

International Conference on

Nuclear Medicine & Radiation Therapy

July 14-15, 2016 Cologne, Germany

Determination of beta radiation dose to thyroid from the ingestion of radioiodine (^{131}I) by patients for diagnostic and therapeutic purposes

H Harrass and M A Misdag
University of Cadi Ayyad, Morocco

Radioactive iodine (^{131}I) is successfully used for the treatment of hyperthyroidism and thyroid cancer. Thyroid is the critical organ for iodine. Iodine is taken up by the thyroid follicular cells. ^{131}I simultaneously emits two types of radiation: beta minus particles used for the treatment and gamma rays used for diagnosis. Due to the short range of beta minus particles in tissue, damaging effects of beta radiation is restricted to thyroid cells. Total activities from the ingestion of ^{131}I were evaluated in different compartments of the human body of patients by using the ICRP biokinetic model for iodine. A new dosimetric model was developed for evaluating committed equivalent doses due to ^{131}I intakes in the thyroid tissue of different age groups of patients by exploiting data obtained for specific beta-dose deposited by 1Bq of ^{131}I in the thyroid. Data obtained were compared with those obtained by using the ICRP ingestion dose coefficients for iodine. The influence of the mass of thyroid and administered ^{131}I activity on the committed equivalent dose to the thyroid gland was investigated.

hicham-smp@hotmail.com

Notes: