preponderance of locally advanced tumors, local control and overall survival are encouraging.

EP-1144
Utility of 18F-FDG PET-CT in advanced head and neck cancer patients after radical radiotherapy treatment
A.C. Hernandez Martínez1, S. Pedraza2, P. Sarandeses1, A. Gómez1, E. Caballero1, J.M. Estenoz2, J.F. Perez-Regadera2, A. Ruiz2
1Hospital 12 Octubre, Nuclear Medicine, Madrid, Spain 2Hospital 12 Octubre, Radiation Oncology, Madrid, Spain

Purpose/Objective: To assess the clinical utility of 18F-FDG PET-CT in patients with advanced head and neck squamous cell carcinoma (HNSCC), considering the prognostic value in staging study and the response to radiotherapy (RT) treatment with or without chemotherapy.

Materials and Methods: Radiotherapy planning was performed with 18F-FDG PET-CT in 28 patients (p) diagnosed of HNSCC between August 2009 and August 2013. Male/Female: 23/5. Mean age: 60 years (range: 49-74). Location primary tumor: larynx 11 (39%), oropharynx 6 (21%), hypopharynx 6 (21%) and oral cavity 5 (18%). Clinical tumor stage: III 4 (14%); IVa 23 (82%); IVb: 1 (4%). They were treated at our Center with curative intent using RT (mean dose 6943 cGy, range 6600-7000): with or without chemotherapy (concurrent n=25 and induction n=14). Minimum follow-up 12 months. Response was assessed by 18F-FDG PET-CT at least 8 weeks after completion of radiotherapy (mean 15 weeks, range 8-45). Maximum standard uptake value (SUVmax) of primary tumor (T) and lymph nodes (N) in staging PET were measured and compared in both groups of patients: those with complete response at treatment (CR) and those with no complete response (nCR). Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) and accuracy (Acc) were calculated in the response 18F-FDG PET-CT.

Results: Basal PET mean SUVmax for T and N was 19.48 and 10.50 respectively. The response 18F-FDG PET-CT showed complete metabolic response in 19 p (68%), partial response in 5 p (18%) and progression disease in 4 p (14%), with evidence of nodal disease in 4 p (14%) (mean SUVmax 4.89) and residual tumor in 8 p (29%) (mean SUVmax 8.34). In the follow-up period 17 p had no recurrence. Sensitivity, specificity, PPV, NPV and Acc of response PET-CT was 88%, 95%, 88%, 95% and 93% for primary tumor, and 67%, 91%, 50%, 95% and 88% for nodal disease. Overall survival (OS) and disease-free survival (DFS) at 2 years were 79% and 64%, respectively. Mean SUVmax of T in CR group and nCR were 19.33 and 19.68 respectively. Mean SUVmax of N were 9.31 and 12.41 respectively. We did not find differences statistically significant between nodal or primary tumor SUVmax and overall survival (p=0.9173 for T, p=0.3165 for N).

Conclusions: 18F-FDG PET-CT is a useful method for assessing response after radical chemoradiotherapy in advanced HNSCC, showing a high negative predictive value for primary tumor and lymph nodes. In our cohort, higher primary tumor and nodal SUVmax was not associated with lower rates of survival. Multi-institutional trials are required to establish stronger conclusion on this matter.

EP-1145
Radiotherapy impact on swallowing function in head and neck cancer. Preliminary results
P. Cocuzza1, P. Ferrazza1, F. Matteucci1, L. Fatigante1, T. Briganti2, B. Fattori2, S. Ursino2
1Azienda Ospedaliero Universitaria Pisana, U.O. Radioterapia, Pisa, Italy 2Azienda Ospedaliero Universitaria Pisana, U.O. Otorinolaringoiatria I, Pisa, Italy

Purpose/Objective: To report initial results of a prospective clinical trial aimed to assess instrumental swallowing function in nasopharynx and oropharynx cancers. Objective instrumental assessment included Videofluoroscopy (VFS), Fiberoptic Endoscopic Evaluation of Swallowing (FEES) and Oro-Pharyngeal-Esophageal Scintigraphy (OPES) at baseline and 1,6 and 12 months after radiotherapy. Dysphagia parameters scores were calculated and reported at each exam both after liquid (L) and semi-liquid (SL) bolus intake: pre-swallowing penetration, aspiration, pharyngeal transit time (PTT) and hypopharyngeal retention index (HPRI).

