ABSTRACT

Microfiltration is an increasingly popular method for isolating circulating tumor cells (CTCs) from the peripheral blood of cancer patients with solid tumors. This size exclusion method does not rely on surface marker expression of CTCs, making it ideally suited for isolating specialized cancer cells that have undergone epithelial-mesenchymal transition (EMT). We have found a specific subtype of CTCs in both early and late stage prostate cancer patients that is indicative of the EMT phenotype, presenting with low cytokeratin and low or no EpCAM. Further detailed molecular analysis and patient tracking of this phenotype may aid in individualized assessment of early clinical assessment of early stage cancer patients.

RESULTS

- Assay time was <2 hours.
- Traditional CTCs were easily identified by fluorescent stains in 25% of samples (Figs. 1a-b).
- EMT-like CTCs were identified by their abnormal nuclear pattern in 63% of samples (Figs. 2-3).
- EMT-like CTCs were found to have low cytokeratin expression and often lack EpCAM expression (Figs. 2-3).
- EMT-like CTCs were identified by their abnormal nuclear pattern in 63% of samples (Figs. 2-3).
- EMT-like CTCs were consistently found in all cancer stages.

CONCLUSIONS

- Microfiltration captures CTCs regardless of EpCAM expression.
- EMT-like CTCs circulate in the blood of prostate patients.
- EMT-like CTCs are found in stage I - stage IV patients.
- Further longitudinal study of EMT-like CTCs is expected to provide additional information about early patient assessment.

REFERENCES