



Letter to the Editor

Re: Hojjat Ahmadzadehfar, Markus Essler. Prostate-specific Membrane Antigen Imaging: A Game Changer in Prostate Cancer Diagnosis and Therapy Planning. Eur Urol. In press. <https://doi.org/10.1016/j.eururo.2019.02.028>

We read with great interest the report by Ahmadzadehfar and Essler [1] on the high prostate cancer detection rate with ^{68}Ga -labeled prostate-specific membrane antigen (PSMA) ligand in positron emission tomography (PET) and its effect on treatment planning. The authors state that ^{68}Ga -PSMA PET imaging is a perfect test in prostate cancer diagnosis and therapy planning. We would like to take this opportunity to address some issues.

Although PSMA is highly expressed in prostate epithelium, it is also detected in other tissues, including brain, spinal cord, breast, liver, stomach, small intestine, colon, adrenal gland, kidney, urinary bladder, and endometrium (at the protein level). ^{68}Ga -PSMA PET imaging has already been used for detecting, staging, or monitoring some of these nonprostatic cancers [2,3]. In addition, ^{68}Ga -PSMA PET/computed tomography (CT) also showed positive findings in Paget's disease [4], which involves bone lesions of nonprostatic tumor origin. On the basis of the above reports, it would be more persuasive if a prostate-specific PSMA isoform were chosen as the tracer. PSMA has many isoforms, of which PSMA' is the most abundant in normal prostate and PSMA-1 in primary prostate tumors. Isoform PSMA-2 is found in normal prostate as well as in brain and liver, while PSMA-9 (also known as PSM-E) is specifically overexpressed in prostate cancer [5]. Thus, to reduce false positives and improve the specificity of ^{68}Ga -PSMA PET imaging, PSMA-9 might be a good tracer candidate.

Another question about this report is the well-known influence of steroids on protein and mRNA levels of PSMA. Our concern is that prostate cancer patients usually exhibit dramatic changes in androgen levels after androgen deprivation therapy, and certain types of hormone therapy may also lead to a range of androgen levels. The question thus arises as to whether ^{68}Ga -PSMA PET imaging can

provide reliable and accurate results for treatment planning by doctors and patients. In addition, although ^{68}Ga -PSMA PET imaging has certain advantages over CT and magnetic resonance imaging, this technology has not been and might not be widely applied in the short-term future for various reasons, including high medical expenses for patients. Currently, traditional imaging tests still play an important role in prostate cancer diagnosis and therapy planning.

Conflicts of interest: The authors have nothing to disclose.

References

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