Materials and Methods: IMRT was delivered aiming to spare the swallowing organ at risk (SWORs) for Stage II-IV naso and oropharynx cancer. Objective instrumental assessment included Videofluoroscopy (VFS), Fiberoptic Endoscopic Evaluation of Swallowing (FEES) and Oro-Pharyngeal-Esophageal Scintigraphy (OPES) at baseline and 1,6 and 12 months after radiotherapy. Dysphagia parameters scores were calculated and reported at each exam both after liquid (L) and semi-liquid (SL) bolus intake: pre-swallowing penetration, aspiration, pharyngeal transit time (PTT) and hypopharyngeal retention index (HPRI).

Results: Overall 20 patients (6 Nasopharynx and 14 Oropharynx) completed treatment and instrumental assessment at 1 month. Correlations between the pre and post-treatment changes in HPRI scores resulted statistically significant both at FEES-L (p<0.01), SL (p<0.001) and VFS-L (p<0.001) and at VFS-5L (p<0.001) and SL (p<0.005). Moreover significant relationships between baseline and 1 month HPRI score at FEES-L and HPRI-5L (p<0.005) as well as at VFS-L and VFS-5L (p<0.001), were observed. Differently, PTT resulted not significantly affected by radiotherapy (p<0.2). Only few patients experienced pre-swallowing penetration (1 patient with base of tongue cancer at FEES-L and SL) and aspiration (1 patient with nasopharynx cancer at OPES-L and FEES-5L) after radiotherapy.

Conclusions: Our early results showed that radiotherapy significantly increased the post-swallowing HPRI. Longer follow-up will be necessary to evaluate if the increase of HPRI is related to an high risk to develop late aspiration.

EP-1146
Imaging in SCCHN: Can SUVmax of pretreatment FDG PET/CT in locally advanced SCCHN predict treatment outcome?
A. Bunea1, H. Kerti1, N. Wiedenmann1, M. Mix2, A.L. Grosu1
1University Hospital Freiburg, Department of Radiation Oncology, Freiburg, Germany 2University Hospital Freiburg, Department of Nuclear Medicine, Freiburg, Germany

Purpose/Objective: It was previously shown that SUVmax of pretreatment 18-Fluorodesoxglycosucrose PET/CT (FDG-PET) of the primary in locally advanced lung cancer patients was associated with higher risk of distant failure (DF) (V.J. Nair et al., 2014). The following analysis tries to find similarities in case of locally advanced, non-metastatic patients with
squamous cell carcinoma of the head and neck (SCCHN) who are treated with combined chemoradiation (CRT). The aim was to find a potential SUV\text{\textsubscript{max}} threshold to predict risk of distant failure (DF), local failure (LF) and regional failure (RF). This may help identifying patients at risk and subject them to intensified treatment.

**Materials and Methods:** In a study conducted between 2008 and 2014, 21 patients were prospectively analyzed for dynamics of tumor hypoxia during CRT. This consisted of radiotherapy in IMRT-technique (5 x 2 Gy/week up to 70 Gy) and concurrent platinum-based chemotherapy (weeks one, four and seven). Additionally the patients received pretreatment FDG-PET and MRI scans of the head and neck and FMISO-PET. The SUV\text{\textsubscript{max}} determined in the FDG-PET/CT were used for further analysis to find a correlation with DF, LF and RF. In follow-up (FU) we performed regular CT and MRI scans of the head and neck and lung. For correlation analysis we used Spearman coefficient. We performed statistical analysis with SPSS Statistics 21 (IBM).

**Results:** Between 08/2008 and 04/2014, 22 patients (three women and nineteen men) with histologically proven SCCHN were recruited, mean ECOG score 1, average FU time was 30.6 months (0.6-63 months). Two patients developed DF (9.1 %), five patients developed local (22.3 %) and two patients regional failure (9.1 %), respectively. The correlation coefficient between DF, LF, RF and FDG-SUV\text{\textsubscript{max}} was -0.061, -0.26 and 0.06, respectively. Median SUV\text{\textsubscript{max}} in FDG-PET was 14.4 (n=20). Average SUV\text{\textsubscript{max}} of patients with any treatment failure (DF, LF and RF) was 15.2 (n=7).

**Conclusions:** There could not be shown a significant correlation between DF, LF or RF and SUV\text{\textsubscript{max}} in FDG-PET. But there may be a higher risk for failure above that threshold. It is important to determine and report an SUV\text{\textsubscript{max}} threshold to predict risk of treatment failure (DF, LF and RF) was 15.2 (n=7).