



Comparison of PD-L1 and VISTA Expression Levels in Head and Neck Cancers in Primary and Recurrent Tumor Tissue after Radiotherapy / Chemoradiotherapy #3660



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INTRODUCTION

PD-L1 and VISTA are thought to play a role in escape from the immune system, tumor progression and treatment response in tumoral tissue (1,2). It has been suggested that radiotherapy may increase the expression levels of immune biomarkers (3). The current study aimed to evaluate the effects of radiotherapy (RT) and chemoradiotherapy (CRT) on PD-L1 and VISTA expression in head and neck cancers. The secondary aim of this study is to evaluate the relation between PD-L1/ VISTA levels and survival.

PATIENTS & METHODS

The data of patients followed up with head and neck cancer in between November 2008 and March 2021 were retrospectively evaluated. Data were collected from patient files and hospital electronic registry system. Patients with primary tissue biopsy prior to treatment who received curative surgery with RT/CRT or definitive CRT, and whose relapse/refractory disease was proven by biopsy afterward were evaluated. Patients followed up with cancer of oral cavity, oropharynx, hypopharynx and larynx were included; patients followed up with nasopharynx cancer were excluded. Patients whose recurrent disease was distant metastases or primary tissue histology was not squamous cell carcinoma were not also included in the study. PD-L1 and VISTA expressions were compared between the primary biopsy at the time of diagnosis and refractory tissue biopsies of patients who received definitive CRT or recurrent tissue biopsies of patients who received surgery with adjuvant RT/CRT. Expression of PD-L1 was evaluated by tumor proportion score (TPS) and VISTA expression was evaluated by Immune Cell Score.

