

Introduction

- Ductal Carcinoma In-Situ (DCIS) is a non-invasive neoplasm of breast ductal epithelial cells confined to the ductal-lobular system without invasion into the surrounding breast stroma.¹
- DCIS is classified by nuclear grade (low, intermediate, high) based on nuclear features and necrosis.¹
- DCIS is shown to carry a higher risk of developing invasive breast cancer such as Invasive Ductal Carcinoma (IDC) in the same breast by 10x and warrants further surgical resection and margin examination via partial mastectomy (lumpectomy).
- Possible sentinel lymph node sampling is performed if patients are planned for mastectomy who have DCIS size of > 5cm or in patients at high risk for microinvasive/ invasive carcinoma.
- Despite High-Grade DCIS carrying a higher risk for finding associated invasive carcinoma upon resection, it remains controversial whether sentinel lymph-node biopsy is indicated during initial breast resection.
- The objective of this study is to investigate the necessity of performing axillary sentinel lymph node biopsy with lumpectomy or mastectomy in patients with biopsy-proven high-grade Ductal Cell In-Situ (DCIS).

Methods

- Medical records were reviewed of patients who underwent a resection with biopsy-proven DCIS (with or without sentinel lymph node biopsy) during the time-period of August 2017- April 2024.
- DCIS cases were categorized by nuclear grade (LG, IG, and HG). Cases of biopsy-proven Invasive Ductal Carcinoma with associated DCIS (IDC + DCIS) were used as controls.
- Data regarding Sentinel Lymph Node Biopsy status, and Positivity for Lymph Node Metastasis were recorded.
- Additional data of Upgrade to IDC, Estrogen Receptor (ER) Positivity, Patient Age, and Tumor Laterality were also collected.
- A Chi-squared analysis was conducted with a significance level of $\alpha = 0.05$, using IDC + DCIS as a comparison group.

Data

	DCIS LG	DCIS IG	DCIS HG	IDC + DCIS (Control)
# of Cases	9	31	37	74
# of Sentinel Node Biopsies (%)	4 (44.4%)	24 (77.4%)	28 (75.7%)	71 (95.9%)
# of Cases Upgraded to IDC (%)	1 (11.1%)	4 (12.9%)	9 (24.3%)	N/A
# of Cases with Positive Lymph Node Metastasis	0 (0%)	1 (3.2%)	2 (5.4%)	27 (34.5%)
% of ER Positive Cases	100%	96.70%	62.20%	64.90%
Average Age (years, Mean \pm SE)	59.8 \pm 7.9	58.2 \pm 8.7	55.6 \pm 11.9	54.1 \pm 12.4
Laterality, % Left Sided	55.60%	71.00%	45.90%	56.70%

