

The Effect of Neoadjuvant Chemotherapy / Chemoradiotherapy on Tumor Tissue PD-L1 And VISTA Expression Levels in Non-Small Cell Lung Cancers (NSCLC)

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INTRODUCTION

PD-L1 and VISTA (V-domain Ig Suppressor of T Cell Activation) are important immune control points and plays an immunomodulatory role in patients with NSCLC.(1) In addition, radiation has been shown to induce tumor antigen release and increase PD-L1 expression.(2) Therefore, in this study, we aimed to evaluate the expression level of PD-L1 and VISTA after neoadjuvant chemotherapy or chemoradiotherapy in Stage III NSCLC patients.

PATIENTS & METHODS

The data of patients followed up with NSCLC between January 2010 and January 2020 were retrospectively evaluated. Data were collected from the patient files and hospital electronic registry system. Stage 3 patients diagnosed with NSCLC as a pathological diagnosis and treated with neoadjuvant chemotherapy/chemoradiotherapy were included in the study. Inclusion criteria for the study were; being older than 18 years of age, having an ECOG 0-2, and having received at least 2 cycles of neoadjuvant chemotherapy/chemoradiotherapy. Since adequate immunohistochemical staining could not be performed from cytological materials, it was required that the pathology of the patients at the time of diagnosis should be tissue biopsy. Patients who had insufficient file data or follow up, and whose pathology material before or after neoadjuvant therapy was not in the pathology archive of our hospital were excluded from the study.

The expression levels of PD-L1 and VISTA were compared between the pre- and post-treatment tumor tissue of Stage III NSCLC patients who received neoadjuvant chemotherapy or chemoradiotherapy and were after operated (Figure 1).

RESULTS

Thirty four patients were included in the study. PD-L1 level of 64.7% (n=22) of these patients at the time of diagnosis was <1%, after neoadjuvant chemotherapy / chemoradiotherapy the PD-L1 level of 32.3% (n=11) of the patients was evaluated as <1%, and an increase in the PD-L1 level was found in 41.1% (n=14) of the patients after treatment (p= 0.004) . Vista level of 58.8% (n=20) of the patients at the time of diagnosis was <1% ,it was found that the Vista level of 35.2% (n=12) of the patients after neoadjuvant chemotherapy / chemoradiotherapy was <1% and 44% (n=15) of the patients had an increase in Vista level after treatment (p = 0.025).(Table 1) There was no relationship between VISTA expression and survival (p: 0.53)(Figure 2), but high PD-L1 expression at the time of diagnosis was associated with poor prognosis (p = 0.033).(Figure 3)

Table I. PD-L1 and VISTA expression levels of first and second biopsies

		First Biopsy PD-L1 TPS				Second Biopsy PD-L1 TPS				p value
		0	1	2	3	0	1	2	3	
Patients	n	22	3	3	6	11	9	3	11	0,004
	%	64,7	8,8	8,8	17,6	32,3	26,4	8,8	32,3	
		First Biopsy VISTA IC				Second Biopsy VISTA IC				p value
		0	1	2	3	0	1	2	3	
Patients	n	20	3	3	8	12	3	5	14	0,025
	%	58,8	8,8	8,8	23,5	35,2	8,8	14,7	41,1	