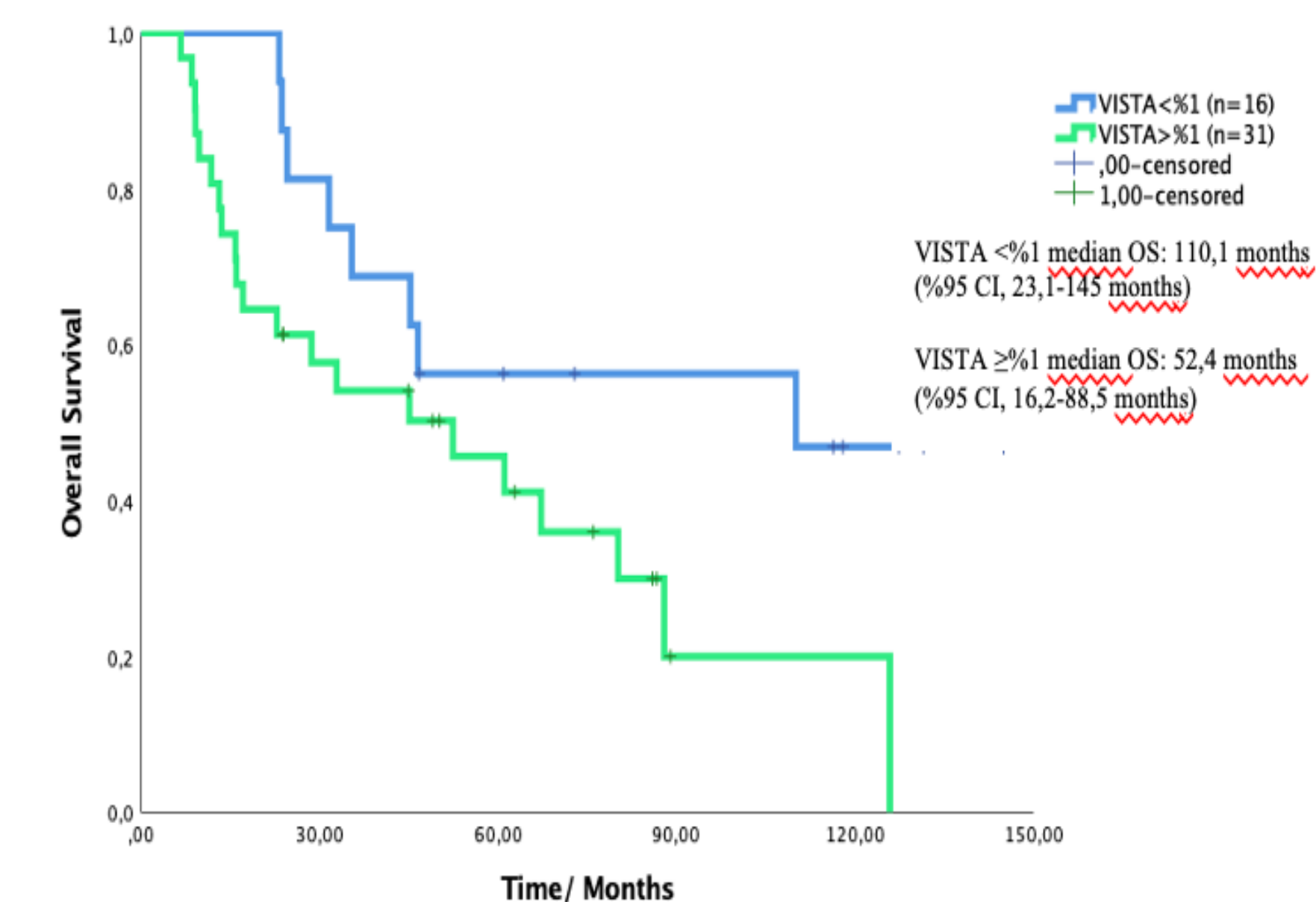
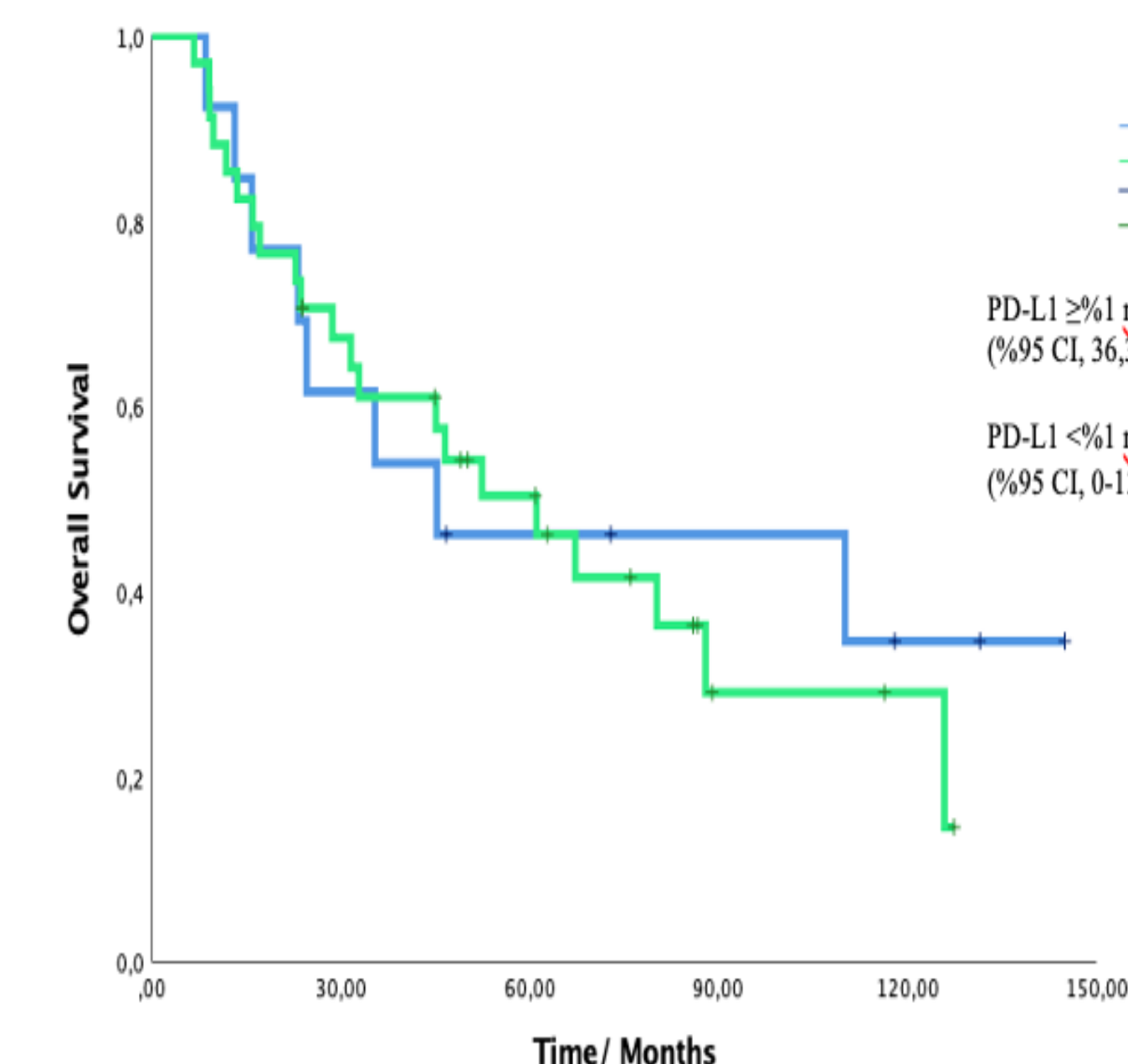
RESULTS

