Results: Sequencing results of the tumours in the first three analysed patients showed somatic alterations of the cell cycle (TP53, CDKN2B), PI3K; AKT; RAS signalling cascades (ERBB3, HRAS, VHL, MTO1), chromatin regulation (TET2, ARID1A, KMT2A EZH2, MEN1), Notch signalling (FBXW7, NOTCH1) and DNA damage response (BRCA1, MLH1). The amount of cfDNA varied among patients and during treatment. Quantitatively, in 5 patients the amount of cfDNA increased during therapy (after week 1). In 4 patients no initial relevant change could be seen (stable after week 1). Currently patients are in follow up for evaluation of clinical outcome.

Conclusion: Our initial results suggest that monitoring cfDNA identifies different patient subsets. As a proof of concept, detection of cfDNA is feasible and a potentially promising tool to identify tumour specific ‘finger prints’. Perspectives we hope to use cfDNA as a liquid biopsy and biomarker to identify individual tumour signatures to personalise treatments, detect mutations for targeted therapies and to monitor treatment response.

EP-1075
Squamous cell carcinoma of maxillary sinus : 25-years experience in a single institution
S.H. Jeon1, H.G. Wu1, J.H. Kim1, C.I. Park1
Seoul National University Hospital, Radiation Oncology, Seoul, Korea Republic of

Purpose or Objective: To evaluate the clinical outcomes to find optimal treatment and analyze prognostic factors for squamous cell carcinoma of maxillary sinus.

Material and Methods: Between January 1990 and December 2014, 97 patients with histologically proven squamous cell carcinoma of maxillary sinus without distant metastasis, treated with either radical surgery and adjuvant radiotherapy (Op+RT) or radical radiotherapy (RT). Median age at diagnosis was 61. There was no stage I patient and only 5 patients were stage II, all treated with Op+RT. Among twenty-three patients with stage III disease, fifteen patients were treated with Op+RT and eight patients were treated with RT. For stage IVA cancer, thirty-three patients received Op+RT, and twenty-eight patients were treated with RT. All eight patients with stage IVB cancer were treated with RT. Neoadjuvant chemotherapy and concurrent chemotherapy were used in forty-five and nineteen patients, respectively.

Results: Median follow-up period after diagnosis was 30 months for all patients. For stage III cancer, Op+RT showed better outcomes than RT (5-year OS : 63.8% vs. 29.2%, p=0.12; 5-year PFS : 43.2% vs. 18.8%, p=0.16), although not statistically significant. For stage IVA cancer, however, two treatment options showed comparable results (5-year OS : 52.6% vs. 51.3%, p=0.80; 5-year PFS : 37.6% vs. 28.6%, p=0.53). Local failure was the most common pattern of failure, found in forty-two of ninety-seven patients (43.3%). Proportion of regional failures in initially node-negative patients was 21.4% (three out of fourteen). For initially node-negative cancer, regional failure was not observed in fifteen patients who received either neck dissection or neck irradiation, but in 14.7% (ten out of sixty-eight) who did not received neck treatment. In multivariate analysis, age younger than 60, positive resection margin and masticator space invasion were bad prognostic factors in Op+RT group. Masticator space invasion and subcutaneous tissue of cheek invasion were bad prognostic factors in RT group.

Conclusion: In squamous cell carcinoma of maxillary sinus, radical surgery followed by adjuvant radiotherapy should be recommended for stage III disease. For stage IVA, however, radical radiotherapy can be a good alternative option to surgery. Prophylactic neck treatment for initially node negative patients can prevent regional recurrence, with absolute risk reduction of about 15%. Masticator space invasion was found to be a bad prognostic factor for both treatment arms.

EP-1076
Phase II study of prophylactic radiotherapy in cN0 HNSCC patients based on sentinel node(s) SPECT/CT
E. Loneton1, G. Lawson1, B. Bihini1, S. Deheneffe1, I. Mathieu1, J. Installé1, T. Vander Borght2, M. Laloux3, J.F. Daisne1
1Clinique et Maternité Sainte-Elisabeth, Radiation Oncology, Namur, Belgium
2CHU Dinant-Godinne, Head and Neck Surgery, Yvoir, Belgium
3Namur Research Institute for Life Sciences Narilis, Unit of Biostatistics, Namur, Belgium

Purpose or Objective: Due to a risk of 18 to 45% of occult nodal metastases in cN0 HNSCC patients, prophylactic neck irradiation is often mandatory. Anyway, it leads to a large irradiation of normal tissues because bilateral drainage is the rule in only 30 to 50 % of individuals. Moreover, 15 to 30 % of the tumors drain in unpredicted nodal basins (risk of geographical miss). SPECT/CT lymphoscintigraphy of sentinel lymph nodes (SLN) could help individualizing prophylactic irradiation levels in cN0 patients and, hence, reduce irradiated volume and improve quality of life (QoL). This ongoing prospective phase II study investigates its oncological safety.

Material and Methods: Twenty-six patients with newly diagnosed cN0 SCC of the oral cavity, oropharynx, larynx or hypopharynx were included. All patients were imaged with SPECT/CT after 99mTc nanocolloid injection around the tumor. The neck levels containing up to four hottest SLN were identified and selected for prophylactic irradiation (CTVn-LS) by volumetric modulated arc therapy. A comparative virtual planning was performed with volumes selected according to international guidelines (CTVn-IG). QoL was assessed using EORTC C30 and HN25 scales.

Results: Migration was observed in all of the 26 patients (one with gamma probe only) with an average of 2.8 sentinel nodes detected per patient. CTVn-LS was totally encompassed by CTVn-IG in all patients but two with an unpredicted drainage in homolateral retropharyngeal levels. More than half of the patients has only a unilateral drainage. CTVn-LS and related PTV were systematically smaller than IG ones, by a factor of two on average. This led to significant dose decrease in identified OAR as well as remaining volume at risk. With a median follow-up of 24 months, no regional relapse was observed while 3 patients had a local one (11%). Crude overall survival rate is 89%. QoL preliminary data will be presented.

Conclusion: SPECT/CT lymphoscintigraphy of SLN allows individualizing prophylactic node CTV in cN0 HNSCC patients eligible for definitive radiotherapy. Both CTV and PTV are significantly reduced, which results in a significant dose decrease in OAR. At a median follow-up of 24 months, no regional relapse was observed but further follow-up and recruitment are necessary to ensure the oncological safety. QoL data are being analyzed.

EP-1077
Could site, age and stage be clinical factors for development of adaptive RT in head-neck cancer?
L. Lastrucci1, S. Bertocci1, S. Nanni1, V. Bini2, S. Borghesi1, A. Rampini1, G. Buonfrate1, R. De Majo1, P. Pernici1, P. Gennari1, C. Ceccarelli1
1San Donato Hospital Radiotherapy Unit, Oncology Department, Arezzo, Italy
2University of Perugia, Department of Medicine Section of Internal Medicine Endocrine & Metabolic Sciences, Perugia, Italy

Purpose or Objective: The aim of this study is to identify prognostic factors of treatment related toxicity after...