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Poster

The Role of PET-CT After Chemoradiation in Partially Regressed Nodal Disease

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Abstract

Objective: Fluorine-18 fluorodeoxyglucose positron emission tomography-computed tomography (PET-CT) is emerging as an assessment tool in head and neck squamous cell carcinoma (HNSCC). In addition, PET-CT is readily used in the diagnosis of nodal response after chemoradiation. We present our experience with the PET-CT in evaluating residual abnormalities after chemoradiation. Methods: Three hundred and fifty five patients with locally advanced stage III-IVa-b HNSCC were treated wit chemoradiation at the Centre Hospitalier de l'Université de Montréal between 2006 and 2010. Radiation therapy consisted of 70 grey in either 33 or 35 fractions given with concomitant platinum based chemotherapy. Three hundred and forty patients had complete response at primary tumor, of which 254 had complete regression at nodal site and 86 with a partial nodal response. The majority of cervical assessment was done with CT, however, seventeen patients with partial response had a PET-CT 8 to 14 weeks after treatment. PET-CT was categorized as probably positive or negative. Neck dissections were then performed on all patients and histopathological results were used as gold standard. Results: Twelve patients were treated for newly diagnosed oropharyngeal carcinomas and five for oral cavity carcinomas. PET-CT was done on average 11.9 weeks after treatment (SD: ± 2,8). PET-CT detected all residual adenopathies expect for two which were deemed to have microscopic invasion. However, PET-CT results did not significantly correlate with pathology (p = 0.384). T and N staging were associated to complete regression (p = 0.04 and 0.05 respectively). The specificity and sensibility of PET-CT as a diagnostic tool for nodal disease were 55% and 67% respectively. The positive predictive value was 44% whereas the negative predictive value of the PET-CT was 75%. Conclusion: Although helpful, early follow-up with PET-CT in a post chemoradiation setting is sub-optimal. The diagnostic performance of PET-CT can possibly be increased by allowing chemoradiation effects to normalize with time.

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65