Førslag till Projektoppgave inom Nuklearmedicin - 15 studiepoäng

Collimator Choice for Optimisation of Image Quality in I-123-mIBG Imaging.

I-123-mIBG is a radiopharmaceutical commonly used in conventional nuclear medicine for imaging tumors of neuroendocrine origin.

I-123 has a half-life of 13.2 hours and emits photons with energy of 159 keV, but a small fraction of the decay includes high energy photons. Therefore, it is a challenge to achieve satisfying image quality in both planar and SPECT images with this isotope. General guidelines suggest using low energy –high resolution (LEHR) collimators. To reduce scattered radiation, due to septal penetration, a medium energy-general purpose (MEGP) collimator can be used instead, but with reduced sensitivity. GE recently introduced a new collimator; ELEGP (extended low energy-general purpose). This collimator has higher sensitivity than both LEHR and MEGP and double septal thickness compared to LEHR.

This is a phantom study with the aim to evaluate image quality with three types of collimators (LEHR, LEGP and MEGP) in SPECT and planar imaging for I-123.

Kontaktperson: Anna Karlberg, medisinsk fysiker, anna.karlberg@stolav.no, tel: 72821597