1355P - Monitoring Tumor Growth Rate to predict Immune Checkpoint Inhibitors' treatment outcome in advanced NSCLC

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BACKGROUND

Radiological response assessment to immune checkpoint inhibitor is challenging due to atypical pattern of response and commonly used RECIST criteria do not take into account the kinetics of tumor behaviour.

Our study aimed to evaluate Tumor Growth Rate (TGR) in addition to RECIST criteria to assess benefit of ICIs.

METHODS

We included all consecutive NSCLC pts treated at our Institution with either second line Immune checkpoint inhibitors or stadard second line chemotherapy.

Tumor real volume was calculated with a dedicated CT software that semi-automatically assess tumor volume. Target lesions were identified according to RECIST.

For each patient we had 3 measurement of tumor volume.

The baseline CT was CT0; CT-1 was performed 8-12 weeks before, while CT+1 was the first assessment after ICI.

We calculated the percentage increase in tumor volume before (TGR1) and after immunotherapy (TGR2).

Finally, we compared TGR1 and TGR2.

If no Progressive Disease (PD), the group was DC (Disease Control).

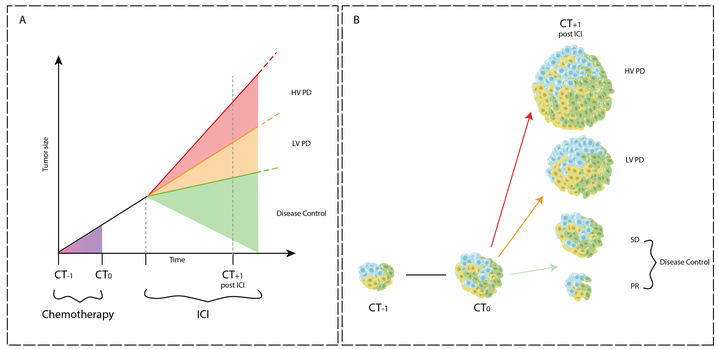
If PD but TGR2<TGR1, it was called LvPD

If TGR2 ≥ TGR1, HvPD .

RESULTS

- 61 patients who received ICIs and 33 treated with chemotherapy were included.
- Main characteristics of ICI treated patients are described in the table 1.
- HvPD was more frequent in patients with bone metastasis and in those with a poorer ECOG PS.

Figure 1



		HvPD (n18)		LvPD (n 22)		DC (n 21)		All Patients (n 61)		p
Age (mean, SD)		69.3 (19.8)		73.1 (10.0)		70.3 (13.8)		71.0 (17.8)		0.778
Sex	Male	13	72.2%	20	90.9%	16	76.2%	49	80.3%	0.282
	Female	5	27.8%	2	9.1%	5	23.8%	12	19.7%	
Smoking	Current	2	11.1%	3	13.6%	3	14.3%	8	13.1%	0.321
	Former	9	50.0%	13	59.1%	14	66.7%	36	59.0%	
	Never	5	27.8%	2	9.1%	1	4.8%	8	13.1%	
	N/A	2	11.1%	4	18.2%	3	14.3%	9	14.8%	
Liver Metastasis	Yes	3	16.7%	4	18.2%	3	14.3%	10	16.4%	0.972
	No	15	83.3%	18	81.8%	18	85.7%	51	83.6%	
Bone Metastasis	Yes	9	50.0%	4	18.2%	2	9.5%	15	24.6%	0.009
	No	9	50.0%	18	81.8%	19	90.5%	46	75.4%	
Ecog PS	0-1	13	72.2%	21	95.5%	20	95.2%	54	88.5%	0.035
	2	5	27.8%	1	4.5%	1	4.8%	7	11.5%	
dNLR	≥3	6	33.3%	7	31.8%	3	14.3%	16	26.2%	0.282
	<3	12	66.7%	15	68.2%	18	85.7%	45	73.8%	
Subsequent therapy	Yes	4	22.2%	4	18.2%	3	14.3%	11	18.0%	0.908
	No	14	77.8%	15	68.2%	15	71.4%	44	72.1%	
	Treatment Ongoing	0	0.0%	3	13.6%	3	14.3%	6	9.8%	
Treatment Beyond Radiological Progression at 1st CT-scan	Yes	11	61.1%	11	50.0%					0.521
	No	7	38.9%	10	45.5%					
PD-L1 Expression	Mean % (SD)	9.7 (21.9)		21.8 (29.1)		24.2 (29.7)				0.413
	N/A	6	33.3%	7	31.8%	10	47.6%	23	37.7%	
Local Ablative treatment within 6 months after iCIs start										0.205
	Yes	4	22.2%	2	9.1%	1	4.8%	7	11.5%	
	No	14	77.8%	20	90.9%	20	95.2%	54	88.5%	

RESULTS

- In ICI group, 18 patients were HvPD, 22 LvPD, 21 DC. Median OS was 4.4 months (95%CI 2.0-6.8, reference) for HvPD, 7.1 months (95% CI 5.4 – 8.8) for LvPD, p 0.018, and 20.9 months (95%CI 12.5–29.3) for DC, p < 0.001.
- No difference was seen in the chemotherapy group according to our cathegorization (p0.786)

CONCLUSIONS

A decrease in TGR, even in the presence of PD, may result in a clinical benefit in patients treated with ICI but not with chemotherapy. Monitoring TGR changes after ICIs administration can help physician in deciding to treat beyond PD.

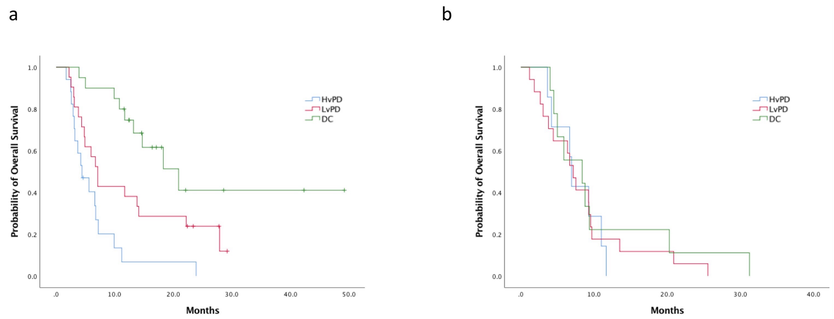


Figure 1. Overall Survival according to TGR in ICI group (a) and chemotherapy control group (b)