FEASIBILITY OF SENTINEL LYMPH NODE DETECTION IN BREAST CANCER USING INTRAOPERATIVE DUAL MAPPING TO INCREASE THE ACCESSIBILITY

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Introduction:
Sentinel lymph node biopsy is now the standard of care for clinically and radiologically node negative axilla in breast cancer. Yet the practice is not widely prevalent in India even in some of the major centers. Conventional practice was to inject technetium 99m- labelled filtered Sulphur colloid (15-37 MBq) in the nuclear medicine department, followed by scanning under gamma camera for a period ranging from 15 to 30 minutes. However, the availability of nuclear medicine department in the hospital and coordination for SLN imaging is reported to be one of the barriers in the diffusion of SLNB technology. To eliminate this barrier, we tried transporting the Technitium99m in a 1 cc syringe in a small lead container to the OT and injecting after induction of anesthesia. This will eliminate the pain and co-ordination issues involved with injecting under the gamma camera in Nuclear medicine department. This also eliminates the need to have a nuclear medicine facility in the hospital itself and any facility within a transportable range would make this procedure more accessible to even smaller centers. The purpose of this study was to investigate whether the SLN detection rate using the intraoperative dual mapping technique is comparable to the conventional technique in a prospective trial.

Materials & Methods:
Intraoperative dual SLN mapping technique consisted of subareolar injection of technetium 99m- labelled filtered Sulphur colloid (15-37 MBq) and 2 ml of 1% isosulphan blue dye just after anaesthetic induction followed by locating and dissecting the SLN using hand held gamma probe and blue dye. The conventional technique consisted of subareolar injection of radioactive colloid in the Nuclear medicine department followed by SPECT preoperatively; subareolar injection of blue dye intraoperatively; locating and dissection of SLN using gamma probe and blue dye. SLN biopsies or complete axillary dissections were carried out, and SLN’s identified during these procedures were classified as containing both blue dye and radioactivity (“blue-hot” nodes), radioactivity alone (“hot-only” nodes), or blue dye alone (“blue-only” nodes).
Results:

Out of the total 403 SLNBs, 203 were done using the conventional technique and 200 using dual technique. SLN detection rates with intraoperative dual mapping technique was 98% while that of the conventional technique of SLN identification was 97.6% (p=0.78). We looked into the SLN detection of the individual procedures of the two techniques, SLN detection rate of preoperative imaging using SPECT after radioactive dye injection was 100% in conventional technique (procedure not performed in dual); SLN detection rate of intraoperative injection of blue dye (“blue” node) was 76% in conventional technique and 75% in dual technique; SLN detection rate of “hot” nodes with the gamma probe was 94.5% in conventional and 98.4% in dual technique; and the SLN detection of “hot and blue” node was 96.7% in conventional and 98.3% in dual technique. Using either technique the SLN location was in axilla in 100% of cases and in all cases the surgical approach was not influenced by the location of the node in the axilla.

Conclusion:

SLN detection rate of intraoperative dual technique was equivalent to conventional technique. Thereby, even in the absence of Nuclear medicine facility within the hospital, the SLNB can still be performed by procuring the radioactive colloid from a source at a distant site in the same town or city and using the hand-held gamma probe without any decrease in sensitivity or detection rates.

Keywords:

intraoperative dual technique, Radioactive colloid, Sentinel lymph node biopsy