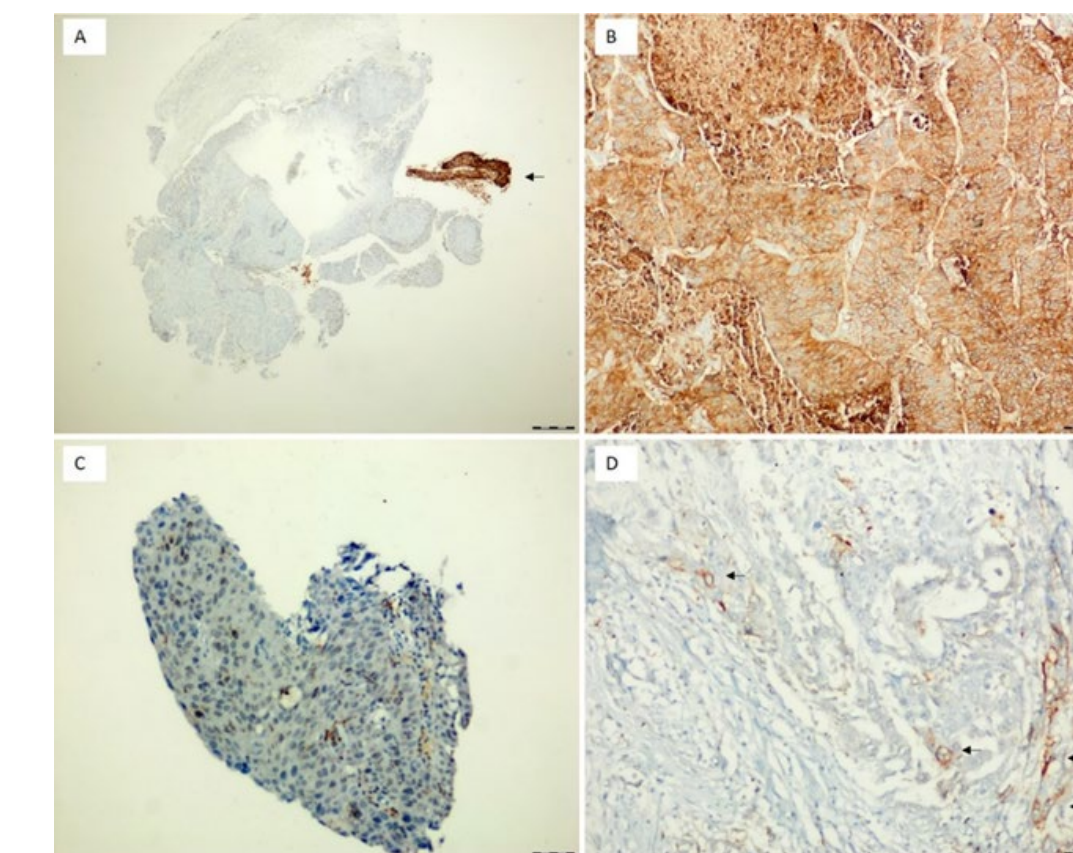


Figure 1

PD-L1 Expression A, C. Before neoadjuvant therapy , B, D. The same patients after neoadjuvant therapy

- A. PD-L1 score: 2, < %50
- B. PD-L1 score: 3, ≥ %50
- C. PD-L1 score: 0, < %1
- D. PD-L1 score: 1, < %5

