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EDITORIAL COMMENTARY

^{18}F-Fluorocholine PET/CT as a complementary tool in the follow-up of low-grade glioma

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The management of low-grade glioma (LGG) is still challenging because malignant transformation to a high-grade tumor and/or recurrence after primary therapy may result in an unfavorable outcome. Since CT and MRI have limited capability to detect subtle changes indicative of recurrence, metabolic imaging markers were tested. In earlier studies, increased choline signal in proton magnetic resonance spectroscopy (MRS) was reported in patients with low- to high-grade malignant transformation and posttreatment recurrence in LGG [1]. Positron emission tomography (PET) with ^{18}F-fluorodeoxyglucose (FDG) was also utilized to detect malignant transformation/posttreatment recurrence [2]. However, these are not widely utilized in the present clinical setting.

The study by Gómez-Río and colleagues demonstrated that ^{18}F-fluorocholine PET/CT is useful to detect a recurrence of posttreatment LGG [3]. The value of this study is that the study was prospectively done in comparison with standard/advanced radiological examinations performed with clinically available procedures at present. In their study, 44 patients treated for LGG undergoing standardized follow-up at a single center were enrolled. They were subdivided into two groups. One was followed by a standard diagnostic approach including advanced MRI (diffusion, perfusion MRI, and proton MRS) and ^{201}Tl single photon emission computed tomography (SPECT). Another was followed by advanced MRI and ^{18}F-fluorocholine PET/CT. The gold standard diagnosis was histological confirmation or clinical follow-up of 6 months. The global diagnostic accuracy was 90.9 % for advanced MRI, 69.2 % for ^{201}Tl SPECT, and 100 % for ^{18}F-fluorocholine PET/CT. This style of the study provided a clear decision tree of imaging examination, the location of ^{18}F-fluorocholine PET, in patients with posttreatment LGG.

Before introducing ^{18}F-fluorocholine PET/CT into clinical practice, further analysis including a comparison of patient prognosis between groups with and without ^{18}F-fluorocholine PET/CT is needed. Although the availability of ^{18}F-fluorocholine is still limited, extended multicenter trials using a standardized protocol are expected.

References

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