Table 1: Data Collected from each DCIS Group and IDC+DCIS Control Group

Figure 1: Frequency of Cases with Sentinel Lymph Node Biopsies

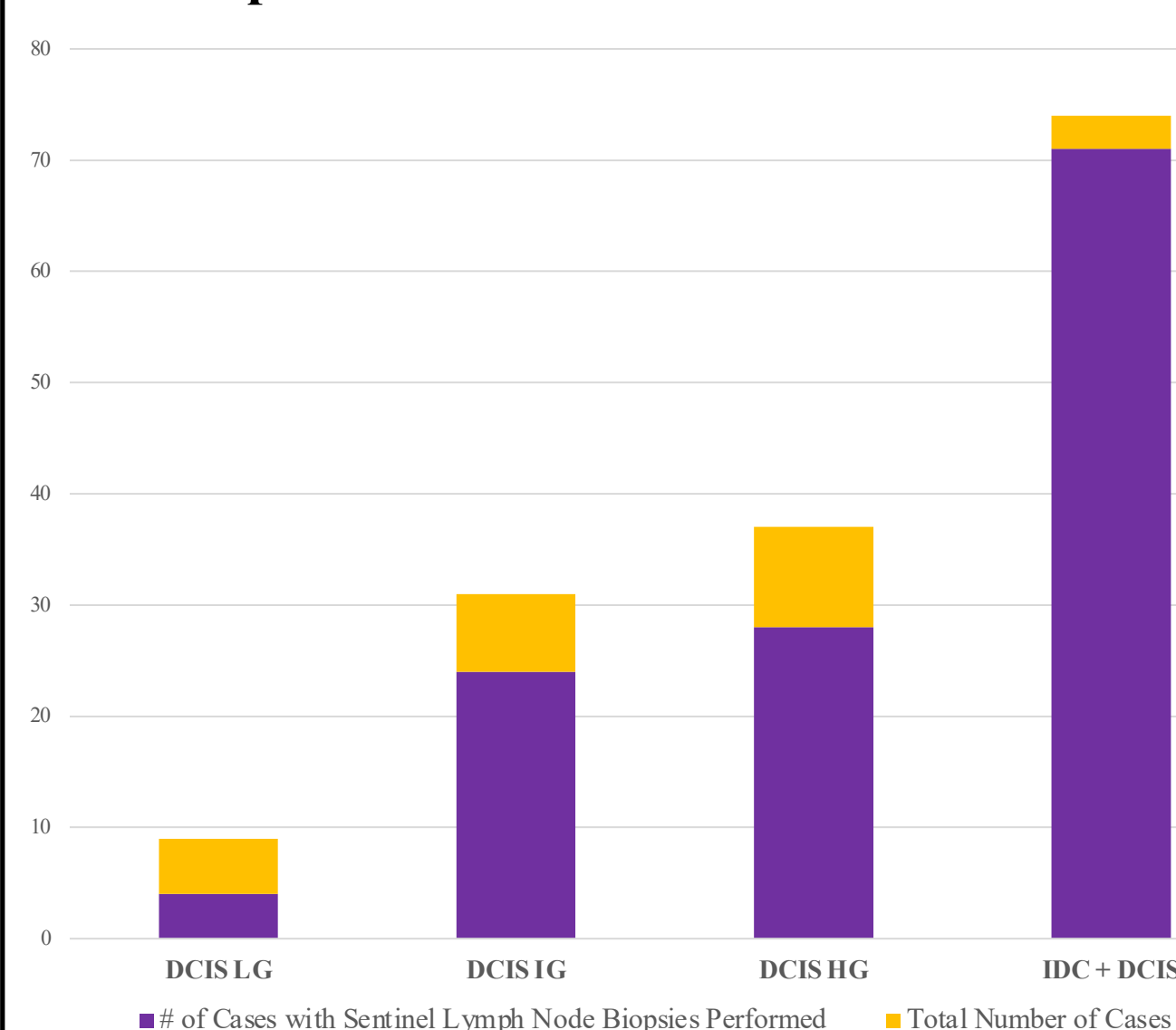


Figure 2: Frequency of Cases with Positive Lymph Node Metastasis

