Omega-3 PUFA's Supplement Provides Benefit Over Standard of Care for Inflammatory and Hematologic Markers in Rectal Cancer Patients Undergoing Chemoradiation

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BACKGROUND AND AIM: Numerous studies support the hypothesis that omega-3 PUFAs play a therapeutic role for some cancers by affecting the microenvironment of carcinogenesis and controlling the inflammatory cascade associated with it. So, it has been proposed that these specifics Polyunsaturated Fatty Acids (PUFA's): Eicosapentaenoic acid (EPA) and Docosahexaenoic acid (DHA), found in fish oil supplements, can enhancing efficacy of anti-cancer therapies and contribute to maintenance of well-nourished status. METHODS: We conduct a randomized controlled clinical trial comparing the administration of 2,4g DHA and EPA, by soft gel capsules, with standard of care (SOC; no intervention) on rectal cancer. All patients with a diagnosis of rectal cancer clinically staged as cT3-4 and/or N(+) treated on AC Camargo Cancer Center with neoadjuvant chemoradiation followed by radical surgery are eligible. All patients were submitted a nutritional counseling before start the therapy. The sample size calculated is 76 patients, to be recruited by December 2016. We are presenting an interim analysis. From January to December 2015, twenty-eight patients concluded neoadjuvant chemoradiation and had biochemical (inflammatory, hematological) and nutritional (anthropometric, subjective global assessment, bioelectrical impedance, handgrip strength) measured in baseline (pretreatment antineoplastic, M1) and post-chemoradiation (M2). RESULTS: The average age was 63 years (43y to 86y); the percentage of weight loss before diagnosis varies from 0 to 26,4%. There was no difference in all variables between the SOC and fish oil (FO) group at baseline ($p>0.05$). Patient Generate Subjective Global Assessment (PG-SGA) shows that chemoradiation implicate in nutritional deterioration: in M1, 42,85% of individual was well-nourished (PG-SGA-A) and M2 only 7,14%; but no was difference in SOC and FO group in any of the moments. Concerning inflammation, in M2, FO group presents lower values of C-reative protein (PCR) (1,39 vs.3,64; $p=0,016$) and relation PCR/albumin ($p=0,03$) than the SOC. After chemoradiation treatment the FO group presents greater values of blood hematocrit ($p=0,017$), platelet ($p= 0,02$) and right hand grip strength ($p=0,05$) than SOC group. There wasn't difference about FO and SOC group for another nutritional assessment: skeletal muscle mass (kg), skeletal muscle mass index (Kg/m2), body mass index (Kg/m2), body fat mass (Kg). CONCLUSION: Our preliminary results show that omega-3 PUFA's can improve systemic inflammation and hematological condition of rectal cancer patients during chemoradiation. These are important conditions for maintenance of treatment and minimize the collateral effects. Curiously, was observed preservation of muscle strength in FO group even without difference in muscle quantity, indicating possible prevention of sarcopenia.