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Prognostic and Predictive Value of Programmed Cell Death Ligand 1 (PD-L1) in Triple Negative Breast Cancer Patients in a Low-to-Middle Income Country

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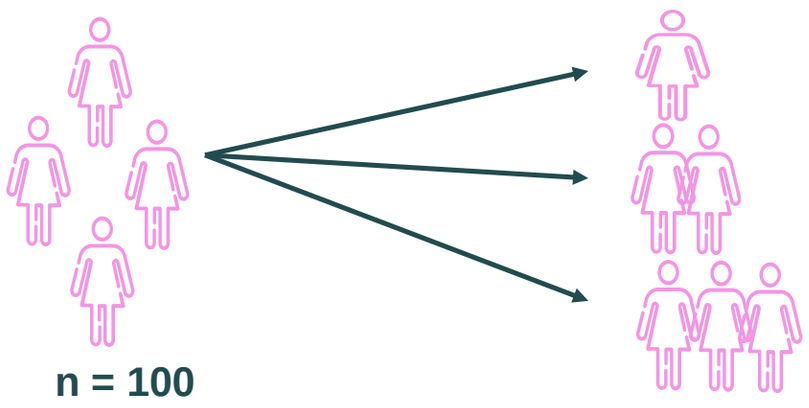
INTRODUCTION

The morphological evaluation of Programmed Cell Death Ligand 1 (PD-L1) in breast cancer is gaining momentum as evidence strengthens the potential role of host immunosurveillance in influencing the biology of breast cancer

OBJECTIVES

In this cohort study on triple negative breast cancer (TNBC) patients undergoing neoadjuvant chemotherapy (NACT), the PD-L1 proportion was correlated with response to NACT and oncological outcomes

PATIENTS AND METHODS



Pre-therapeutic core biopsies from 100 TNBC patients were assessed for the proportion of PD-L1 by standardized method and categorized as above

- Retrospective and prospective study
- Involved TNBC patients treated with NACT between 2016 & 2021
- Pre-therapeutic core biopsies from 100 TNBC patients were assessed for the proportion of PD-L1
- The association between PD-L1 expression and clinico-pathological features, pathological complete response (pCR), disease-free survival (DFS) and overall survival (OS) were assessed

Univariate analysis

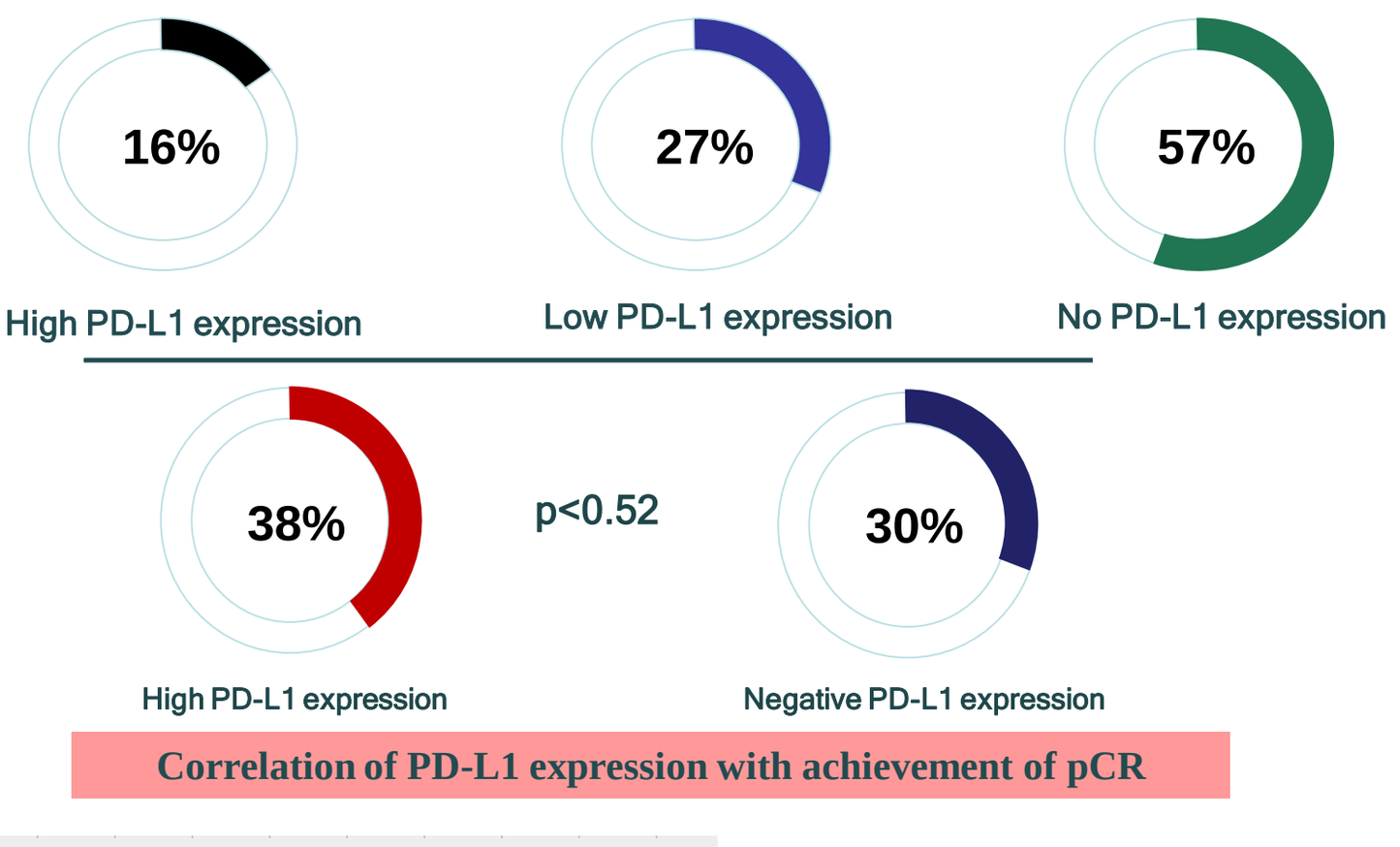
	PD-L1 as Continuous variable		p value	95 % Confidence interval	
	B	Std. Error		Lower bound	Upper bound
Grade	13.945	6.764	**0.042**	0.515	27.374
T	11.187	3.992	**0.006**	3.265	19.109
N	5.017	4.159	0.231	-3.237	13.271
M	14.814	12.712	0.247	-10.412	40.041
Age	-0.413	0.297	0.168	-1.002	0.177
pCR	-1.871	6.943	0.788	-15.649	11.907

