

## Clinical utility of different approaches for detection of late pseudoprogression in glioblastoma with O-(2-[18F]fluoroethyl)-L-tyrosine PET [Abstract]

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## **Clinical utility of different approaches for detection of late pseudoprogression in glioblastoma with O-(2-[<sup>18</sup>F]fluoroethyl)-L-tyrosine PET**

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### **Ziel/Aim:**

Positron emission tomography/computed tomography (PET/CT) using O-(2-[<sup>18</sup>F]fluoroethyl)-L-tyrosine ([<sup>18</sup>F]FET) has proven valuable in differentiating tumor recurrence from therapy-induced changes. This study aimed to investigate the diagnostic performance of several analytic approaches in the setting of suspected late pseudoprogression in glioblastoma (GBM).

### **Methodik/Methods:**

Retrospective analysis of tumor recurrence was performed in 36 patients with histopathologically confirmed GBM and suspicion of recurrence/disease progression > 12 weeks from cessation of irradiation as based on MRI and Response Assessment in Neuro-Oncology (RANO) working group criteria. Images were analyzed visually and semi-quantitatively including regions of interest (ROI) and tumor-to-background (TBR) ratios using five different analytic approaches for ROI definition. Histopathology and/or clinical and imaging follow-up served as reference.

### **Ergebnisse/Results:**

[<sup>18</sup>F]FET-PET/CT was able to reliably differentiate pseudoprogression from true tumor recurrence with areas under the receiver operating characteristic curve ranging from 0.80 to 0.88 ( $p < 0.01$ ). Irrespective of the approach chosen, the classification differences between the five applied methods were not significant (all  $p > 0.05$ ).

### **Schlussfolgerungen/Conclusions:**

Irrespective of the analytical approach, [<sup>18</sup>F]FET-PET/CT is a robust tool for detection of late pseudoprogression with only minor differences between different analytical approaches. However, methodological standardization and harmonization are needed to ensure comparability between different centers.