DOSIMETRY IN THERAPY OF METASTATIC DIFFERENTIATED THYROID CANCER ADMINISTERING HIGH 131I ACTIVITY.

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Background/Purpose: To evaluate the impact of ^{131}I high activity therapy treatments of Metastatic Differentiated Thyroid Cancer (MDTC) in terms of feasibility, tolerance, efficacy, and the role that dosimetry can play

Methods: 17 patients underwent treatment with ^{131}I high activity. Activity ranged from 6.2 GBq to 24.1 GBq. 8 of them had multiple treatments, for a total of 27 treatments.

Red marrow (RM), blood (BL) and metastases (45 in total) peri-treatment dosimetry was performed. In 12 cases, also prospective red marrow dosimetry was performed to comply the 2 Gy RM dose constraint.

Results: Only transient toxicity was observed. RM mean absorbed dose was 1.48 (0.36 - 6.67) Gy, 1.91 (0.43 - 8.71) Gy for BL, 153 (1.1 - 778) Gy for metastases. In 20/23cases of repeated treatments, a dose reduction per unit of administered activity was observed in treatments following the first one, so a first treatment with the highest tolerable activity seems to be desirable to obtain the maximum efficacy . In 9 cases RM dose showed <50% discrepancies between prospective and peri-treatment dosimetry evaluations.

Discussion & Conclusion: Metastases from DTC became progressively less iodine-avid after repeated treatments, so a first treatment with the highest tolerable activity seems to be desirable to obtain the maximum efficacy.

In our experience, high activity treatments were well-tolerated, without persistent haematological side effects or worsening quality of life.