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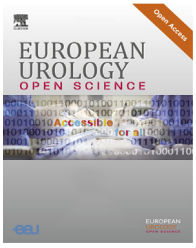

Open to Debate Con

Prostate-specific Membrane Antigen Positron Emission Tomography, Not Conventional Imaging, Should Be Performed for Primary Staging of High-risk Prostate Cancer: Con

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All clinical trials thus far have used conventional imaging with bone and computed tomography (CT) scans in selecting men for systemic treatment options. Novel imaging tools such as prostate-specific membrane antigen (PSMA) positron emission tomography (PET) have greater accuracy compared to conventional modalities. Does this mean that PSMA PET can replace conventional imaging in the management of men with prostate cancer in current practice? Since we are still a long way from identifying microscopic metastases via imaging, how reliable is imaging needed to be in order to guide clinical decisions? How relevant are microscopic metastases in prostate cancer anyway? Could imaging that is too accurate lead to over- or undertreatment? All of these questions need some sort of answer to balance the value of current imaging technology in prostate cancer.

Here we evaluate the role of PSMA PET in the staging and management of prostate cancer.

Mounting evidence has shown the superiority of PSMA PET for detecting metastases of prostate cancer in comparison to more conventional imaging options such as CT and bone scans. However, the latter two options were the backbone of diagnostics in all available large randomized controlled trials (RCTs). Inclusion criteria for studies on localized as well as metastasized disease comprised these imaging options, and changes in care based on radiological follow-up used conventional imaging results.

Early studies with histological confirmation showed sensitivity for PSMA PET of >90% for detection of positive lymph nodes before prostatectomy [1]. However, only 27% of nodal metastases of 2–4 mm were detected in a later study [2] and high sensitivity of >70% for detection was only confirmed for nodal metastases of >8 mm in size [3]. The sensitivity was generally better for per-patient staging than for per-node staging, suggesting that PSMA PET tends to underestimate the extent of nodal metastases in up to 42% of cases [4], albeit with a low false-positive rate for pelvic nodes [5–7]. Since primary tumor treatment in men with pelvic nodal metastases was found to be beneficial [8,9], it remains to be determined whether pelvic nodal staging via PSMA PET should therefore affect recommendations. An RCT on PSMA PET versus conventional imaging showed superior sensitivity for PSMA PET but quite similar specificity, suggesting that both methods may miss (micro) metastases [6]. In that study, 14% of patients underwent palliative rather than curative treatment. However, many benign and malignant lesions show uptake of PSMA-targeted tracers and may result in false-positive findings. It has been shown that Paget's disease, rib fractures, fibrous dysplasia, vertebral hemangioma, multiple myeloma, melanoma, meningioma, and isolated mediastinal nodes all produce PSMA-avid lesions not related to prostate cancer. Therefore, PSMA PET imaging may result in both understaging and overstaging, with a potential impact on patient management (Fig. 1). Care should be taken to avoid

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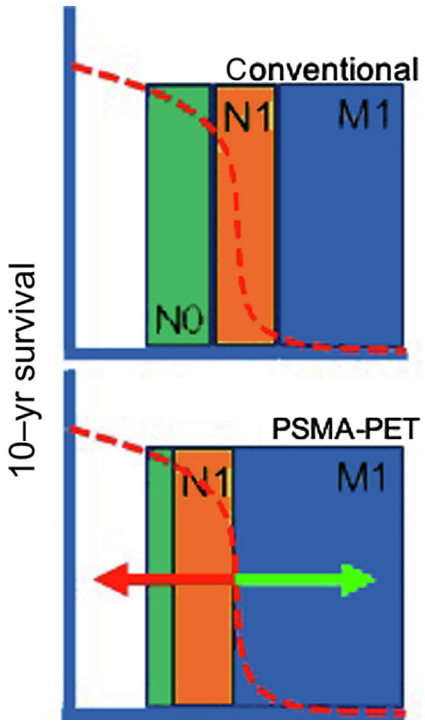

Fig. 1 – Prostate-specific membrane antigen positron emission tomography (PSMA-PET) imaging will shift staging of prostate cancer, but will it therefore have an impact on survival?

unproven treatment decisions that may result in undertreatment and ultimate harm to patients.

Conflicts of interest: The author has nothing to disclose.

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