Contribution ID: **84** Type: **not specified**

Evaluación Dosimétrica de Radiofármacos usados en embrión/riñones de mujer con embarazo temprano utilizando representaciones de Stabin y Segars

Resumen

Utilizando metodología MIRD y representaciones antropomórficas de Segars / Stabin[1]/[2] se realizaron evaluaciones dosimétricas de radiofármacos 99mTc-DTPA, 99mTc-DMSA y 99mTc-MAG3 utilizados en riñones y pared uterina de mujer durante estudios renales. Se evaluaron las dosis en ovarios, mamas e hígado como órganos comprometidos.

En representación Segars, mayor/menor dosis absorbida por riñones de mujer con embarazo temprano se obtiene usando 99mTc-DMSA/99mTc-MAG3. La (vejiga + "resto")(0.8%) / vejiga (10.87%) contribuyen a dosis renal respectivamente. Dosis en riñones representación Stabin,son similares al de Segars. Cambios en fracciones absorbidas especificas (FAE) son pequeños para fotones del 99mTc en (diana←fuente). En representación Segars la mayor/menor dosis absorbida por el embrión se obtiene usando 99mTc-MAG3/99mTc-DMSA. La vejiga (99.4%)/(vejiga+"resto")(79.7%) contribuyen a dosis embrionaria. En representación Stabin, dosis para embrión son menores comparados con los de Segars.

La mayor/menor dosis absorbida por ovarios representación Segars, se obtiene usando 99mTc-MAG3/99mTc-DMSA. La vejiga (98%)/("resto"+riñón)(76%) contribuye a su dosis. La mayor/menor dosis recibida por hígado-mama se debe al 99mTc- DMSA/99mTc-MAG3. El (riñón + "resto")(99.8%)/(riñón + vejiga)(74%) y (riñón + "resto")(99.9%)/"resto"(76%) contribuyen a dosis del hígado-mama respectivamente. Dosis en órganos comprometidos representación Stabin, son menores comparados con los de Segars. Valores FAE representaciones Segars /Stabin no son similares para fotones del Tc-99m excepto (embrión ← "resto").

Descriptores: Dosimetría-MIRD, representaciones Segars/Stabin, riñones/embrión

Abstract

Using MIRD methodology and anthropomorphic representations of Segars / Stabin [1] / [2], dosimetric evaluations of 99mTc-DTPA, 99mTc-DMSA and 99mTc-MAG3 radiopharmaceuticals used in female kidneys and uterine wall during renal studies were performed. Doses in ovaries, breasts and liver were evaluated as compromised organs.

Representing Segars, the highest / lowest dose absorbed by the kidneys of an early pregnancy woman is obtained using 99mTc-DMSA / 99mTc-MAG3. The (bladder + "rest") (0.8%) / bladder (10.87%) contribute to the renal dose respectively. Dosage in kidneys representing Stabin, are similar to that of Segars. Changes in specific absorbed fractions (FAE) are small for 99mTc photons in (target ← source). Representing Segars the highest / lowest dose absorbed by the embryo is obtained using 99mTc-MAG3 / 99mTc-DMSA. The bladder (99.4%) / (bladder + "rest") (79.7%) contribute to embryonic dose. Representing Stabin, embryo doses are lower compared to Segars.

The highest / lowest dose absorbed by ovaries, Segars representation, is obtained using 99mTc-MAG3 / 99mTc-DMSA. The bladder (98%) / ("rest" + kidney) (76%) contributes to your dose. The highest / lowest dose received by the liver and breast is due to 99mTc- DMSA / 99mTc-MAG3. The (kidney + "rest") (99.8%) / (kidney + bladder) (74%) and (kidney + "rest") (99.9%) / "rest" (76%) contribute to doses of the liver and breast respectively . Dose in compromised organs representing Stabin, are lower compared to those of Segars. FAE values Segars / Stabin representations are not similar for Tc-99m photons except (embryo ← "remainder")

Keywords: Dosimetric-MIRD, representation is Segars / Stabin, kidneys / Embryon

Referencias:

[1] W. P. Segars, Development and application of the new dynamic Nurbs-based Cardiac-Torso (NCAT) phantom (2002), p.1480.

[2] M. G. Stabin et al. J Nucl Med. 53.11 (2012) 1807-1813.

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