

Title: How FDG-PET Helped us After 210 Epilepsy Operations?

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Abstract:

Positron emission tomography (PET) with 18F-fluorodeoxyglucose (FDG) is a standard diagnostic method in presurgical evaluation of patients with focal pharmacoresistent epilepsy using for determining the localisation of epileptogenic foci. Interictally epileptogenic focus visualizes as hypometabolic zone, and ictally as hypermetabolic zone.

Objective: Evaluation of FDG-PET imaging in the presurgical lateralization and localization of epileptogenic foci

Patients and methods: FDG-PET scan was performed for 618 patients (ages 5-65 y) with focal refractory epilepsy. The images were evaluated by visual (SPM) analyses and findings were compared with the epileptogenic zone determined by scalp video-EEG monitoring and MRI results.

Results: The epileptogenic focus manifested as hypometabolic zone interictally in 610 patients, and in 8 patients as hypermetabolic zone-ictal PET. Out of 210 operated patients, 108 (51%) were needed FDG-PET. In patients with the MRI-identified lesions less hypometabolic area on FDG-PET suggested better prognosis of surgery. In patients with MRI suspected bilateral hippocampal sclerosis or discordant video-EEG and MRI findings, PET helped in lateralization of foci. In patients with normal MRI initially (especially extratemporal epilepsy), FDG-PET hypometabolic zone pointed to a possible localization of focus. Detailed analysis of MRI findings and additional MRI sequences and coregistration of MRI and PET findings confirmed localization of epileptogenic foci and according to that, patients were successfully operated. PET findings in neocortical temporal lobe epilepsy contributed to the decision of extensiveness of surgery-lesiectomy if there was maintained metabolism in mesiotemporal structure.

Conclusion: FDG-PET may help in precise determination of epileptogenic foci, especially in patients with normal-nonlesional MRI or discordant MRI and video-EEG findings. Size of hypometabolic zone can help in the decision of resective surgery strategy.

Biography:

Leposava Brajkovic was born on January 7, 1962. She is a specialist in nuclear medicine and neurology. She works in the department of nuclear neurology, SPECT and PET studies of the brain.