

BSGI Radiation Dosimetry

- According to the National Institutes of Health (NIH), the risks from the radiation dose associated with both mammography and BSGI/MBI procedures are considered to be "minimal".
- The radiation dose from the BSGI/MBI is equivalent to living in Denver, Colorado for one year and is acceptable for the diagnostic population.
- According to the drug data sheet for Cardiolite, the prescription range is from 10 to 30 mCi, resulting in an effective dose equivalent ranging from 3.35 to 10.05 mSv. Therefore, if a center wishes to minimize radiation dose from this procedure, lower doses and longer imaging times can be utilized.
- It is important to note that this pharmaceutical has been used in cardiac imaging for nearly 20 years without a single reported adverse reaction to the radiation dose.
- The effective dose equivalent for BSGI is 3.35 – 10.05 mSv depending on the activity of the injection. Most centers use between 20 – 25 mCi for BSGI resulting in a dose of 6.7 – 8.35 mSv. The effective dose equivalent for PEM imaging it is 11.1 mSv based on the 10 mCi injection of FDG indicated on the Naviscan website.

Sources:

Sestamibi dosimetry for BSGI

International Commission on Radiologic Protection. Radiation Dose to Patients from Radiopharmaceuticals. New York, NY:Permamon Press; 1988. ICRP Publication 53.

Cardiolite Drug Data Sheet. Bristol Myers Squibb. May 2003.

FDG Dosimetry for PEM

Dosimetry - F-18-Fluorodeoxyglucose, NUREG/CR-6345, page 9, September 18, 1992.

J.E. Kalinyak, MD, PhD. "Comparison of Radiopharmaceuticals Used in Positron Emission Mammography (PEM) and Breast Specific Gamma Imaging (BSGI). White paper. Naviscan PET Systems, Inc., March 2007.