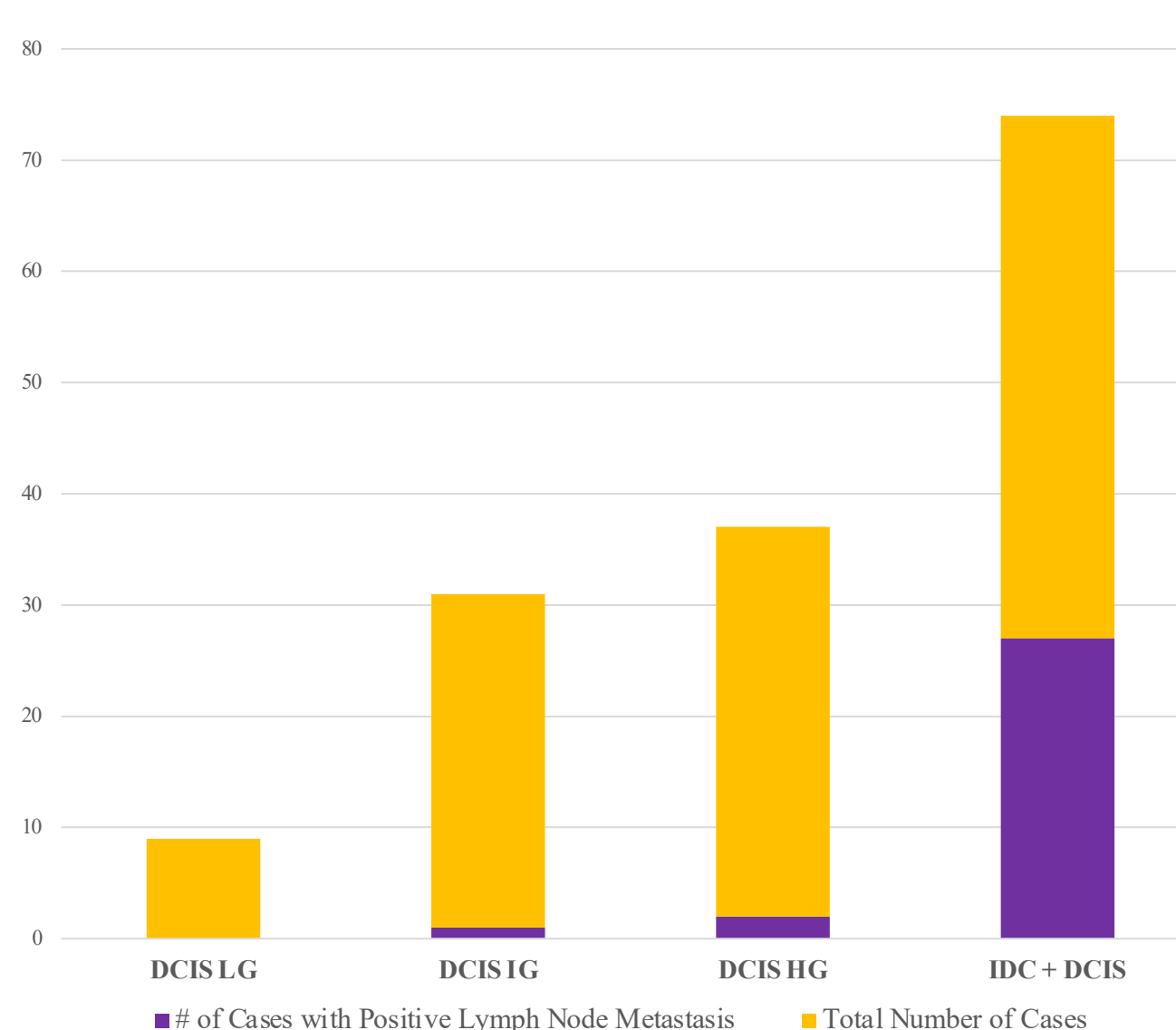


Figure 3: Frequency of Cases Upgraded to IDC

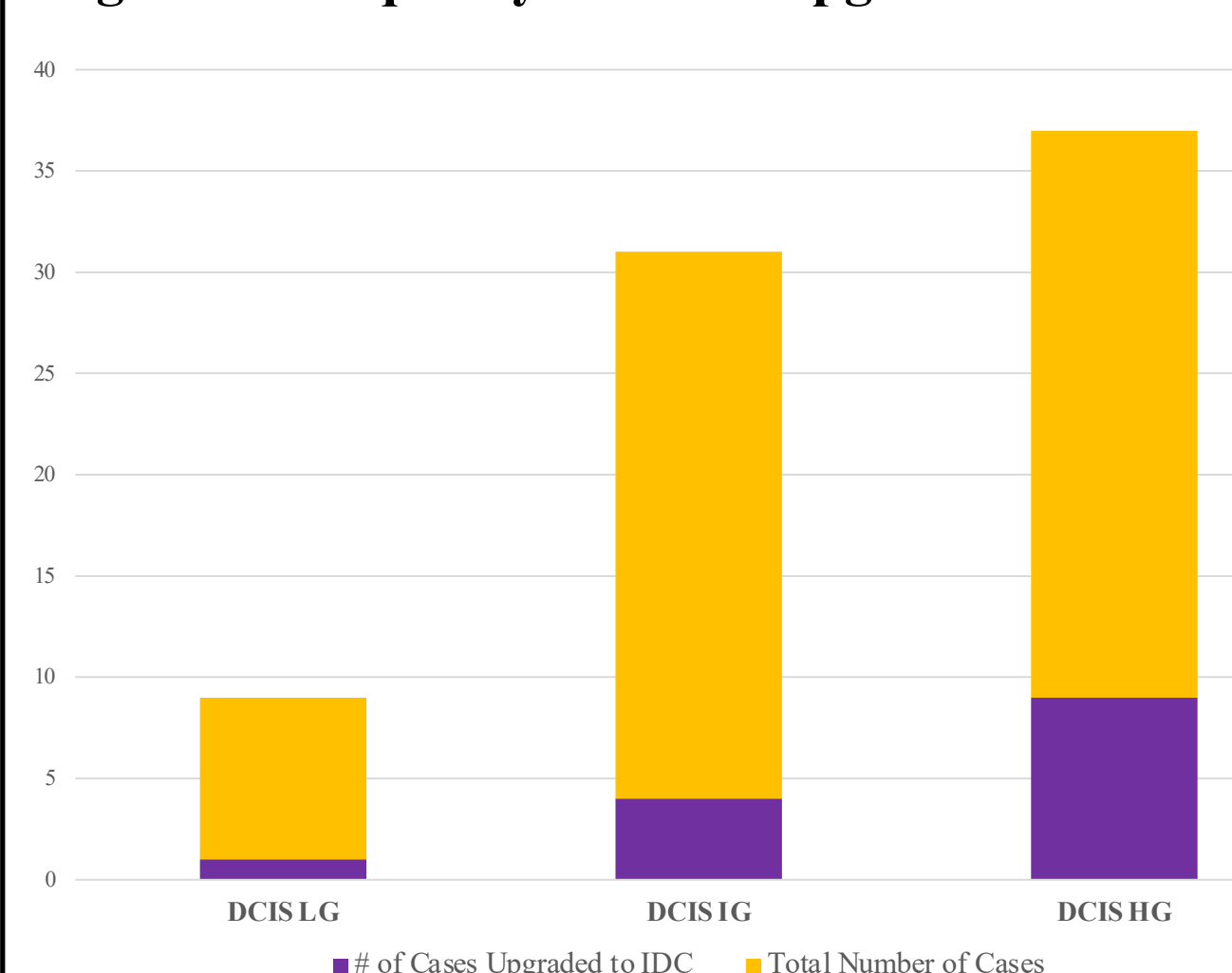


