**Materials and Methods:** From January 2011 to December 2013, 155 patients (97 male / 58 female) who had histopathologically confirmed NPC treated in our department with definitive-intent RT to a dose of 54 – 57 Gy (3 Gy daily fraction) for nasopharyngeal tumour and positive neck lymph nodes. The dose for the prevention irradiation of negative neck lymph nodes was 36 – 51 Gy (3 Gy daily fraction).
**Results:** Mean age was 44.9 ± 1.1 years (Range 16-81). Stage I, II, III, IVA and IVB (UICC 2009) were 7, 32, 40, 51 and 25 respectively. 118 patients received induction chemotherapy platinum-based. Commonest adverse effects (NCI-CTC 4.0) were: mucositis, dysphagia, and dermatisis. Grade 3 or 4 mucositis, dysphagia, dermatisis occurred in 16 cases (10.3%), 15 cases (9.7%) and 4 cases (2.6%) respectively. Response rate of 154 patients were (1 patient was refused evaluation): complete response 65.6%, Partial response 24.1%, stable disease 7.1% and progressive disease 3.2%. With median follow-up of 18 months, 10 and 15 patients were presented locoregional recurrence and metastasis respectively. The locoregional control (LRC), Metastasis free survival (MFS), disease free survival (DFS) and overall survival (OS) rates at one year were: 95.8% (±1.8%), 89.3% (±2.6%), 85.2 % (±3.1%) and 93.9% (±2.1%), respectively.
**Conclusions:** Preliminary findings using a hypofractionated scheme is a feasible option in the treatment of NPC (an effective regimen with an acceptable safety profile). However, an important number of patients and a longer follow-up are necessary to better appreciate the efficacy and the toxicity outcome (late effect) of this scheme.

**EP-1140**

**Dosimetric evaluation of jaw tracking in VMAT of head and neck cancers in True beam STx linear Accelerator**

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**Purpose/Objective:** Currently, during the delivery of the Rapid Arc® (RA)/Volumetric Modulated Arc Therapy (VMAT) plan, the jaws are fixed allowing the possibility of radiation leaking in-between leaves and in-between the leaves gaps from opposite pairs. The purpose of this work is to evaluate the potential improvement in Rapid Arc plans dosimetry when plan delivery allows for jaw tracking. This work represents one of the initial attempts to assess the usefulness of evaluating normal tissue dose reduction in dynamic VMAT on the True beam STx platform by tracking the multi-leaf collimator (MLC) apertures with the accelerator jaws.
**Materials and Methods:** We use the Eclipse (version 10.4) and Truebeam STx linear accelerator which allows jaw tracking during VMAT delivery for both the X and Y jaws. We considered, Brain, Head & Neck patients. We set the collimator between 15°and 30° and generate plans with and without jaw tracking for comparison. Special attention is given to the low dose regions where more noticeable differences were expected.Clinical radiation treatment plans for Brain, Head and Neck patients were converted to plans with the jaws tracking. Each plan without jaw tracking were planned to obtain target coverage within 1% of that in the original jaw tracking plan. The new plans were compared to the original plans in a Varian Eclipse treatment planning system (TPS). Reduction in normal tissue dose was evaluated in the new plan by using the parameters V5, V10, and V20 in the cumulative dose-volume histogram for the following structures: Brainstem, Spinal cord, Parotids. Cochlea, Oral Cavity, Larynx, Mandible In order to validate the accuracy of our beam model, MLC transmission measurements were made and compared to those predicted by the TPS.
**Results:** The greatest change between the original plan and new plan occurred at lower dose levels. The reduction in V20 was never more than 3.7% and was typically less than 1% for all patients. The reduction in V10 was never more than 6.9% and was typically less than 1.5% for all patients. The reduction in V5 was 1.4% maximum and was typically less than 0.5% for all patients. The variation in normal tissue dose reduction was not predictable, and we found no clear parameters that indicated which patients would benefit most from jaw tracking. Our TPS model of MLC transmission agreed with measurements with absolute transmission differences of less than 0.1 % and thus uncertainties in the model did not contribute significantly to the uncertainty in the dose determination
**Conclusions:** The amount of dose reduction achieved by collimating the jaws around each MLC aperture in VMAT appears to be similar and not more than 2%. Currently we are analysing more plans for other sites and with other geometries to improve the statistical significance of our conclusion.

