

## Summary

### **Sentinel Node Detection of Patients with Breast Cancer by Radionuclide Method: Consideration of Radiation Safety**

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Sentinel node was detected by  $^{99m}\text{Tc}$  labeled nanocolloid in five patients with breast cancer. Surgery of breast cancer was done at 16 hours after the administration of 74 MBq of  $^{99m}\text{Tc}$  labeled nanocolloid. Sentinel node was searched by scintigraphy prior to surgery and by gamma-probe during surgery. Radioactivity of injected site, sentinel nodes, blood contaminated gauze, and other garbage was measured by GM detector. Radiation to medical staffs was monitored by a pocket radiation detector and film batches. Sentinel nodes were successfully detected both by scintigraphy and gamma-detector. More than 70% of radioactivity remained in the administered site at 16 hours. Small

amount of radioactivity was detectable in the sentinel node. Almost no radioactivity was detectable in blood-contaminated gauze and other garbage. Radiation dose to the main surgeon was 4 to 6  $\mu\text{Sv}$  per surgery by a pocket radiation detector. Radiation dose to the assistant surgeon was 2  $\mu\text{Sv}$  per surgery. Radiation dose by labeling or injection was 0 to 1  $\mu\text{Sv}$  per procedure. No detectable radiation was measured by film batches. It is concluded that the detection of sentinel node by  $^{99m}\text{Tc}$  labeled nanocolloid is a safe procedure from the point of radiation safety consideration.

**Key words:** Breast cancer, Sentinel node, Radiation safety.