Individual Research Project Presentations Day 10th June 2024, Kent and Medway Medical School.

Diagnostic accuracy of PSMA PET/CT in the primary staging of patients with high-risk prostate adenocarcinoma: A Systematic Review

Students[a]**:** Rachael Mulondo | **Supervisor(s)**[b]**:** Dr Diletta Bianchini

Abstract

Background: Prostate cancer is the 6th most common cancer in the world and the most common in men in the UK. PSMA PET/CT is a new imaging modality to assess the spread of prostate cancer that has been demonstrated by several papers to have superior sensitivity and specificity to currently used standard imaging (bone scan and CT). Many papers have looked at its use in prostate cancer but not in the high-risk subgroup of patients. This systematic review focuses on this patient population.

Methods: A systematic review was carried out with the utilisation of a thematic analysis and descriptive statistics.

Results: Three papers were identified each demonstrating in the thematic analysis a superiority in both the identification of metastasis and staging of patients with high-risk prostate cancer. However, some false positives for metastases were noted for PSMA PET/CT, but this did not impact on the demonstration of PSMA PET/CT superiority. The descriptive statistics showed that less patients had prostate cancer confined to the prostate according to PSMA PET/CT vs comparative imaging modalities (CT, bone scan, MRI) however results were identical for MRI and PSMA PET/CT. More patients were shown to have pelvic metastases by PSMA PET/CT and more patients were shown to have extra pelvic/ bone metastases in comparison to comparative imaging modality. There was significant stage migration of patients following PSMA PET/CT.

Conclusions: PSMA PET/CT had greater sensitivity and specificity in the detection of prostate cancers in high-risk patients across all comparative imaging modalities. This led to alterations in patient stage and therefore further studies are required to consider its implementation into routine management of patients.

Keywords: Prostate Cancer | PSMA PET/CT | High risk prostate cancer | Primary staging

[a] 4th Year Medical Student, Kent and Medway Medical School, Canterbury, United Kingdom

[b] Consultant Medical Oncologist, Kent Oncology Centre, Maidstone and Tunbridge NHS Foundation Trust, United Kingdom

Main contact email: r.mulondo2@kmms.ac.uk