Intra-arterial infusion of N-isopropyl-p[123I]iodoamphetamine
for assessing effective blood supply to pulmonary
and hepatic neoplasms

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The biodistribution and pharmacokinetics of intra-arterially administered N-isopropyl-p[123I]
iodoamphetamine (123I-IMP) were prospectively evaluated in 38 patients with histologically proven
pulmonary or hepatic tumors. Intra-arterially infused 123I-IMP was distributed initially in peripheral
tissues in which the blood supply was maintained. Its concentration in malignant neoplasms was
demonstrated to be higher than in normal tissues. In pulmonary cancer, the tumor uptake of the
administered dose without a tissue attenuation correction (% uptake) of 123I-IMP at 1–2 min after
injection was 14.7 ± 5.7% (s.d.). The tumor to normal tissue ratio was 2.1 ± 0.7 in hepatocellular
carcinoma and 1.4 ± 0.7 in metastatic tumors. The biodistribution of 123I-IMP was also compared
to that of 99mTc-macroaggregated albumin (99mTc-MAA) in 9 cases of hepatic cancer. The
distribution of 123I-IMP resembled that of 99mTc-MAA in 5 cases and was different in 4 cases. 123I-
IMP was more concentrated in the tumor than 99mTc-MAA.

Intra-arterial infusion scintigraphy with 123I-IMP seems to provide information on effective blood
supply to neoplasms which are targeted in interventional radiology.

Key words: tumor blood flow, intra-arterial infusion, N-isopropyl-p[123I]iodoamphetamine (123I-
IMP), interventional radiology