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Conclusion

Today, for a variety of indications in the head region, e.g. metastases, meningiomas, vestibular schwannoma, or brain tumors, stereotactic high-precision radiation therapy can offer the most precise and particularly gentle therapy. Through the close interdisciplinary network with the surgical as well as the imaging disciplines, innovative concepts are implemented into personalized medicine in modern radiooncology. In further analysis steps, we plan to examine toxicity rates and compare them with other RT treatment strategies.

EP-1178 Patterns of LRF in elderly HNSCC patients treated with definitive RT in relation to dose distribution

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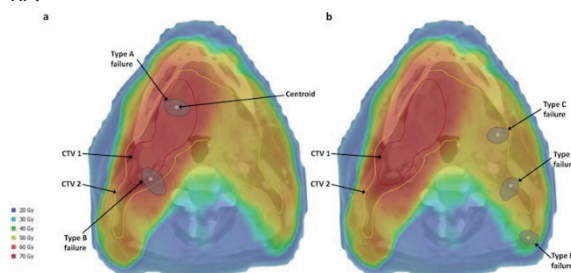
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Purpose or Objective

The primary aim of this study was to report on loco-regional tumor failure (LRF) rates of elderly head and neck squamous cell carcinoma (HNSCC) patients treated with definitive radiation therapy compared with those of young patients, in relation to the original dose distribution, referred to as the centroid-based method. The second aim was to determine the most important prognostic factors for LRF, local tumor failure (LF) and regional tumor failure (RF) for the elderly HNSCC patients.

Material and Methods

Prospectively collected data was retrospectively analyzed of all consecutive HNSCC patients treated between April 2007 and December 2014 treated with definitive radiation therapy (66-70 Gy) in our department. A total of 662 patients were included in the study. 165 patients were 70 years of age and older, including 35 patients (21.2%) with LRF. The centroid-based method was performed to classify LRF, LF and RF into five types (figure LRF types); A (central therapeutic dose), B (peripheral therapeutic dose), C (central elective dose), D (peripheral elective dose), and E (extraneous dose). Cox proportional hazards model was used to perform univariable and multivariable regression analysis to identify risk factors for LRF, LF and RF.



Results

In this study, 147 patients (22.2%) developed LRF. No difference between the elderly and young patients was observed regarding LRF rate (23.6% versus 24.2%; $p=0.826$) and LF rate (19.8% versus 13.7%; $p=0.066$). However, the 3-year RF rate was significantly lower in the elderly compared to the young patients (6.8% versus 11.4%; $p=0.042$).

112 patients (76.2%) were diagnosed with at least one LRF classified as tumor failure type A or type B. Nine

patients (6.1%) with LRF classified as tumor failure type C or type D and 15 patients (10.2%) with LRF outside the original CTVs. There was no difference in distribution of the LRF classifications between the elderly and young patients ($p=0.482$).

Multivariable Cox regression analysis for LRF type A and B showed WHO-PS ($p<0.001$), primary tumor volume, ($p=0.002$), N-classification ($p=0.003$), smoking habits ($p=0.008$) treatment technique ($p=0.042$) as statistical significant prognostic factors. Multivariable Cox regression analysis for only LF type A and B showed primary tumor volume ($p<0.001$), WHO performance score ($p=0.036$) and smoking habits ($p=0.043$) as statistical significant prognostic factors. Age was not found to be statistically significant in both multivariable Cox regression analysis for LRF and LF ($p=0.385$ and $p=0.391$ respectively). No multivariable Cox regression analysis for RF could be done.

Conclusion

Patterns of LRF and LF in elderly HNSCC patients do not differ from the young patients group. Elderly have statistically significant better 3-year cumulative rates of RF compared to young patients. Multivariable prediction model for LRF type A & B and LF type A and B for all patients could be made.

EP-1179 Usefulness of [18F]FDG-PET/MRI in clinical evaluation of head and neck cancer (HNC) patients (pts)

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Purpose or Objective

The optimal treatment of HNC patients is based on proper diagnosis and appropriate clinical staging. PET/MRI as a novel hybrid imaging technique which enables simultaneous whole body high resolution molecular MR and metabolic PET examinations performed during one session.

The purpose of this study was the assessment of the impact of [¹⁸F] fluorodeoxy-d-glucose (FDG) PET/MR hybrid (FDG-PET/MR) hybrid examination on the staging, qualification for surgery, radiotherapy (RT), chemotherapy or combined treatment of HNC pts and target volume delineation during modern VMAT RT planning.

Material and Methods

Twenty-two pts (F/M: 12/10, mean age: 60 ± 45 13,2 with detected clinically, pathologically and in computed tomography (CT) squamous cell HNC underwent FDG-PET/MR using Biograph mMR (Siemens, Germany) system before the decision on the treatment. Whole body PET/MR scans were obtained 60 min after [¹⁸F] FDG injection of mean activity of 295 ± 45 MBq. Additionally, all pts underwent ¹⁸F-FDG PET/MR and gadolinium contrast enhanced (CE) MR of the head and neck in the