CLINICAL COMPARISON OF THYROGLOBULIN MEASUREMENT FOLLOWING THYROIDECTOMY AND RADIOIODINE ABLATION (TRA) USING TWO ULTRASENSITIVE METHODS FROM THE HILOTRIAL.

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Background/Purpose: Thyroglobulin (Tg) is used to detect recurrent thyroid cancer following TRA . Early detection improves outcome and has led to the development of sensitive assays. We aimed to review the clinical performance of two of these assays in the context of the HiLo trial.
Methods: From the HiLo trial 320 patients had Tg values measured on two assays under thyrogen stimulation 6-9 months following TRA. Measurement was performed using two second generation IRMA assays; Brahms assay and Beckman Coulter Access assay. Results were compared and assessed with clinical outcomes after a median follow up of 26 months.
Results: Detectable Tg without recurrence was found in 60 (Brahms, <0.5ug/L) and 164 (Beckman, <0.1ug/L) patients respectively. Single samples with concentrations of 0.5ug/L (Brahms) and 0.1ug/L (Beckman) measured on both assays (60 samples) showed good correlation (R2=0.988). Ninety seven patients were shown to have an undetectable level of Tg on the Brahms assay (<0.5ug/L) but detectable level using the Beckman assay (0.1-0.4ug/L). Seven patients had recurrence; 4 in thyroid bed who had positive Tg measurements using both assays, 2 with lymph node involvement did not have enough samples for Beckman assay analysis and one patient with lung secondary had undetectable Tg on both assays.
Discussion & Conclusion: Ultrasensitive assays provide additional benefit of detecting low serum Tg concentrations. So far during follow up no additional clinical benefit was demonstrated with an assay detection limit of 0.1ug/L in this randomised trial. Further analysis will be reported with longer follow up.