Figure 4: Average Age at Time of Diagnosis

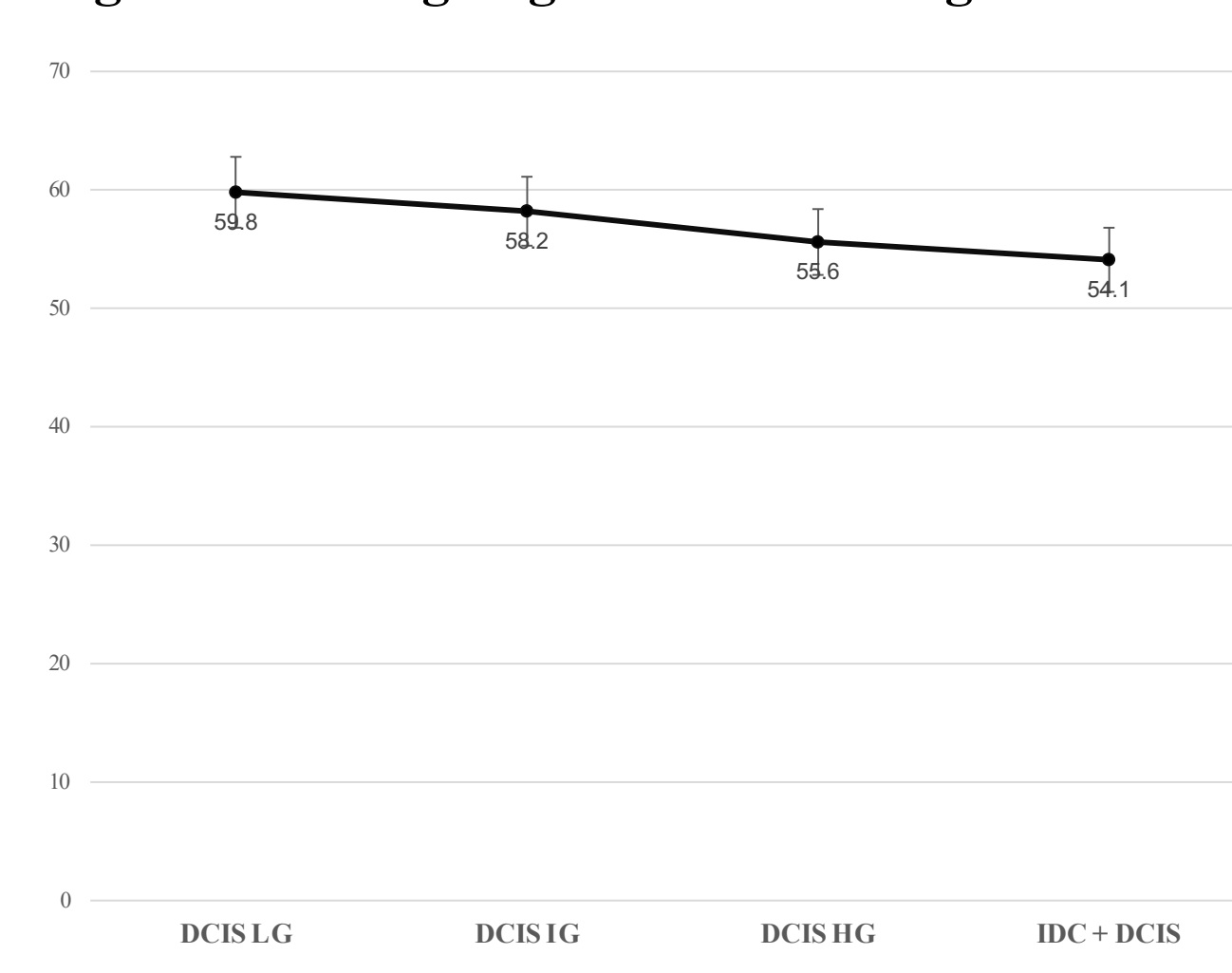