Multivariate analysis

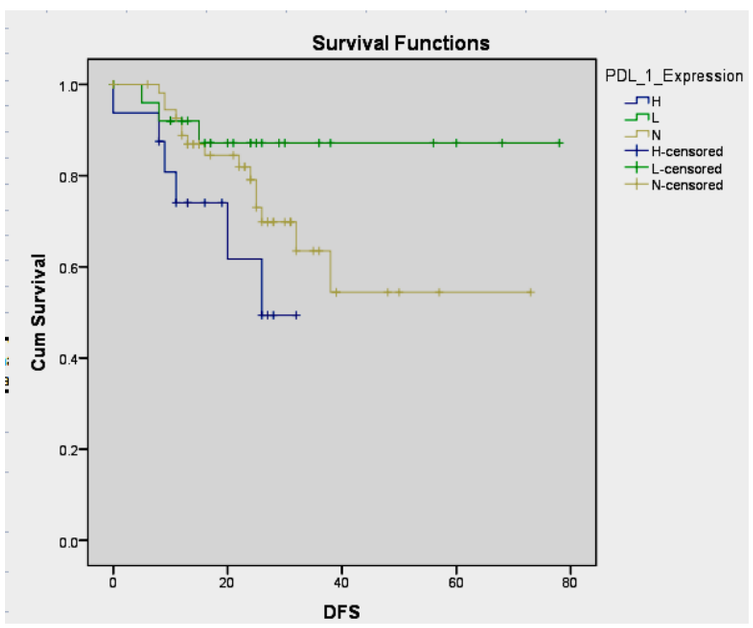
	PD-L1 as Continuous variable		p value	95 % Confidence interval	
	B	Std. Error		Lower bound	Upper bound
Grade	14.285	6.873	**0.041**	0.619	27.951
T	10.940	4.438	**0.016**	2.116	19.764
N	1.706	4.534	0.708	-7.309	10.722
M	5.658	14.445	0.696	-23.063	34.379
Age	-0.577	0.451	0.204	-1.474	0.319
pCR	-10.281	17.025	0.548	-44.132	23.570

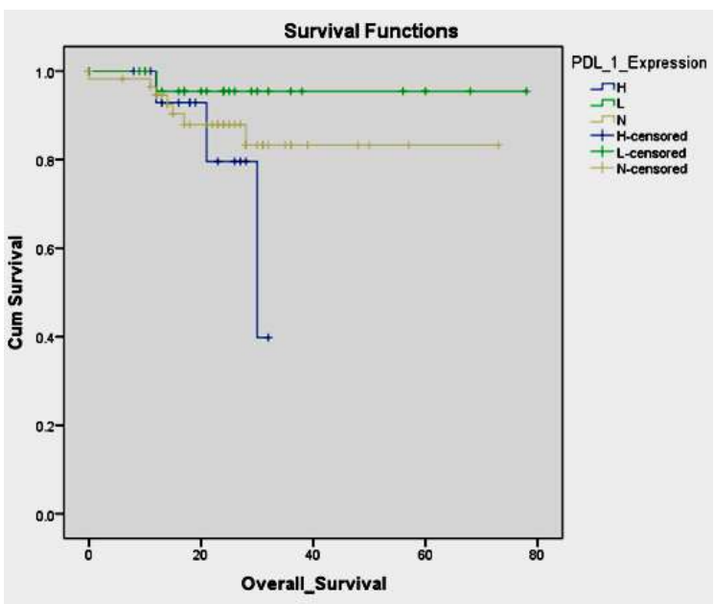
By univariate and multivariate analysis, TNBC patients with higher histological grades, and large tumor size tended to have higher PD-L1 expression levels

RESULTS



Correlation of PD-L1 expression with achievement of pCR





DFS and OS also tended to be poorer in patients who overexpressed PD-L1 than in patients who did not express PD-L1 (DFS: p 0.08; OS: p 0.2)

CONCLUSION

- PD-L1 over expression was significantly associated with large tumor size, and higher histological grades
- Our results indicate that high PD-L1 expression may be a prognostic indicator for reduced DFS and OS
- This information may be helpful to clinicians attempting to screen candidates for anti PD-L1 therapy
- Prospective studies with larger homogeneous populations are needed to determine the role of PD-L1 expression

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