**EP-1141**

**þ-tubulin II expression as a predictive marker for response to taxane-based chemotherapy in head and neck cancers**

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**Purpose/Objective:** The aim of the work was to assess the significance of beta-tubulin II (ßT-II) expression as a predictive marker for clinical response to neoadjuvant TPF chemotherapy (Docetaxel, Cisplatin, Fluorouracil) in locally advanced squamous cell head and neck cancers (LASHNC).
**Materials and Methods:** A group of 31 patients, without distant metastasis, with LASHNC in clinical stage III or IV of disease, not qualified primary for concurrent chemoradiation because of large primary tumor or bulky neck lymph nodes metastases, was analyzed retrospectively. In the therapy, 2–3 cycles of neoadjuvant TPF chemotherapy were used, followed by radiotherapy or chemoradiotherapy in all patients. The tumor response to neoadjuvant therapy was assessed according to RECIST vs 1.1, based on the results of facial skeleton CT scanning before and after the chemotherapy. Using immunohistochemical method, the presence of ßT-II in the tumor tissue was assayed in paraffin-embedded, archive tissue material collected from the patients before the start of the therapy. A computer analysis of IHC reaction image was performed using DensitoQuant software (3DHISTECH, Hungary). The high expression threshold was defined as presence of >17% of moderate and strong reactions in the specimen. The clinical response to TPF chemotherapy as categorized according to RECIST and by percentage of measurable lesions regression, in the context of level of ßT-II in cancer cells was analyzed.
**Results:** 12 specimens (38.7%) were classified to high and 19 specimens (61.3%) to low protein expression group. Partial regression (PR) of lesions after neoadjuvant chemotherapy

was found in 21 patients (67.8%) and stable disease (SD) was observed in 10 cases (32.2%). SD after chemotherapy was reported more often in patients qualified to high expression of ßT-II, whereas PR in the group of low protein expression (p=0.004). The increase in Histoscore (HS) parameter obtained from the computer image analysis was correlated with the observed lower regression of the tumor (r=–0.43, p=0.017). In patients with SD effect observed after induction chemotherapy the mean value of HS was 109.5 whereas in the PR group the mean value of HS was 28.34. No correlation between the response to radiotherapy and ßT-II expression was found (p=0.92). The difference in 1-year OS and PFS was not shown for the patients from neither the high or low ßT-II expression (OS 75% vs 63%; p=0.69, PFS 63% vs 58%; p=0.69).
**Conclusions:** The ßT-II protein expression level in tumor tissue is a predictive factor for clinical response to taxane-based neoadjuvant chemotherapy in LASHNC. In the case of high ßT-II expression the most probable effect of chemotherapy is tumor stabilization. Low ßT-II expression level may be a parameter used to select the patients with prognozed good response to TPF chemotherapy. In these patients realization of radiotherapy may be easier without the risk of delayed definitive treatment.

