

"Sentinel Lymph Node Biopsy after Neoadjuvant Chemotherapy in Breast Cancer Patients with Positive Nodes using low-cost dual dye technique: Identifying factors associated with adequate FNR threshold"

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INTRODUCTION

- SLNB with radio-pharmaceutical and blue dye is recommended for early breast cancer with cN0 axilla
- Higher FNR limits routine SLNB use in LABC with cN1-3 axilla rendered node negative after NACT (ycN0)
- Critical for global south, where most patients present with LABC and receive NACT
- This study evaluated feasibility of FG (fluorescein guided) SLNB with MBD (methylene blue dye) for SLN identification and factors to achieve 10% FNR threshold

MATERIALS AND METHODS

- prospective cross-sectional validation study
- Validation of SLNB using fluorescein and MBD, followed by ALND regardless of SLNB histology
- SLN-IR and FNR were assessed and compared across molecular subtypes



RESULTS

Table 1: SLN-IR using dyes and their combination

	Post neoadjuvant chemotherapy cN0 patients	
	Identification of SLN (no. of patients)	SLN identification rate (%)
MBD	102	85.0
FD	99	82.5
MBD+FD	102	85.0

Table 2: SLN false negative rate

	Post neoadjuvant chemotherapy cN0 patients			
	(n)	FN-SLN (number of patients)	TP	Percentage FNR = (FN / (FN + TP)) X 100 (%)
Overall	102	11	52	17.4%
1 SLN	30	7	21	25%
2 or > 2 SLN	72	4	31	11.42%
Luminal A+B with 1 SLN	16	4	11	26.7%
HER 2 enriched with 1 SLN	6	1	4	20%
TNBC with 1 SLN	8	2	6	25%
Luminal A+B with 2 SLN	35	3	18	11.11%
HER 2+ with 2 SLN	13	1	12	7.7%
TNBC with 2 SLN	24	0	1	0%

DISCUSSION & CONCLUSION

- Dual tracers in SENATINA/ACOSOG achieved SLN IR of 87.8-92.9% v/s MBD+FS dye shows SLN IR of **85%** (our study)
- FNR of **17.4%** is comparable to ACOSOG Z107 and SNFNAC trails
- Fibrosis after NACT may affect lymphatic drainage and reduce SLN identification
- Feasible in low resource setting
- **SLN mapping with low-cost dual dyes (MBD+FS) is feasible, but FNR is too high**
- **Improved with more SLNs excised and in Her2-enriched/TNBC profiles**

References

1. Mocellin, S., Goldin, E., Marchet, A., & Nitti, D. (2015). Sentinel node biopsy performance after neoadjuvant chemotherapy in locally advanced breast cancer: A systematic review and meta-analysis. *International Journal of Cancer*, 138(2), 472–480. <https://doi.org/10.1002/ijc.29644>
2. Chavda, J., Mishra, A., Silodia, A., Yadav, S. K., Sharma, D. B., Sharma, D., & Khandare, M. (2022b). Validation sentinel lymph node biopsy study in cN0 axilla using low-cost dual dye technique: potential solution for resource poor settings. *Breast Cancer Research and Treatment*, 193(1), 105–110. <https://doi.org/10.1007/s10549-022-06556-w>

