WEIGHT LOSS DURING METASTATIC NON-SMALL CELL LUNG CANCER TREATMENT IS INDEPENDENT OF TYPE OF CHEMOTHERAPY

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INTRODUCTION

In metastatic Non-Small Cell Lung Cancer (mNSCLC), weight loss (WL) is crucial to monitor given that various studies, strongly support an association between weight WL and outcome.

WL may be associated with the intense catabolism linked to tumor evolution. However, cancer treatments are often incriminated in WL. Since the introduction of immune checkpoint inhibitors (ICIs), various therapeutic options for NSCLC have become available: ICIs alone, in association with chemotherapy (CT) or CT alone.

METHODS AND MATERIALS

Retrospective analysis evaluating weight variation for patients with metastatic lung adenocarcinoma during the first line treatment.

Data collected for patients treated at Gustave Roussy between January 2016 and December 2022.

Weight data has been recorded at four time points: before treatment (Wbe), at day one of treatment (Wd1), at the beginning of maintenance or at 3 months of ICIs treatment (W3mo), at the diagnosis of progression (Wpro).

RESULTS

A total of 198 patients were included, most of them are men (56%) and smokers (90%); 47% of patients received CT associated with ICI, 26% CT alone and 27% ICI alone.

At day one of treatment 11% were considered malnourished according to BMI (<18.5) (Body Mass Index) (weight / height2) (kg/m2) and 32% were overweight or obese (BMI >25). WL ≥ 5% between Wbe and Wd1 has been observed in 37% patients. Mean (SD) WL (%) between Wbe and Wd1 was 3.8% (6.0), and the mean (SD) WL (%) between usual weight and progression was 4.1% (6.4).

Demographics			
Gender	Male	115 (58%)	
	Female	83 (42%)	
Age at diagnosis (years)		63.0 (10.8)	
Clinical nutritional and biological parameters at Day1 before treatment			
Weight (kg)		68.8 (14.9)	
Body Mass Index (BMI) (kg/m^2)		23.6 (4.3)	
	Underweight BMI < 18.5	22 (11%)	
	Normal weight: 18.5 - 24.9	110 (57%)	
	Overweight: 25 -29.9	43 (22%)	
	Obese BMI ≥ 30.0	19 (10%)	
Weight variation (%) between before treatment (ref) and Day 1 treatment		-4.1 (6.4)	
	Gain or stable weight	103 (53%)	
	2.5% - 6.0% weight loss	32 (16%)	
	6.0% - 11.0% weight loss	31 (16%)	
	11.0% - 15.0% weight loss	14 (7%)	
	Over 15% weight loss	14 (7%)	
Albumin (g/L)		39.5 (5.1)	
	Albumin < 32	12 (7%)	
	Albumin ≥ 32	152 (93%)	