Figure 5: Percentage of Cases with ER Positivity

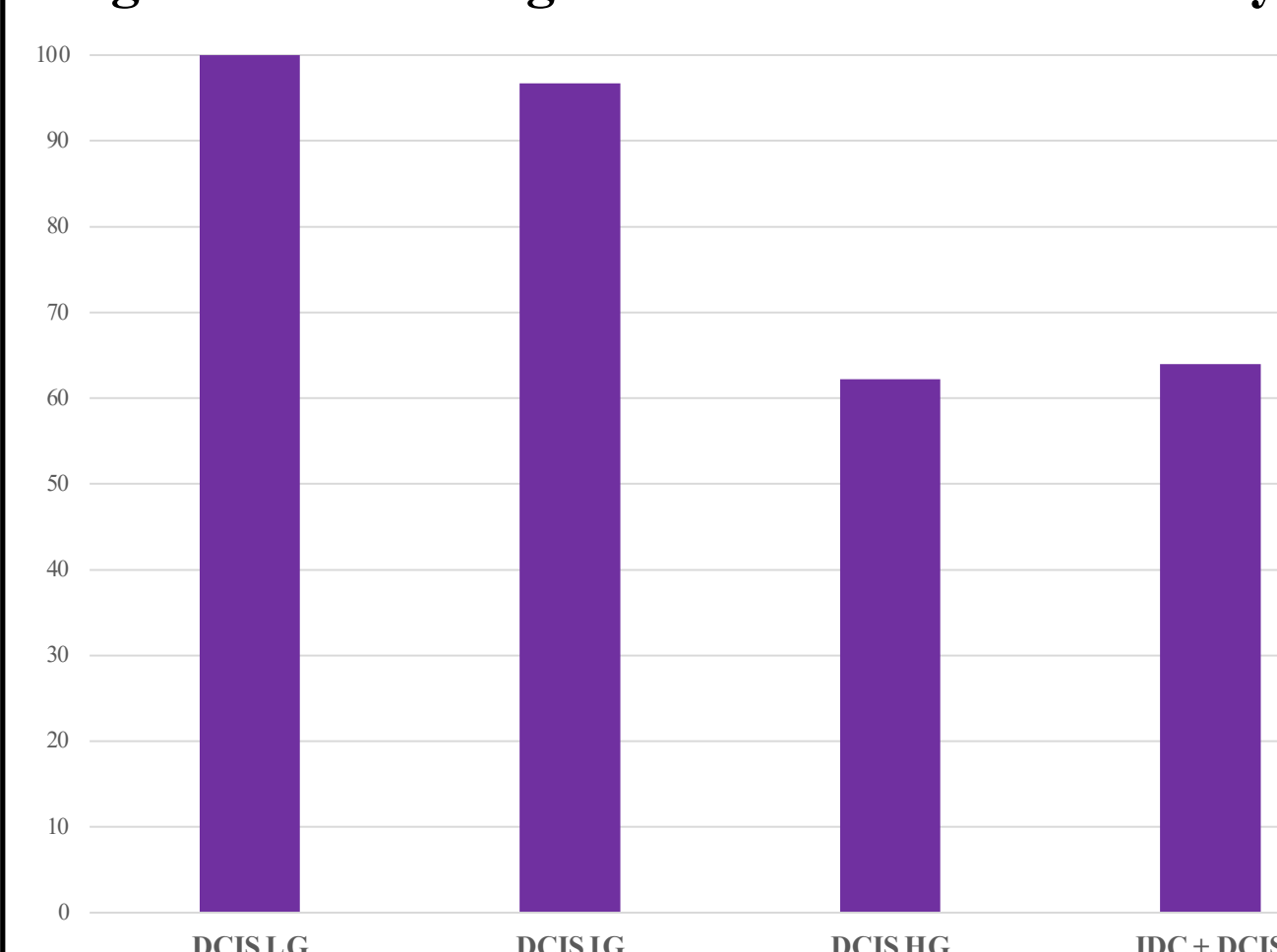
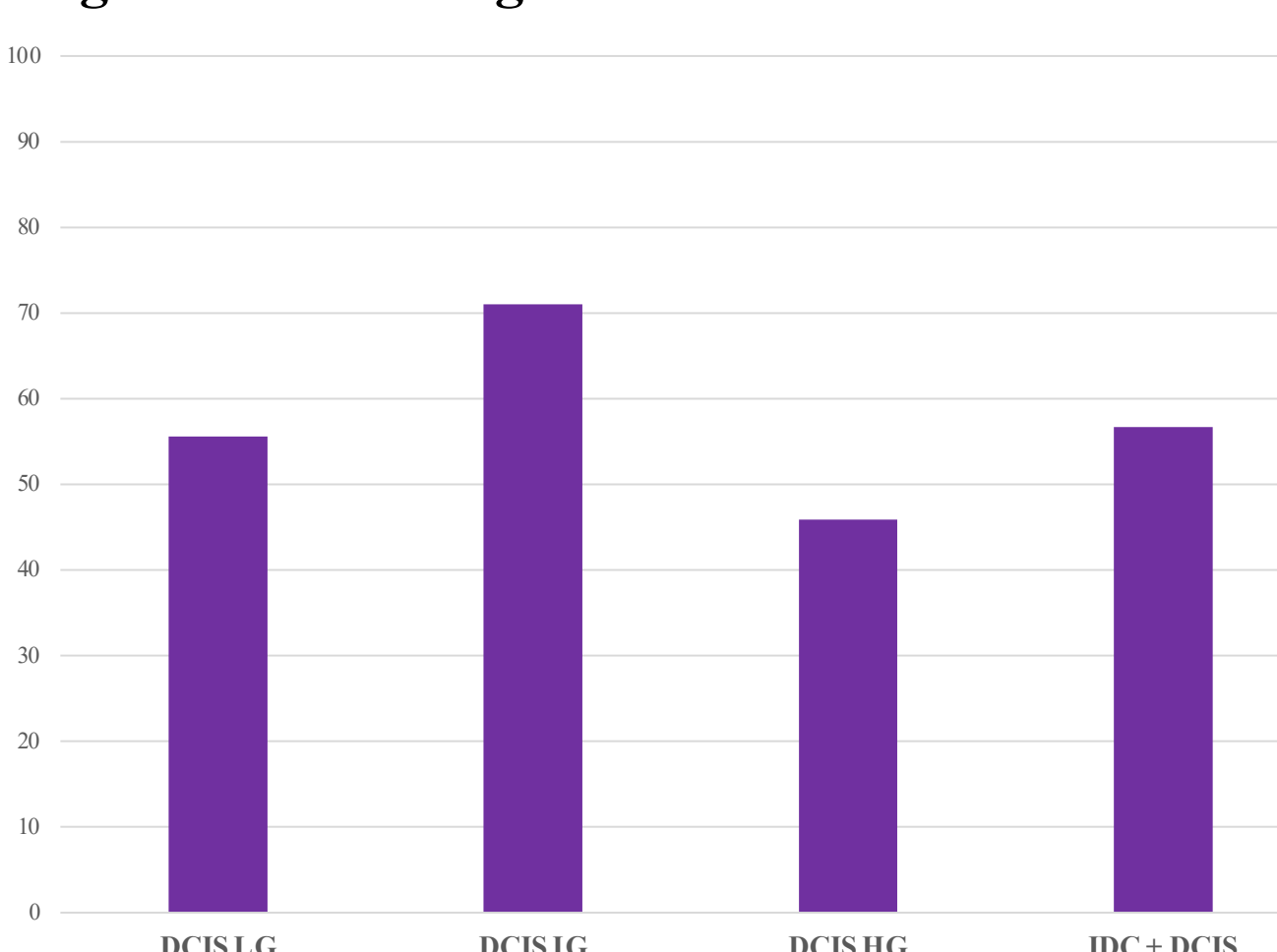


