

COMPARATIVE STUDY OF INTERNAL DOSE CALCULATION: MONTE CARLO VERSUS MIRD METHOD

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The Monte Carlo method and the method proposed by the Medical Internal Radiation Dose (MIRD) committee are among the most widely used methods for estimating absorbed dose in nuclear medicine. In fact, The MIRD committee is a committee of the Society of Nuclear Medicine, set up in 1965 to develop methods, models, assumptions and a standard mathematical scheme for assessing the internal radiation doses of administered radiopharmaceuticals.

The organ-based approach to MIRD dosimetry uses organ-level S-factors, which represent the average absorbed doses in the target organs per unit of activity in the source organs. S values are tabulated for a large number of radionuclides and geometric combinations ranging from the sphere to anthropomorphic descriptions.

The Monte Carlo method is very useful as it takes into account the complexity of to take into geometric models and the different radionuclide emissions.

In what follows, we compare the two, focusing on the calculation of absorbed doses to target organs.

Keywords : internal dosimetry, Monte Carlo, MIRD