Background and Objective

Circulating tumor cell (CTC) measurement is a promising tool in prostate cancer (PC). Adnatest® combines immunomagnetic cellular enrichment of with RT-PCR for PC-specific transcripts. Aim of the study was to evaluate the Adnatest® for clinical use and to investigate its relevance for monitoring patients with castration resistant PC (CRPC).

Patients and methods

16 men with castration resistant prostate cancer (CRPC) receiving docetaxel chemotherapy (75mg/m²) every 21 days and prednisone 5 mg daily.

Results

Before chemotherapy, 11/16 patients had detectable CTCs whereas only 5 had CTCs on day 1 of cycle 3. Median PSA before chemotherapy in patients with and without CTCs on day one of cycle one was 397 and 18 and ng/ml (p=0.007). No correlations between PSA and CTCs were observed before cycle 3. In patients with CTCs before chemotherapy, rates of response, stable disease and progression after three cycles of chemotherapy were 9.1%, 54.6% and 36.4% vs. 60.0%, 40.0% and 0% in patients without CTCs before chemotherapy (p=0.04). In patients with epidermal growth factor receptor (EGFR) mRNA expression before chemotherapy, rate of disease progression after chemotherapy was 7.7% in EGFR-negative patients (p=0.001).

Conclusions

This is the first study evaluating the feasibility and prognostic role of the Adnatest in prostate cancer

The presence of CTCs detected by Adnatest® before therapy predicts short term radiologic response

EGFR expression of CTCs is associated with poor response to chemotherapy

The differential characteristics of CTCs and resulting clinical values need to be targeted in further studies