

## ABSTRAK

**Latar Belakang:** Prevalensi malnutrisi banyak terjadi pada pasien kanker kepala dan leher (KKL), terutama yang mendapat radioterapi, sehingga akan berdampak pada penurunan kualitas hidup, respon terapi, tingkat kesembuhan, dan peningkatan morbiditas dan mortalitas. *Oral Nutritional Supplements* (ONS) yang mengandung imunonutrien berupa antosianin dan omega-3 dengan memanfaatkan bahan lokal berupa ubi ungu dan bahan tambahan lain seperti putih telur, protein whey, omega-3 bubuk merupakan salah satu intervensi gizi yang dapat diberikan untuk mencegah dan menangani malnutrisi sehingga memiliki dampak klinis yang lebih baik.

**Tujuan:** Mengetahui dan menganalisis atau mengkaji pengaruh pemberian ONS berbasis pangan lokal yang mengandung imunonutrien (omega-3 dan antosianin) terhadap status gizi dan respon inflamasi pasien kanker kepala dan leher yang mendapat radioterapi.

**Metode Penelitian:** Penelitian ini meliputi 2 tahap penelitian, dimana pada tahap 1 melakukan formulasi ONS dengan metode rancangan acak lengkap dan tahap 2 melakukan uji klinis efikasi produk dengan rancangan penelitian *double blinded randomized controlled trial* pada pasien KKL yang mendapat radioterapi, dimana kelompok kontrol mendapat ONS standar isokalorik dan kelompok intervensi mendapatkan ONS yang diperkaya dengan imunonutrien yang diberikan 2x/hari (masing-masing 200 ml) selama 4 minggu.

**Hasil Penelitian:** Pemberian ONS pada kelompok kontrol maupun intervensi selama 4 minggu dapat mempertahankan asupan energi saat (kemo)radioterapi; dimana asupan protein lebih tinggi pada kelompok intervensi meskipun tidak signifikan, namun tidak dapat mencegah penurunan status gizi. Terdapat peningkatan kekuatan menggenggam pada kelompok intervensi, namun terjadi penurunan pada kelompok kontrol (0,57 vs. -1,83;  $p=0,033$ ). Terjadi penurunan CRP, leukosit, trombosit, neutrofil, limfosit, monosit, dan LMR serta peningkatan NLR dan PLR pada masing-masing kelompok, namun perbedaan antar kelompok tidak signifikan.

**Kesimpulan:** Pemberian ONS berbasis pangan lokal yang mengandung imunonutrien dapat meningkatkan performa fisik yaitu kekuatan menggenggam pada pasien kanker kepala dan leher yang menjalani (kemo)radioterapi.

**Kata Kunci:** *oral nutritional supplements* (ONS), imunonutrien, status gizi, fungsi fisik, respon inflamasi

## **ABSTRACT**

**Background:** The prevalence of malnutrition occurs in many head and neck cancer (HNC) patients, especially those receiving radiotherapy, so that it will have an impact on decreasing quality of life, response to therapy, and increased morbidity and mortality. Oral Nutritional Supplements (ONS) which contain immunonutrients in the form of anthocyanins and omega-3 by utilizing local ingredients such as purple sweet potato and other ingredients such as egg white, whey protein, omega-3 powder is one of the nutritional interventions that can be given to prevent and treat malnutrition, so it has a better clinical impact.

**Objective:** to study the effect of local food-based ONS containing immunonutrients (omega-3 and anthocyanins) on the nutritional status and inflammatory response of head and neck cancer patients receiving radiotherapy.

**Methods:** This study included 2 stages of research, in which stage 1 carried out the ONS formulation with a completely randomized design method and stage 2 conducted a clinical trial of product efficacy with a double blinded randomized controlled trial study design in HNC patients who received radiotherapy, where the control group received ONS standard isocaloric and the intervention group received ONS enriched with immunonutrients that were given 2x / day (each 200 ml) for 4 weeks.

**Result:** Giving ONS to the control and intervention groups for 4 weeks can maintain energy intake during (chemo)radiotherapy; where protein intake was higher in the intervention group, although not significant, but could not prevent a decrease in nutritional status. There was an increase in grip strength in the intervention group, but a decrease in the control group (0.57 vs. -1.83;  $p=0.033$ ). There was a decrease in CRP, leukocytes, platelets, neutrophils, lymphocytes, monocytes, and LMR as well as an increase in NLR and PLR in each group, but the differences between groups were not significant.

**Conclusion:** Administration of local food-based ONS containing immunonutrients can improve physical performance, namely handgrip strength, in head and neck cancer patients undergoing (chemo)radiotherapy.

**Keywords:** *oral nutritional supplements* (ONS), immunonutrient, nutritional status, inflammatory response