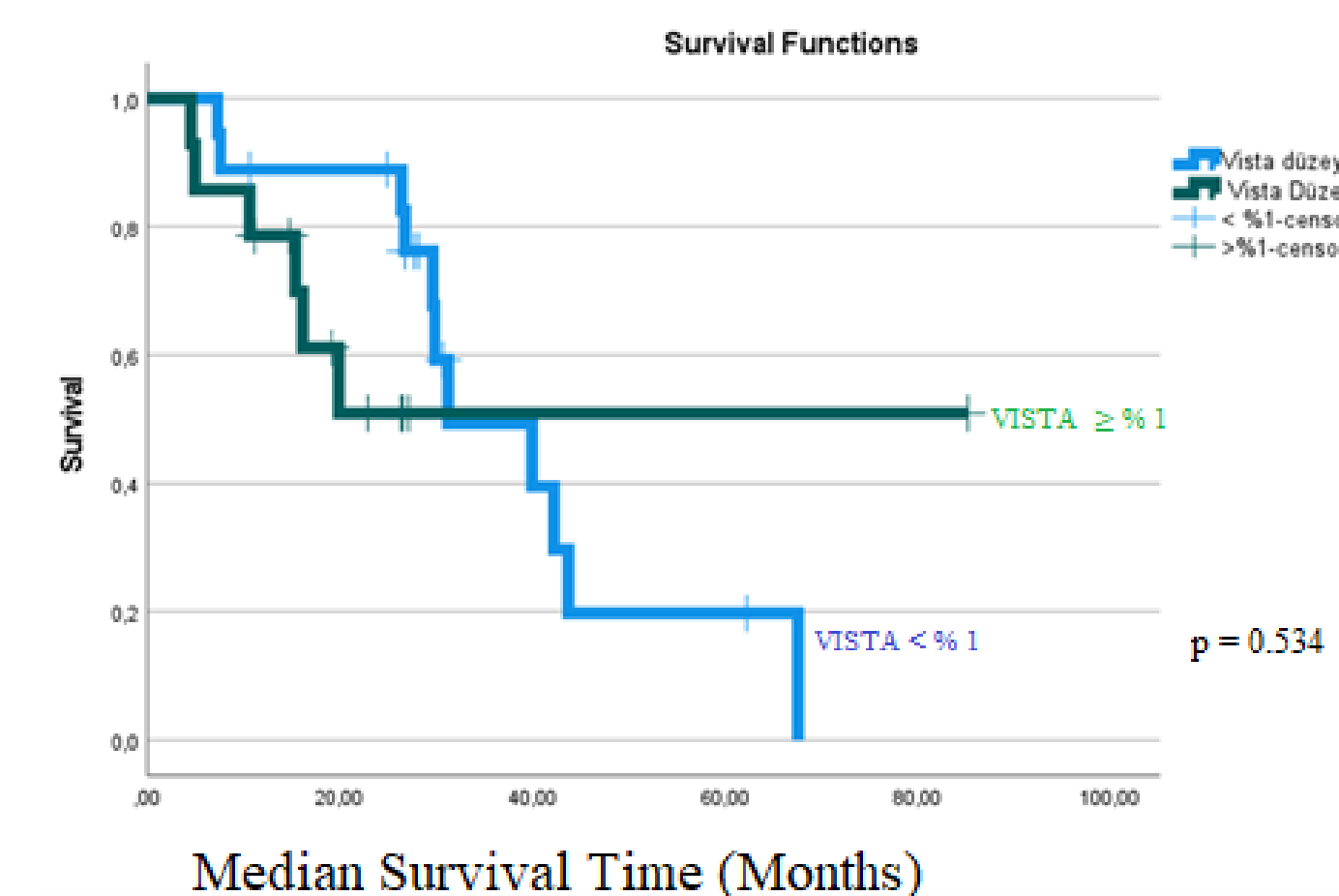


Figure 2

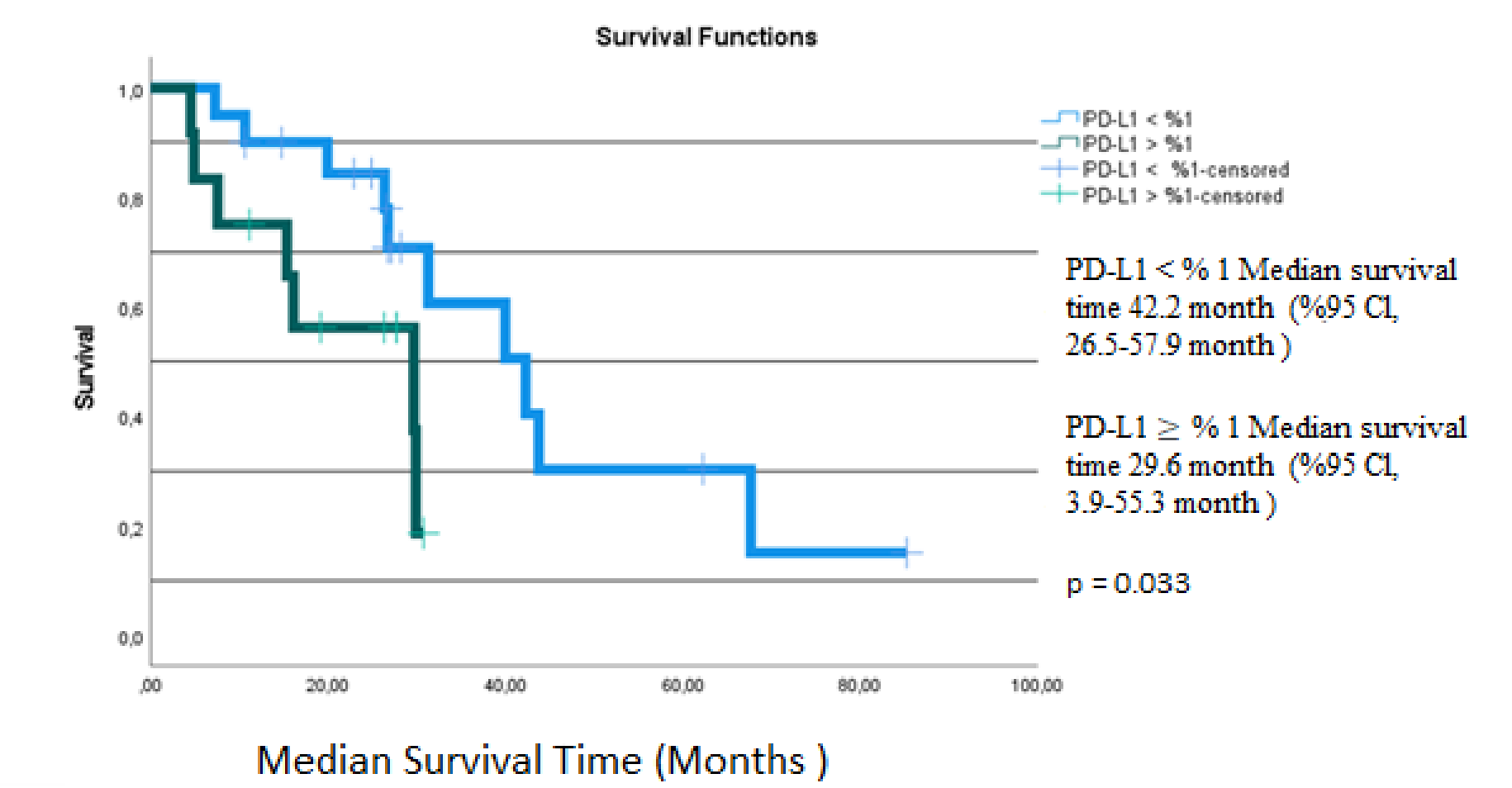


Figure 3

CONCLUSION

Our preliminary results demonstrated that in the Stage III NSCLC patients chemotherapy and chemoradiotherapy can be used as immunizers by increasing expression levels of PD-L1 and VISTA.

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