THE ROLE OF ORO-PHARYNGEAL-ESOPHAGEAL SCINTIGRAPHY IN THE EVALUATION OF THE SWALLOWING FUNCTION IN PATIENT WITH NASOPAHRYNX AND OROPHARYNX CANCER AFTER RADIOTHERAPY: SHORT-TERM RESULTS OF AN ONGOING PROSPECTIVE STUDY

G. Puccini¹, M. Grosso¹, E. Tardelli¹, E. Fiasconaro¹, S. Margotti¹, M. Gennaro¹, L. Locantore¹, F. Guidoccio¹, S. Ursino², B. Fattori³, F. Matteucci³, D. Volterrani¹

¹Department of Nuclear Medicine, University Hospital S.Chiara, Pisa, Italy
²Department of Radiation Oncology, University Hospital S. Chiara, Pisa, Italy
³Otorhinolaryngology-Audiology-Phoniatric Unit, University Hospital Cisanello, Pisa, Italy

BACKGROUND-AIM

To report the initial results of a prospective trial aimed to assess instrumental deglutition function (Videofluoroscopy, Oro-Pharyngeal-Esophageal and Fiberoptic Endoscopic Evaluation) in nasopharynx and oropharynx cancers after radio or chemoradiotherapy using intensity-modulated radiotherapy (IMRT) aiming to spare the swallowing organ at risk (SWOARs).

METHODS

Between June 2012 and December 2013, we enrolled 20 patients affected by Nasopharynx (6) or Oropharynx (14) cancer (Stage II-IVA), with histological proven diagnosis of undifferentiated nasopharyngeal-type carcinoma or squamous cell carcinoma, age < 80 years old, and Eastern Cooperative Oncology Group Performance Status (ECOG PS) between 0-2.

Objective instrumental assessment of swallowing function included Videofluoroscopy (VFS), Fiberoptic Endoscopic Evaluation of Swallowing (FEES) and Oro-Pharyngeal-Esophageal Scintigraphy (OPES) at baseline, 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-deglutition penetration, aspiration, pharyngeal transit time (PTT) and hypopharyngeal retention index (HPRI).

RESULTS

The examination of the relationships between the pre and post-treatment changes in HPRI score was found to be statistically significant both at FEES-L (p=0.021) and SL (p=0.02) and at VFS-L (p=0.008) and SL (p=0.005) and OPES-SL (p=0.028). In particular we found a SLHPRI worsening scores from the baseline to 1 month after treatment. Besides, all patients showed a worsened HPRI scores at VFS-SL and OPES-SL as well as 14 (70%) at FEES-SL. On the contrary, PTT resulted not significantly affected by RT at the three different exams both after L and SL bolus intake. Furthermore, the pre-deglutition penetration at 1 month was detected in only 1 patient (base of tongue) at FEES-L and SL while aspiration at 1 month was detected in 1 only patient (nasopharynx) by OPES-L and FEES-SL respectively.

CONCLUSION

Our early preliminary data seem to confirm a low percentage of major instrumental dysfunction (pre-deglutition penetration or aspiration) after IMRT and lack of severe side effects (PEG positioning or clinical aspiration). In our opinion IMRT has shown to significantly limit acute severe deglutition sequelae in HN cancer treated patients compared to historical literature data. Thus, the dysphagia assessment using solid bolus might have shown a higher percentage of HPRI worsening due to the requirement of a stronger muscular propulsion in this set of patients. Indeed, longer follow-up and greater sample size are needed to further evaluate if the observed increase of HPRI by instrumental methods such as OPES, would be related to a high risk of developing late aspiration (6 and 12 months).