Clinical impact of 68 Ga-prostate-specific membrane antigen (PSMA) positron emission tomography/computed tomography (PET/CT) in patients with prostate cancer with rising prostate-specific antigen after treatment with curative intent: preliminary analysis of a multidisciplinary approach.

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Abstract

OBJECTIVE: To assess the impact of a novel molecular imaging technique, 68 Ga-(HBED-CC)-prostate-specific membrane antigen (PSMA) positron emission tomography/computed tomography (PET/CT), in the clinical management of patients with prostate cancer with rising prostate-specific antigen (PSA) after treatment with curative intent.

PATIENTS AND METHODS: In all, 131 consecutive patients were referred to our centre for a 68 Ga-PSMA PET/CT in the setting of recurring prostate cancer. Of these patients, 11/131(8%) presented with persistent PSA after radical prostatectomy, while 120/131 (92%) were referred for biochemical recurrence after surgery, radiotherapy or both. The images where taken 1 h after injection of 2 MBq/kg of the 68 Ga-(HBED-CC)-PSMA ligand. All examinations were interpreted by two experienced nuclear medicine specialists. Using the results of the examination, a multidisciplinary oncology committee (MOC) reported on the treatment strategy. A positive impact on clinical management was considered if the examination determined a modification in the treatment strategy compared to the MOC decision before PSMA imaging.

RESULTS: All patients completed the examination with no adverse reactions. The median (interquartile range) PSA level at the time of the examination was 2.2 (0.72-6.7) ng/mL. Overall, 68 Ga-PSMA PET/CT detected at least one lesion suspicious for prostate cancer in 98/131 (75%) patients. There was an impact on subsequent management in 99/131 patients (76%). The main modifications included continuing surveillance (withholding hormonal therapy), hormonal manipulations, stereotaxic radiotherapy, salvage radiotherapy, salvage node dissection or salvage local treatment (prostatectomy, high-intensity focussed ultrasound).

CONCLUSION: Our preliminary experience suggests that performing 68 Ga-PSMA PET/CT in patients with prostate cancer with rising PSA after treatment with curative intent can be clinically useful as it changes the treatment strategy in a significant proportion of patients. However, larger prospective trials are needed to validate our present findings.

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