

Imaging of intraperitoneal tumors with technetium-99m GSA

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^{99m}Tc labeled galactosyl serum albumin (GSA) has been used clinically as a receptor-binding agent for the assessment of liver function. The aim of this study was to investigate the usefulness of ^{99m}Tc-GSA in intraperitoneal (i.p.) tumor imaging. A tumor model was established by i.p. inoculating nude mice with human ovarian cancer cell SHIN-3, or colon cancer cell LS180. Radiolabels were i.p. injected into the tumor-bearing mice and the biodistribution of radioactivity was examined. After administration, ^{99m}Tc-GSA rapidly accumulated in the tumor. The tumor uptake was 5.82–8.46 %ID/g from 30 min to 6 h after the injection. Radioactivity in the blood was very low, less than 0.3 %ID/g, resulting in high tumor-to-blood ratio. Tumors could be clearly seen by scintigraphic imaging. Accumulation of i.p.-injected ^{99m}Tc labeled human serum albumin (HSA) in i.p. tumors was similar to that of ^{99m}Tc-GSA, but radioactivity of ^{99m}Tc-HSA in the circulation was high, resulting in a significantly lower tumor-to-blood ratio. In conclusion, ^{99m}Tc-GSA, when i.p. injected, accumulated in i.p. tumors and cleared from circulation rapidly, which would make it useful for the imaging of i.p. tumors.

Key words: tumor imaging, ^{99m}Tc-GSA, intraperitoneal xenografts