Figure 6: Percentage of Left Lateralization



Results

- 77 DCIS cases were reviewed: 9 low-grade (LG), 31 intermediate-grade (IG), and 37 high-grade (HG). A total of 74 IDC + DCIS cases were reviewed for the control group.
- Despite sentinel lymph node biopsies being performed in 75.7% of HG-DCIS group. There was no significant difference in lymph node metastasis compared to IG-DCIS group (5.4% vs 3.2%, $p > 0.05$).
- However, HG-DCIS group showed a significantly lower rate of lymph node metastasis than the IDC + DCIS control group (5.4% vs. 34.5%, $p < 0.01$).
- No patients within the LG-DCIS group had lymph node metastasis, although only 4 cases of lymph-node biopsy were recorded.
- The upgrade rate to invasive carcinoma for HG-DCIS was 24.3%, higher than both IG- and LG- DCIS, but not statistically significant ($p > 0.05$).
- ER positivity was significantly lower in HG-DCIS group compared to LG- and IG-DCIS groups ($p < 0.01$) but was similar to the control group ($p > 0.05$).
- Age and tumor laterality were similar across all groups.

Conclusion

- Biopsies of sentinel lymph nodes were frequently performed in HG-DCIS cases, and the rate of detected lymph node metastasis was low ($p < 0.01$).
- The rate of upgrade to invasive carcinoma was found to be higher in HG-DCIS, but it was not statistically significant.
- These findings may suggest that sentinel lymph node biopsy may not be indicated in all patients with diagnoses of HG-DCIS.

References

- WHO Classification of Tumours Editorial Board. Breast tumours [Internet]. Lyon (France): International Agency for Research on Cancer; 2019 [cited 2024 Oct 23]. (WHO classification of tumours series, 5th ed.; vol. 2).