

## Initial Experience with 68Ga-PSMA Ligand PET/CT in Prostate Cancer

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**Introduction.** 68Ga- labelled prostate specific membrane antigen (PSMA) ligand PET/CT is a promising modality in prostate cancer diagnostics in primary staging and biochemical recurrence.

**Aim, Materials and Methods.** The aim of this study was to evaluate our first experience of 68Ga-PSMA ligand PET/CT examination.

In this prospective study patient data and 68Ga-PSMA ligand PET/CT results of 18 procedures performed at Riga Nuclear Centre between November, 2016 and January, 2018 were analysed.

The mean patient age was 66.9 years (60–85). Five of them were with a primary prostate cancer and 13 patients were with a biochemical recurrence after a previous treatment of prostate cancer.

**Results.** In the group with a primary prostate cancer, for three patients the PET/CT was done due to high risk cancer to rule out metastatic disease, but with no findings on standard imaging methods. The PSA range was 7.88–49.5 ng/ml. After PET/CT the diagnosis changed with an upstaging for one patient. The smallest PSMA positive lymph nodes detected were 0.3 cm in diameter. For one patient with a PSA value of 3.09 ng/ml prostate cancer was ruled out with PET/CT after a suspicious finding in MRI. One patient with a PSA of 356 ng/ml had PSMA positive paraaortic lymph node metastasis without any distant or bone metastasis.

In the recurrent disease group, 10 patients had had a radical prostatectomy previously and one had had a hyperthermia procedure. Four patients had had adjuvant radiation therapy and two had had only radiation therapy. After PSMA PET/CT, 11 patient resulted with a confirmed recurrence of the disease – four with positive lymph node metastasis (size from 0.7–2.6 cm) and two localized in the prostate. For two patients local recurrence in the anastomosis was confirmed. One patient had additionally confirmed a metastasis in the pelvis. PSA values ranged from 0.493–33.2 ng/ml. For two patients bone metastasis were confirmed with the smallest size of 1.2 cm.

Two patients did not confirm any disease recurrence (PSA of 0.08 and < 0.002 ng/ml) and one was diagnosed with a PSMA sensitive hepatocellular carcinoma (PSA -0885 ng/ml).

**Conclusion.** 68Ga-PSMA PET/CT shows a great diagnostic value for patients with prostate cancer, especially in cases of early biochemical recurrence after previous radical treatment. Further data is needed to set the indications of the highest diagnostic value.