Diagnostic Challenges in Prostate Cancer and 68Ga-PSMA PET Imaging: A Game Changer?

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Prostate cancer (PC) is the most frequent solid tumor in men and the third most common cause of cancer mortality among men in developed countries. Current imaging modalities like ultrasound (US), computerized tomography (CT), magnetic resonance imaging (MRI) and choline based positron emission (PET) tracing have disappointing sensitivity for detection of nodal metastasis and small tumor recurrence. This poses a diagnostic challenge in staging of intermediate to high risk PC and restaging of patients with biochemical recurrence (PSA >0.2 ng/ml). Gallium-68 labeled prostate specific membrane antigen (68Ga-PSMA) PET imaging has now emerged with a higher diagnostic yield. 68Ga-PSMA PET/CT or PET/MRI can be expected to offer a one-stop-shop for staging and restaging of PC. PSMA ligands labeled with alpha and beta emitters have also shown promising therapeutic efficacy for nodal, bone and visceral metastasis. Therefore a PSMA based theranostics approach for detection, staging, treatment, and follow-up of PC would appear to be highly valuable to achieve personalized PC treatment.

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