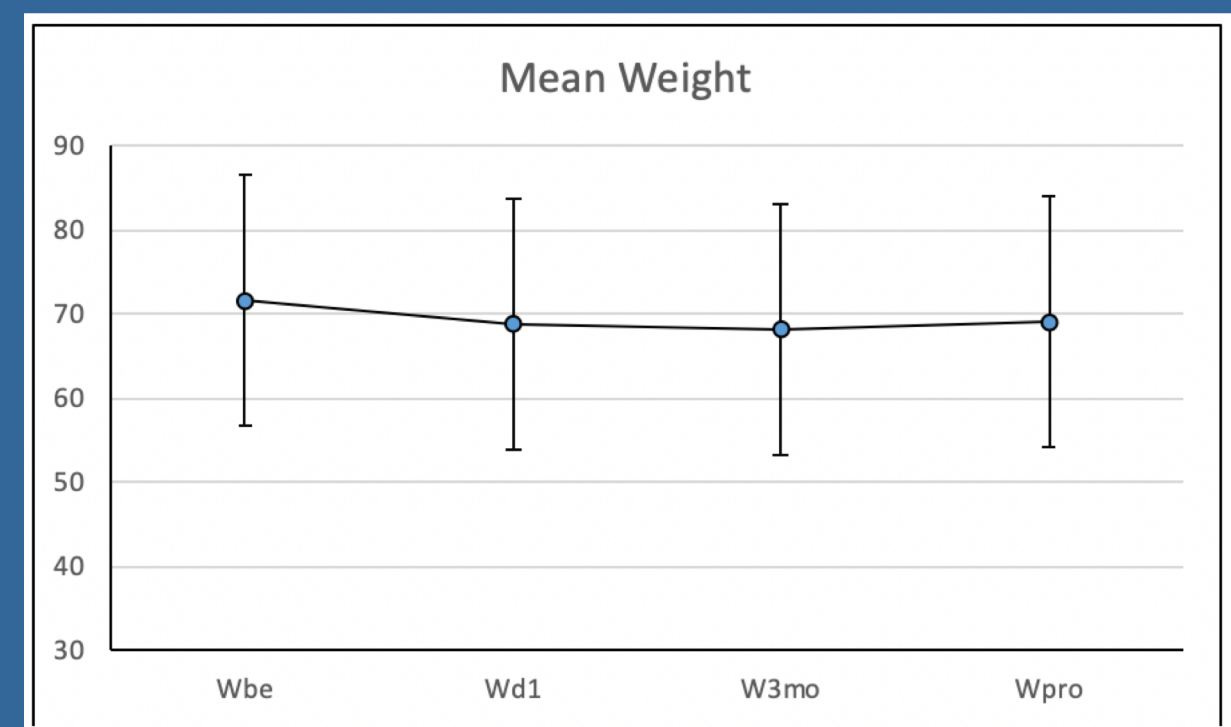Table 1. Patients, Disease and Nutritional Characteristics in mNSCLC.

Figure 1. Weight assessment (kg) at different points: before treatment (Wbe), at day one of treatment (Wd1), at the beginning of maintenance or at 3 months of immunotherapy (W3mo) and weight at the diagnosis of progression (Wpro .

Percentage mean (SD) weight variation at different points		Total	CT alone	CT + ICI	ICI alone	p
Tumor effect	Between Wbe and Wd1	-4.1 (6.4)	-3.3 (4.8)	-4.8 (7.0)	-3.5 (6.4)	0.46
Treatment effect	Between Wd1 and W3mo	-0.2 (6.9)	-1.1 (4.6)	-0.2 (7.1)	0.4 (7.7)	0.52
Progression effect	Between W3mo and Wpro	0.2 (8.5)	-0.2 (6.4)	1.5 (9.6)	-4.0 (5.0)	0.14

Table 2. Weight variation at different periods of assessment.

- There is neither differences in weight variation at different point of assessment, nor weight variation between treatment procedure (CT, CT+ICI, ICI).
- Patients without weight loss before treatment lose weight during treatment, whereas those who were losing weight before treatment, gain weight during treatment.

Comparison between 2 groups depending on Body Mass Index (kg/m^2) at day I of treatment.	Total	Underweight or normal weight BMI<24.9	Over weight loss or obese >25.0	p
Kg	-0.3 (4.6)	0.5 (4.6)	-2.0 (4.0)	0.0104
Percentage	-0.2 (6.9)	0.8 (7.4)	-1.4 (5.1)	0.0243

Table 3. Treatment effect. Weight difference between day 1 of treatment (ref) and at the beginning of maintenance or at 3 months of immune checkpoint inhibitors. Mean (SD)

CONCLUSIONS

The control of the intense catabolism by cancer treatment maintains patients' weight irrespective of nutritional and digestive disorders.

Weight loss during cancer treatment seem to be influenced by the initial nutritional status. This study can suggest that weight loss could be faster when there is a high level of energy store and when energy stores are normal or low, a regulatory mechanism occurred in order to maintain weight.