868 PILOT TRIAL FOR THE QUANTITATIVE DETECTION OF CIRCULATING TUMOR CELLS IN PATIENTS WITH PROSTATE CANCER

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Introduction & Objectives: Detection of circulating tumor cells (CTC) has been shown to be of prognostic significance and capable for treatment guidance in patients with prostate cancer. Aim of the present pilot trial was the detection of CTCs in peripheral venous blood from patients with locally advanced prostate cancer (LAPC) and in patients with metastatic castration resistant prostate cancer (CRPC). In addition early response to docetaxel chemotherapy was assessed (q21, 75 mg/m^2 KOF).
Material & Methods: In patients with LAPC (≥cT3N0M0, Gleason-Sc. 7-9; n=18) or CRPC (n=11) 20 ml of blood was assessed with the automated CellSearch®-System for quantitative CTC-detection. Additionally in CRPC patients (n=4) detection of CTCs was performed before and at the end of the first cycle of chemotherapy with docetaxel. As controls healthy volunteers were examined (n=13). The immunomagnetic cell enrichment methodology detects EpCAM expressing cells while cytokeratine serves as an epithelial marker.
Results: In LAPC patients with a median PSA of 21 ng/ml [2,4-260] CTCs were detected only in two cases [1-3]. No correlation between CTC-counts and histopathology was observed. In contrast CRPC patients with a median PSA of 160 ng/ml [4,5-318,7] demonstrated a median CTC-count of 23 [2-6500]. In case of sole lymphatic metastases the median CTC-count [3 CTCs] was significant lower than in patients with bone metastases [81 CTCs]. In the cohort of patients with docetaxel therapy initial CTC number was 25 [5-97; PSA: 125 ng/ml] and decreased at the end of the first cycle to 8 [7-50; PSA: 51 ng/ml]. No CTCs were detected in controls.
Conclusions: Patients with bone metastases present the highest frequencies of CTCs. In contrast in LAPC no significant numbers of CTCs were detected independent of histopathological characteristics. Therefore detection of CTCs with the CellSearch®-System seems to be applicable in particular for monitoring chemotherapy in patients with bone metastases. Consequently early chemotherapy induced reduction of CTC counts (68%) was observed similar to PSA courses. Further evaluation of the method is necessary for introduction into clinical routine.