EFFECTS OF SUPPLEMENTATION WITH OMEGA-3 ON BODY COMPOSITION AND FUNCTIONAL CAPACITY IN PATIENTS WITH CERVICAL CANCER IN CHEMORADIOTHERAPY: A RANDOMIZED CLINICAL TRIAL

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BACKGROUND

Recently, omega-3 fatty acids have gained interest for their beneficial effects in cancer cachexia. Omega-3 can regulate the production of pro-inflammatory cytokines, reduce the expression of the proteolysis-inducing factor, produced by the tumor, and promote proteolysis of the skeletal muscle.

Therefore, nutritional supplementation could potentially maintain muscle mass in cancer patients undergoing clinical treatment.

OBJECTIVE

We aimed to evaluate the effect of omega-3 supplementation on body composition, with emphasis on skeletal muscle (SM) quality and functional capacity in cervix cancer patients undergoing chemoradiotherapy.

METHODS

Study design: Randomized controlled trial, triple blinded, placebo-controlled

Study population: Adults patients with cervical cancer (19 - 59 years), stages II and III, elegible for chemoradiotherapy, who never undergone any oncological treatment.

Randomization 1:1: Control group – CG (olive oil, placebo) or Intervention group – IG fish oil (4 capsules per day, comprising 2g/day of eicoisapentaenoic acid and 450mg docosahexaenoic acid).

Data collection: May 2016 to March 2017

Two appointments took place with the researcher in charge:

- First one occurring the day before the first chemotherapy session (T0)
- After 45 days of supplementation, at the end of chemoradiotherapy (T1)

Patients were assessed for weight, body composition by computerized tomography (CT (Figure 1) and functional capacity by handgrip strength (HGS) and 30 second chair test.

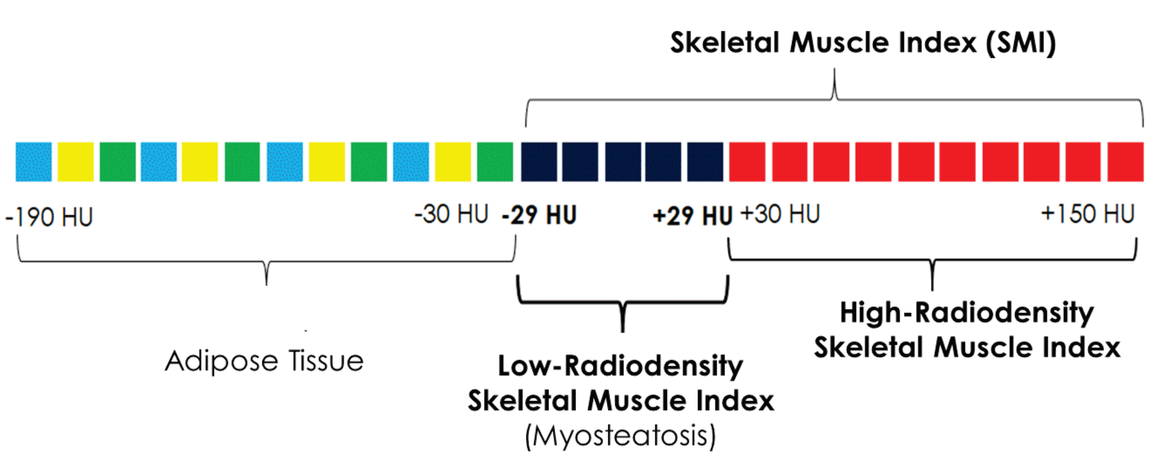

Figure 1. Skeletal Muscle Mass assessment by CT

RESULTS

We included 24 patients in this prelimiray results, 16 in the GC and 8 in IG.

Table 1. Nutritional assessment and functional capacity in the control and intervention groups

Parameters	Control group	Intervention group	p value
	Δ (Final – Initial)		
Weight (kg)	-2,22	-2,97	0,382
BMI (kg/m^2)	-1,24	-0,64	0,384
HGS (kg)	-1,9	-3,0	0,729
30 Second chair test (n)	+0,5	+2,0	0,087

BMI = body mass index; HGS = handgrip strength

Table 2. Parameters of the skeletal muscle after chemoradiotherapy

Parameters of skeletal muscle		Randomization	
		Control group	Intervention group
Skeletal Muscle Index	Gain or Maintenance	1 (6%)	0 (0%)
	Mild weight loss	1 (6%)	3 (38%)
	Moderate weight loss	9 (56%)	3 (38%)
	Severe weight loss	5 (32%)	2 (24%)
Low-radiodensity Skeletal Muscle Index	Gain or Maintenance	2 (13%)	3 (38%)
	Mild weight loss	1 (6%)	0 (0%)
	Moderate weight loss	1 (6%)	1 (12%)
	Severe weight loss	**12 (75%)**	**4 (50%)**
High-radiodensity Skeletal Muscle Index	Gain or Maintenance	**11 (69%)**	**4 (50%)**
	Mild weight loss	3 (19%)	1 (12%)
	Moderate weight loss	0 (0%)	0 (0%)
	Severe weight loss	2 (12%)	3 (38%)

Mild weight loss: < 5%; Moderate loss: 5 to 9.9%; Severe loss: ≥10%

Table 3. Parameters of the skeletal muscle after chemoradiotherapy

Parameters of skeletal muscle	Randomization	
	Control group	Intervention group
	Median (minimum – maximum)*	
Skeletal Muscle Index	7.36 (-1.02 to 12.86)	7.69 (2.32 to 11.14)
Low-radiodensity Skeletal Muscle Index	16.28 (-9.73 to 34.37)	18.32 (-8,54 to 23.27)
High-radiodensity Skeletal Muscle Index	**-16.21** (-79.52 to 29.18)	**-1.23** (-20.08 to 15.50)

*Percentage of alteration = (Initial – Final/Initial x 100)

CONCLUSION

Despite not having an effect on preventing SMI loss, omega-3 seems to prevent the intramuscular fat infiltration in the skeletal muscle, resulting in preservation of SM quality after cancer treatment. However, it is necessary to increase the sample size in order to improve the statistical significance of the parameters evaluated.

Projeto Gráfico: Setor de Edição e Informação Técnico-Científica / INCA