitch and lowering the modulation factor, we created Tomo Fast (TF) plans in which treatment times were equal to those in the RA plans. The homogeneity index (HI), the conformity index (CI), the mean dose, the Dnear-max (D2) and the Dnear-min (D98) of the PTVs were analyzed as well as the mean dose and specific critical doses and volumes of 26 OARs . Differences between the individual plans of the treatment planning systems were analyzed using repeated measures ANOVA.

Results: With a mean treatment time of 3.05 min for RA and 2.89 min for TF , PTVmean Coverage was more homogeneous with TF (mean HI .07; SE .01) than with RA (mean HI .10; SE .01). while PTVactive coverage was most homogeneous with RA. Mean doses to the parotid glands were identical for RA and TF: 25.62 Gy and 25.34 Gy for the contralateral and 32.02 Gy and 31.96 Gy for the ipsilateral gland, respectively. Spinal cord, cricopharyngeal muscle and cranial part of the esophagus received a lower mean dose when planned with TF, the glottic larynx when planned with RA. V20 of the lungs, mean dose of inner ears, brain and eyes, and the integral dose were higher with TF than with RA, probably due the 5 cm beam width related cranial-caudal gradient extension. For details, see enclosed Table.

PO-0674
Understanding the impact of two pharyngeal axis delineation guidelines for planning definition in head & neck IMRT
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Purpose/Objective: Optimisation of swallowing outcome after curative radiotherapy is multifaceted and requires maintaining the functional integrity of multiple pharyngeal axis structures. Recent dose/volume/outcome data (DVO) demonstrates a correlation between laryngeal dose and late oropharyngeal complication. Accurate and reliable DVO data demands consistent delineation, yet several guidelines for the delineation of the pharyngeal axis exist. This is a comparative study of two delineation guidelines of the pharyngeal axis and the implications that differences between them may have on dosimetry.

Materials and Methods: The pharyngeal axes (inclusive of superior (SPCM), middle (MPCM) and inferior pharyngeal constrictors (IPCM), cricopharyngeus(CP), oesophageal inlet (OI)) were retrospectively contoured by one clinician on five consecutive patients with SCC head and neck, utilising two different sets of delineation guidelines (G1 & G2)

Conclusions: This study shows that it is possible to treat OPC patients with TF as fast as with RA while giving comparable target coverage and sparing of most critical organs. However, with TF the higher dose to the organs at the cranial and caudal end of the target volume and the higher integral dose, both due to the extended cranial-caudal gradient, needs consideration. Moreover, compared to regular HT, both these faster techniques lose a (major) part of HT's OAR sparing capacity.
Post-irradiation adjuvant chemotherapy with oral tegafur-uracil in high-risk nasopharyngeal carcinoma

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Purpose/Objective: To evaluate the effect of post-irradiation adjuvant chemotherapy with oral tegafur-uracil in patients with high-risk nasopharyngeal carcinoma (NPC) after combined chemoradiotherapy.

Materials and Methods: Our definition of high-risk NPC included patients with 1) neck node > 6 cm; 2) supravacularular node metastasis; 3) skull base destruction/intracranial invasion plus multiple nodes metastasis; or 4) multiple neck nodes metastasis with one of nodal size > 4 cm. One hundred and sixty-three high-risk NPC patients finished full-course of concurrent chemoradiotherapy or neoadjuvant chemotherapy plus radiotherapy. Post-irradiation adjuvant chemotherapy with oral tegafur-uracil (200 mg twice daily) for 12 months was recommended to evaluate its impact on subsequent tumor relapse. One hundred and forty-one patients agreed to receive adjuvant oral tegafur-uracil. Two-week patients who refused adjuvant chemotherapy were served as a control.

Results: After a median follow-up of 38 months, 32 of 141 (22.7%) patients with adjuvant tegafur-uracil developed tumor relapse later, whereas 59.1% (13/22) patients without adjuvant tegafur-uracil had tumor relapse. The progression-free survival rates were significantly higher in patients with adjuvant tegafur-uracil than those without adjuvant tegafur-uracil (P=0.0001). The adjuvant chemotherapy of tegafur-uracil was well-tolerated with no grade 3/4 toxicity.

Conclusions: Post-irradiation adjuvant chemotherapy with oral tegafur-uracil for 12 months significantly reduced the relapse rate in high-risk NPC patients.

Table 1. Dose difference of Dmean between structures delineated with G1 and G2 guidelines

<table>
<thead>
<tr>
<th>Structure</th>
<th>% Difference</th>
<th>% Difference</th>
<th>% Difference</th>
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<td></td>
<td>G1</td>
<td>G2</td>
<td>G1</td>
<td>G2</td>
</tr>
<tr>
<td>MagenSD</td>
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<td>0.20</td>
<td>0.16</td>
<td>0.26</td>
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<td>Range</td>
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<td>1.59</td>
<td>1.50</td>
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<tr>
<td></td>
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<td></td>
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<tr>
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<tr>
<td></td>
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<td>0.4±1.8</td>
<td>0.1±1.8</td>
<td>0.2±1.9</td>
</tr>
</tbody>
</table>

Conclusions: Whilst this study reported varying degrees of correlation between planned dosimetry and spatial incongruity, it highlights the potential of dosimetric variability with inconsistent delineation guidelines and the mandate to investigate with a larger patient cohort across multiple critical structures. When critical structures lie in close proximity to areas of steep dose heterogeneity, delineation disparity and subsequent dose discrepancy is of greater significance. Integrity of future DVO data demands a consensus on delineation guidelines to ensure recommendations are robust in clinical practice.