

▶ State of the Art and Technologist Role in Clinical Dosimetry

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Internal dosimetry, once mandatory in phase I studies only, was recently pushed toward its clinical application by the increased knowledge of dose-effect correlation (1) and by the work of many scientist, which allowed the development of guidelines published (2) or in the pipeline of EANM.

Clinical dosimetry in nuclear medicine therapy could be in the next future applied in the following pathologies: benign thyroid disease (hyperthyroidism or solitary nodules), differentiated thyroid cancer, paediatric neuroblastoma, paeochromocytoma or paraganglioma in adults treated with ¹³¹I mIBG, neuroendocrine tumors treated with radiolabelled somatostatine analogs, radi-embolization with ⁹⁰Y microspheres.

In benign thyroid disease, in the blood dosimetry of thyroid cancer patients treated with radioiodine, and in the whole body dosimetry of ¹³¹I mIBG treatments, no imaging is required. Simple count with a spectroscopic probe of thyroid or of the whole body respectively, together with blood sample counts could be competence of the nuclear medicine technologist.

In all other kind of dosimetry where imaging is required, patient scheduling and scan are indeed competence of the technologist already, but other kind of efforts are necessary. Region Of Interest (ROI) drawing on organs or lesions in planar conjugate view or in SPECT images could be assigned to technologists, after a proper training. In addition, all kind of organ or lesion dosimetry requires volumetric evaluations on CT scans. These could be performed by technologist also, as ordinarily happens in my division.

In my mind, it is simply hardly conceivable to perform extensive clinical dosimetry on a significant number of patients without employing technologists.

References:

1. Strigari L et al The evidence base for the use of internal dosimetry in the clinical practice of molecular radiotherapy in press on Eur J Nucl Med mol Im
2. <http://www.eanm.org/publications/guidelines/index.php?navId=37&PHPSESSID=mvihtgc2qqsl3r1apj0smi3p87>

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