

## Favorable biodistribution of $^{99m}\text{Tc}$ -ECD for brain SPECT comparing with $^{123}\text{I}$ -IMP using alternative body scan

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In order to evaluate the lung and brain uptake of  $^{99m}\text{Tc}$  ethyl cysteinate dimer ( $^{99m}\text{Tc}$ -ECD) and N-isopropyl-p-[ $^{123}\text{I}$ ]-iodoamphetamine ( $^{123}\text{I}$ -IMP), alternative body scans were carried out in 15 cases of cerebrovascular disease. The biodistribution of  $^{99m}\text{Tc}$ -ECD was  $5.5 \pm 0.7\%$ ,  $3.8 \pm 0.7\%$  in the brain;  $13.1 \pm 3.7\%$ ,  $2.2 \pm 1.2\%$ , in the lung at 15 min and at 4 hours, respectively, whereas that of  $^{123}\text{I}$ -IMP was  $3.9 \pm 1.4\%$ ,  $5.0 \pm 1.0\%$  in the brain;  $32.2 \pm 7.6\%$ ,  $12.7 \pm 3.3\%$ , in the lung at 15 min and at 4 hours, respectively.  $^{99m}\text{Tc}$ -ECD accumulated in comparatively high amounts in the brain but remained low in the lung in the early image compared to  $^{123}\text{I}$ -IMP. However there was a high inverse correlation between brain and lung uptake of  $^{123}\text{I}$ -IMP ( $r = -0.82$ ), but not of  $^{99m}\text{Tc}$ -ECD ( $r = -0.18$ ).

We concluded that  $^{99m}\text{Tc}$ -ECD had a better biodistribution in terms of low lung accumulation than  $^{123}\text{I}$ -IMP in brain SPECT.

**Key words:**  $^{99m}\text{Tc}$ -ECD,  $^{123}\text{I}$ -IMP, lung uptake, brain uptake