CONCLUSIONS:

We found CTCs by CellSearch assay in close to 50% of biopsy-confirmed PCa patients, obtaining evidence of a systemic disease. Prospective studies will be required to investigate if CTC-status is associated with worst outcome in early PCa, as already provided in early breast cancer patients (Lucci, Hall et al. 2012).

BACKGROUND

Despite the routine use of prostate-specific antigen (PSA) screening is matter of debate, it is undoubtable by it radical prostatectomy as a primary treatment for clinically localized prostate cancer (PCa) has increased dramatically over the past decade and has led to a reduction in advanced disease and disease-specific mortality. The other side of the coin is that there is still a vast number of men, which harbor occult extra-prostatic extent and develop recurrence after surgery; meanwhile we are dealing with an ever-diagnosis of cases that would not have caused clinical consequences during a man’s lifetime if left untreated. On this basis, accurate prognostic cancer patients are strongly sought. The dissemination of prostate cancer cells to secondary sites appears to be an intermediate step in the formation of tumor metastases. However, unlike breast cancer, in which prognostic and predictive impact of tumor cells in peripheral blood or bone marrow was largely provided, their role in localized PCa is far from clear.

METHODOLOGY

From July 2011 to August 2013, we enrolled 153 PCa patients stage T2a-T3b at three clinical sites (Roma, Orbassano and Padova). All the patients were candidate to undergo radical prostatectomy because of positive biopsy for cancer; we quantified their tumor burden at diagnosis in peripheral blood. We used the M30-integrated assay for enumerating viable and apoptotic CTCs (Rossi, Basso et al. 2010). The standard CellSearch assay was performed at two clinical sites (Orbassano and Padova). In patients enrolled in Roma (Janus trial, a phase II study for the use of zoledronic acid as neoadjuvant treatment of invasive prostate cancer), we evaluated in parallel the tumor burden at bone marrow. Data obtained in Orbassano (n=50) and Roma (n=15) constituted the training set, meanwhile patients enrolled in Padova (n=88) constituted the validation set. Consistently with previous reports (Kraan, Steijler et al. 2011) reporting low inter-test and inter-lab variability, the baseline CTC count in the two sets did not significantly differ (Mann-Whitney Rank Sum Test, p=0.170), so that we were further analyzed altogether.

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