## Radionuclide Angiography and Blood Pool Scan with In Vivo Labeled $^{99m}$Tc-Red Blood Cells

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Procedures for in vivo labeling of red blood cells with $^{99m}TcO_4^-$ were studies. The labeling was done with the separately intravenous injection, first of stannous pyrophosphate (Sn-PYP) and then of $^{99m}$Tc pertecnetate. Experimentaly, the suited dose of Sn-PYP was 0.20 mg/kg(PYP) and 30 $\mu$g/kg($SnCl_2$). The best time interval between two injections was 30 min. There was no significant difference in the efficiency of RBC labeling obtained using variety of $^{99m}TcO_4^-$.

Clinically, labeling efficiency of RBC was about 96%, and labeling remained up to 120 min later. High quality images of heart, great vessels and peripheral vessels were obtained.

## Diagnostic Value of Radionuclide (RN) Angiography Using $^{99m}$Tc-Human Serum Albumin in Orthopedic Surgery

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To determine the malignancy of bone and soft tissue tumors, and to detect vascular obliterations, the contrast angiography is usually very useful. Our study revealed that RN angiography is also useful to diagnose such cases. We performed the RN angiography in 10 cases of replanted fingers and 12 cases of bone or soft tissue tumors. To trace the vascular condition of the replantated fingers, 20 mCi $^{99m}$TcHSA was injected intravenously. The serial dynamic images with intervals of each 10 seconds after injection were taken for 240 seconds, and finally static images were observed. With aid of the computer (CDS), the functional curve was displayed and analyzed on the region of interest. In 9 cases of tumors, the radio-nuclide was injected intra arterially, and intravenously in other 3 cases. In 10 cases of tumors the static images were comparatively analysed with the contrast arteriographies.

The RN angiography does not provide a detailed anatomical display which can be seen with conventional arteriography but it is very suitable to quantify the changes of vascular beds in tumors, such as pooling, hypervascularity and other malignant changes. It is also useful for serial follow up study in replantated fingers because of its non-invasive character.

It may be assertable that RN angiography using $^{99m}$TcHSA has advantages such as ease, no morbidity and possibility to take bilateral arteriography simultaneously.

## Red Blood Cell Labelling Positron-angiography after RI-gas Inhalation

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RI-angiography will be used more often in the near future, because it is simpler and less painful than roentgenoangiography. To put this examination in practice, labelling of red blood cell is