

THE POTENTIAL OF CIRCULATING CANCER CELLS(CTC) AS AN ADDITIONAL VALUABLE BIOMARKER IN VARIOUS STAGES OF MANAGEMENT OF DIFFERENTIATED THYROID CANCER (DTC)- ENCOURAGING PRELIMINARY CLINICAL EVALUATION OF A CASE SERIES.

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Background/Purpose: Recently CTCs have emerged as a valuable biomarker making a major impact in the management of breast cancer ,Lung ,Colo-rectal ,Prostate and other cancers.

DTC is a tumour model well suited to serial CTC (real time liquid biopsy) enumeration because of the potential of molecular characterization of these CTCs by specific markers such as NIS,TTF-1,BRAF,PAX-8 etc. The FDA approved cell-search system has low yield ,low purity and low throughput. We used the ImageStream Imaging flow cytometer to detect and characterise CTCs .

We report our findings from a case series involving 15 patients of DTC .

Methods: After our Institutional review board approval and patient consent, CTC were enumerated from blood samples from 15 unselected patients at various stages of DTC by the Imaging flow cytometry technology which enables the simultaneous characterisation of rare cell populations in up to ten fluorescent channels, with image-based quantitative analysis of immunofluorescent biomarkers in cells characterised as CTCs. DTC CTC s were characterised by CD-45 negative ,EpCam +,CK+, and NIS +. DJ who did the CTC assay was blinded from the clinical status.

Results: There was striking correlation with the TG level ,RAI scan ,US scan, expected clinical disease burden and CTC number .It can be very helpful in TG antibody positive patients

Discussion & Conclusion: To our knowledge this is the first study of successful CTC detection in DTC patients using a modern detection method . The exciting initial findings will be presented while further work continues.