

▶ SPECT Radiopharmaceuticals: An Update

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Despite the considerable investment in the infrastructure for synthesis of PET radiotracers in the past 10 years, SPECT radiopharmaceuticals remain the backbone of routine Nuclear Medicine, especially Tc-99m based radiotracers. This was dramatically demonstrated during the global Mo-99 shortage in 2009/2010 and has led to substantial investment in production of Mo-99 via alternative routes. The average cost of SPECT radiopharmaceuticals is 10 fold lower than that of PET alternatives and the modality has a far wider instrument base worldwide than that of PET/CT. SPECT tracers have longer half-lives which are amenable to transportation of radiotracers and unlike PET, do not rely on proximity to a cyclotron. In addition, SPECT/CT cameras with full quantitation capacity (approaching that of PET) are now available. For these reasons, SPECT radiopharmaceuticals will remain at the forefront of clinical nuclear medicine and there is a continuing need for the development of new SPECT radiotracers.

This lecture will cover the classes of SPECT radiopharmaceuticals (including Tc-99m, In-111 and I-123) in current clinical use and their application in a wide range of diagnostic indications including bone, infection, oncology, brain, cardiac, lung, liver and the endocrine system as well as give an update on promising new radiopharmaceuticals.

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