



## SKELETAL MUSCLE INDEX VARIATION IN HEAD-NECK CANCER PATIENTS UNDERGOING RADIOTHERAPY: A POSITIVE, UNEXPECTED RESULT

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### Background and aims

Sarcopenia is an adverse prognostic factor in head-neck cancer (HNC). We assessed the skeletal-muscle index (SMI) variation at 3 months after treatment completion (T3).

### Methods

73 head-neck squamous cell carcinoma (HNSCC) patients, treated with exclusive/adjuvant radiotherapy (RT) (14) or chemotherapy-associated radiotherapy (RT/CHT) (59) were analyzed (2016-2020). The nutritional intervention ranged from dietary advice with/without Oral Nutritional Supplements to enteral nutrition, according to clinical needs. At diagnosis (T0) and T3, skeletal-muscle was assessed through computed-tomography scans as cross-section area (CSA) at C3-vertebra level. SMI was obtained as CSA/height<sup>2</sup>, the variation T3 vs T0 assessed by Wilcoxon signed-rank test (p<0.05).

### Results

Cohort features: Table 1. SMI variation: Table 2. A lower increase trend occurred in stage III-IV vs I-II tumors (1.6±5.8 vs 2.8±4.7 cm<sup>2</sup>/m<sup>2</sup>), although not significant (p=0.25). No associations were described for any variable in Table 1 (Mann-Whitney test).

### Conclusions

1. Nutritional intervention is crucial to preserve/enhance muscle-mass throughout HNC treatments 2. Muscle-mass in stage III-IV tumors are likely more refractory to the protein-anabolic stimulus, thus possibly benefiting from higher aminoacid intakes and inflammation-modulating interventions (omega-3 fatty-acids, immunonutrition).

Age (years)	(mean±SD)
	61±10.9
Gender	(n) (%)
• Male	58(79.5%)
• Female	15(20.6%)
Primitive site	
• Oral	16(21.9%)
• Oropharynx	27(37.0%)
• Nasopharyngeal	14(19.2%)
• Hypofarynx	5(6.9%)
• Larynx	9(12.3%)
• Unknown	2(2.7%)
HPV	
• Negative	27(37.0%)
• Positive	26(35.6%)
• Undetermined	20(27.4%)
Stage	
• I-II	24(32.%)
• III-IV(ABC)	49(67.2%)

Table 1.

	T0 (mean ±SD) (cm <sup>2</sup> /m <sup>2</sup> )	T3 (mean ±SD) (cm <sup>2</sup> /m <sup>2</sup> )	Variation (mean ±SD) (cm <sup>2</sup> /m <sup>2</sup> )	p	Increase rate (n)(%)	Reduction rate (n)(%)
SMI	57.1(±11.1)	59.2 (±11.8)	2.0(±5.5)	<0.0055	47(64.4%)	26(35.6%)

Table 2.