A total of 47 patients were included. Most of the patients originated from the larynx (n=26, 55.3%) and oral cavity (n=19, 40.4%). Of the 47 patients, 43 (91.5%) had locoregional recurrence and 4 (8.5%) had refractory disease. Salvage surgery was performed in 30 patients (63.8%) and complete response was obtained in 13 (43.3%) patients who underwent salvage surgery.

PD-L1 and VISTA expression levels did not change with RT/CRT in head and neck cancers, respectively (p=0,542 and p=0,425). The PD-L1 and VISTA expression levels of first and second biopsies were demonstrated in Table. Positive correlation was found between PD-L1 and VISTA expression (p<0,001; r=0,560). PD-L1 and VISTA expression of first biopsy was found to be significantly higher in clinical lymph node positive patients compared to node negative patients (PD-L1 p=0,038; VISTA p=0,018). The overall survival of patients with VISTA expression > 1% on the first biopsy was found to be significantly shorter than those with < 1% [52,4 months (95% CI, 16,2-88,5 months) vs 110,1 months (95% CI, 23,1-145 months), respectively p= 0.048].

PD-L1 and VISTA expression levels of first and second biopsies

Localization		First Biopsy PD-L1 TPS				Second Biopsy PD-L1 TPS				P value
		0	1	2	3	0	1	2	3	
Larynx	n	8	7	8	3	9	5	8	4	0,873
	%	30,8	26,9	30,8	11,5	34,6	19,2	30,8	15,4	
Oral Cavity	n	3	6	4	6	4	4	4	7	0,760
	%	15,8	31,6	21,1	31,6	21,1	21,1	21,1	36,8	
Hypopharynx	n	2					1	1		0,18
	%	100					50	50		
		First Biopsy VISTA IC				Second Biopsy VISTA IC				P value
		0	1	2	3	0	1	2	3	
Larynx	n	11	6	2	7	11	4	2	9	0,496
	%	42,3	23,1	7,7	26,9	42,3	11,4	7,7	34,6	
Oral Cavity	n	4	1	6	8	4	2	5	8	1
	%	21,1	5,3	31,6	42,1	21,1	10,5	26,3	42,1	
Hypopharynx	n	1	1	0	0	1	0	0	1	0,655
	%	50	50	0	0	50	0	0	50	



CONCLUSION

It was shown that PD-L1 and VISTA expression did not change with radiotherapy or chemoradiotherapy.

REFERENCES

- 1) e Mercier, I., et al., VISTA Regulates the Development of Protective Antitumor Immunity. *Cancer Res*, 2014, 74(7): p. 1933-44.
 - 2) Sun, C., R. Mezzadra, and T.N. Schumacher, Regulation and Function of the PD-L1 Checkpoint. *Immunity*, 2018, 48(3): p. 434-452.
 - 3) Demaria, S., E.B. Golden, and S.C. Formenti, Role of Local Radiation Therapy in Cancer Immunotherapy. *JAMA Oncol*, 2015, 1(9): p. 1325-32.
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