عنوان مقاله:

Energy Window Selection for Bremsstrahlung ۹۰Y SPECT-CT Imaging: A Phantom Study

محل انتشار:

مجله فیزیک پزشکی ایران, دوره 19, شماره 1 (سال: 1401)

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خلاصه مقاله:

Introduction: In Yttrium-۹۰ SPECT imaging, the energy window and collimator used during projection acquisition can significantly affect image quality. In this work, we used a new and independent method to verify previous results, which suggest suitable energy around ۱۳۰ keV. Material and Methods: We used Siemens Symbia SPECT-CT system fitted with High Energy General Purpose (HEGP), Medium Energy General Purpose (MEGP), and Low Energy High Resolution (LEHR) to acquire data from NEMA IEC PET Body Phantom filled with ۹۰Y chloride. ISO-counting curve is a new method analysed in this study to evaluate the adequate parameters for ۹۰Y SPECT imaging. Results: HEGP collimator was the most suitable for acquisitions of ۹۰Y bremsstrahlung radiation from the point of view of the correct volume reproduction. ISO-counting analyses have shown that for the bigger phantom spheres, the optimum acquisition energy is centered on ۱۳۰ keV. Conclusion: The ISO-counting curve method is consistent to previous studies' results and can help to improve image quality.

کلمات کلیدی:

Bremsstrahlung Yttrium, ۹۰ NEMA IEC PET Body Phantom ISO, Counting Curves