**EP-1142**

**Effects of the EGFR polymorphisms on survival of advanced oral cancer**

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**Purpose/Objective:** To investigate effects of the epidermal growth factor receptor (EGFR) polymorphisms on survival for advanced oral cancer patients.
**Materials and Methods:** A total of 156 patients with advanced oral cancer were treated with a uniform induction chemotherapy (Methotrexate 30 mg/m2 D1, Epirubicin 30 mg/m2 D1, alternating with Mitomycin-C 4 mg/m2 D8, Oncovin 1 mg/m2 D8, Cisplatin 25 mg/m2 D8, Leucovorin 120 mg/m2 D8, 5-fluorouracil 1000 mg/m2 D8, and Bleomycin 10 mg/m2 D8) for 8-12 weeks followed by local treatment (surgery/radiotherapy). Most patients (97.5%) belonged to stage IV and 70% presented with unresectable tumor. DNA extracted from peripheral blood cells of each patient were used for genotyping. Four EGFR polymorphisms, codon 497 (R497K), *CA simple sequence repeat 1 (CA-SSR1)* in intron one, and two single nucleotide polymorphisms in the promoter region (-216 G to T and -191 C to A) were examined. Overall survival (OS) and locoregional failure-free survival (LRFFS) according to EGFR polymorphisms were analyzed.
**Results:** The frequencies of the R/R, R/K, and K/K genotypes for R497K polymorphism were 26.3%, 48.7%, and 25.0%, respectively. The G/G, G/T, and T/T genotypes distribution for the -216 G to T polymorphism showed 91.0%, 7.7%, and 1.3%, respectively. Most patients (86.5%) belong to a longer CA repeats (>35 repeat) genotype. For the -191 C to A polymorphism, 100% patients were C/C type. Patients with heterozygosity of EGFR codon 497 (Arg/Lys) showed better survivals (5-year OS=34.9% vs. 23.1%, P=0.1545; 5-year LRFFS=46.2% vs. 24.9%, P=0.0663) than those of homozygosity (Arg/Arg or Lys/Lys). Better survivals were observed in patients with variant SNP -216 G/G genotype than those of -216 G/T or T/T genotypes (5-year OS=29.4% vs. 11.0%, P=0.0661; 5-year LRFFS=36.9% vs. 11.2%, P=0.0179). Combined both R497K and -216 G to T polymorphisms have more significant effects on OS (P=0.014) and LRFFS (P=0.010). The lengths of *CA-SSR1* repeats did not affect survival.
**Conclusions:** Combination of the R497K and -216 G to T polymorphisms of the EGFR is a significant prognostic factor in predicting survival for patient with advanced oral cancer.

**EP-1143**

**Intensity-Modulated Radiation Therapy (IMRT) in nasopharynx tumors: long term results**

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**Purpose/Objective:** The aim of the study was to report the long-term clinical outcomes of nasopharynx cancer patients treated with cisplatin based concurrent chemoradiation (RCT).
**Materials and Methods:** Patients with nasopharynx tumor (UICC Stage II-IV) treated with definitive RCT or neoadjuvant chemotherapy (NACT: Cisplatin + 5-Fluorouracil (CF) or Docetaxel + Cisplatin + 5-Fluorouracil (DCF)) followed by RCT from January 2006 to January 2014 were included in the analysis. According to a dose-escalation protocol, a total of 67.5-70.5 Gy in 30 fractions were delivered to primary tumor and involved nodes, 60 Gy in 30 fractions to high-risk nodal areas, and 55.5 Gy in 30 fractions to low-risk nodal areas. Simultaneous integrated boost IMRT/VMAT technique was used. Local control and overall survival were estimated by the Kaplan-Meier method.
**Results:** 26 patients (M/F: 19/7; median age: 55 years; range: 30-79 years; UICC stage: II (3 patients), III (8 patients) and IV (15 patients)) were treated and analyzed. 3 cycles of NACT (CF or DCF) was administered in 21 patients (81%). 15 patients were treated with IMRT/SIB and 11 with VMAT/SIB. Grade 3 or 4 acute toxicities (RTOG score) were: oral mucositis (8 patients: 31%); dysphagia (1 patient: 4%); dysphonia (2 patients: 8%); hematological suppression (6 patients: 23%). No Grade 3 or 4 late toxicity (RTOG EORTC score) was recorded. The 2- and 5-year local control were 84% and 60% and 2- and 5-year overall survival were 75% and 44%, respectively.
**Conclusions:** In our experience, a moderately accelerated concurrent RCT, even after induction chemotherapy, is feasible and well tolerated. Taking into account the