
PSMA PET/CT for detecting prostate cancer



German researchers have found a new marker for differentiating cancerous tissue from healthy tissue in prostate cancer patients. Based on their study, the maximum standardised uptake value (SUVmax) on Gallium-68 prostate specific membrane antigen (68Ga-PSMA) PET/CT scans correlates with PSMA-expression in primary prostate cancer. With this method, the researchers were able to generate an SUVmax cutoff for the differentiation of cancerous and benign prostate tissue, according to the study published in The Journal of Nuclear Medicine.

For the study, the data of 31 men (mean age of 67.2 years) who had undergone prostatectomies and preoperative PET scans were analysed, with the SUVmax generated for suspicious areas and visually normal tissue. Both cancerous and benign prostate tissue samples (62 total) were stained with monoclonal anti-PSMA antibody. All the cancerous lesions could be confirmed histopathologically. The best cut-off value was determined to be 3.15 (sensitivity 97 percent, specificity 90 percent).

"To the best of our knowledge, this was the first study to generate a cut-off SUVmax, validated by immunohistochemistry, for separating prostate cancer from normal prostate tissue by 68Ga-PSMA PET/CT images," explains Vikas Prasad, MD, PhD, of Charité Universitätsmedizin Berlin in Germany. "This validated cutoff of 3.15 for SUVmax enables the diagnosis of prostate cancer with a high sensitivity and specificity in both unifocal and multifocal disease."

According to the American Cancer Society, one in nine men will be diagnosed with prostate cancer in his lifetime. Early diagnosis is key to successful treatment. There have been tremendous advances in image-based biopsy of the prostate in recent years. However, as Dr. Prasad points out, histopathology may not always yield correct diagnosis (e.g., if the tumour is missed during true-cut biopsy). "This is especially true for multifocal prostate cancer, less aggressive tumours, and cases of prostatitis or prior prostate irradiation, where MRI alone may not give the correct localisation and malignancy grade," the doctor explains.

Looking ahead, Dr. Prasad posits, "With advancement of image-registration/segmentation software and PET/MRI scanners, it is quite logical to predict that in the future PET images and SUVmax on a suspicious lesion in the prostate will be used for multimodal image-guided fusion biopsy."

Source: [Society of Nuclear Medicine and Molecular Imaging](#)

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