

Positron emission tomography/computed tomography (PET/CT) in the head and neck

Nuray BAYAR MULUK

Department of Otolaryngology, Kirikkale University, School of Medicine, Kirikkale,



Positron emission tomography/computed tomography (PET/CT) is carried as injection of positron-emitting radionuclides, such as (18) F-fluorodeoxyglucose (FDG). Positron-emitting radionuclides are taken by metabolically or functionally active tissues. These emissions are detected and three dimensional images are obtained by reconstruction techniques. In head and neck malignancies, it has a sensitivity of 77% - 96% and a specificity of 82% - 100% for detection of cervical lymph node metastasis [1,2]. PET/CT is as sensitive and specific as Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) for detection of primary head and neck tumors [3,4]. False negativities are also seen in necrotic or cystic lymph nodes, lymph nodes less than 5 mm, and tumors of low metabolic activity [5]. Yongkui et al [6] performed a metaanalysis including 14 articles and 742 patients with head and neck cancer. They concluded that (18) FDG-PET/CT had good diagnostic performance for the detection of regional nodal metastasis in patients with primary head and neck cancer before treatment. Fletcher et al [7] reported that PET/CT should be used to detect distant metastasis; and it should be performed additionally to the CT and MRI.

To evaluate PET/CT images, SUVmax value is important. Joo et al [8] reported that SUVmax value of 2.25 predicts extracapsular spread of cancer from the lymph nodes. Whereas, Dequanter et al [9] reported that (18) F-FDG PET/CT SUVmax cutoff value was 4.15 for cervical lymph node metastasis and extracapsular spread in head and neck cancer patients. Clark et al [10] reported that elevated nodal SUVmax is a significant predictor of human papillomavirus (HPV) / p16 positive disease in oropharyngeal squamous cell carcinoma.

In this issue of the Turkish Journal of Clinics and Laboratory, Açıkalın et al wrote a review entitled the usage of PET/CT imaging in head and neck cancer. They mentioned that PET/CT is progressively becoming on routine usage in head and neck cancer staging. By the help of PET/CT, cancer staging can be made easier by whole body scanning, by characterization of the lymph nodes accurately by showing the presence of head neck tumors. They also presented their case of primary unknown neck mass. In their case, PET/CT showed excessive involvement of the tongue base and diagnosed as moderately differentiated squamous cell carcinoma according to Açıkalın, et al's paper. I recommend readers of our Journal to read Açıkalın, et al's paper carefully to update their knowledge for usage of PET/CT in head and neck cancer patients.

By recent advances in medicine, PET/CT is used in routine diagnosis modality for the head and neck cancer in terms of primary and recurrent tumors, nodal and distant metastasis. As it is an expensive diagnosis tool, the usage algorithms should be followed carefully.

References

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