ABSTRACT

Introduction: Cancer cachexia is a neglected aspect of cancer nutrition globally, including Sri Lanka. It causes increasing functional impairment, reduces the effectiveness of cancer treatment and increases mortality in cancer patients among many other consequences.

Objective: To assess the prevalence and associated factors of cancer cachexia among patients with advanced stage cancers attending the Oncology unit, Teaching Hospital, Karapitiya (THK), Galle using Cachexia Staging Score (CSS), following its validation to the local setting, and to evaluate the effectiveness of an intervention targeting the prevention of cachexia among these patients.

Methodology: The study had two components. The first component consisted of two phases. In phase I, a cross-sectional study was conducted to validate Cachexia Staging Score (CSS) for detection of cancer cachexia in the local setting, among 120 patients with advanced stage cancers attending Oncology unit A, THK. Construct validity of CSS was established through appraisal of discriminant validity based on known group comparison. Significant differences in body composition (assessed using Bioelectrical Impedance Analysis), quality of life [assessed using Functional Assessment of Cancer Therapy-General (FACT-G)] and anorexia-cachexia symptoms [assessed using Anorexia Cachexia Subscale (ACS)] between patients in different stages of cachexia categorized according to CSS was used to confirm discriminant validity.

In Phase II, 320 patients with advance stage cancers attending Oncology unit B, THK were evaluated using validated CSS to identify prevalence of cancer cachexia. Associated factors for cancer cachexia were identified using multiple logistic regression.

In Component 2, a nutrition intervention was developed and a quasi-experimental study was conducted to assess the effectiveness of the intervention in preventing cachexia among cancer patients. The sample included newly diagnosed patients with advanced stage cancers recruited using systematic random sampling from two separate clinics of Oncology unit C, THK designated as intervention and control arms (n=85 per arm). After 6 months of intervention, within group and between group comparisons were performed to assess the effectiveness of the intervention by demonstrating significant changes in prevalence of cachexia and body composition measures (primary outcomes) and survival status and recurrence status (secondary outcomes) at 0.05 significance level.

Results: The five components of the CSS demonstrated significant differences between different cachexia stages ($p<0.001$ for all). All body composition measures except body weight, resting metabolism, body age and skeletal muscle (Trunk) and all components of FACT-G and ACS showed significant differences according cachexia stages defined using CSS ($p<0.01$ for all), confirming construct validity.

The prevalence of cancer cachexia among patients with advanced stage cancers was 75.0%, with prevalence of different stages; no cachexia, pre-cachexia, cachexia and refractory cachexia being 6.6%, 18.4%, 53.8% and 21.2%, respectively. Cancer cachexia was statistically significantly associated with frequent missing of main meals (OR=5.01, 95% CI 2.10-11.96, $p<0.001$), experiencing frequent disturbances to food intake (OR=3.43, 95% CI 1.34-8.78, $p<0.010$), nutritional formula use (OR=6.01, 95% CI 1.04-34.59, p=0.045), having unsatisfactory physically activity level (OR=3.12, 95% CI 1.41-6.94, p=0.005), cancer type (OR=0.30, 95% CI 0.13-0.74, p=0.009) and having cancer recurrence (OR=5.98, 95% CI 1.87-19.14, p=0.003).

The developed intervention package included dietary counselling and physical activity promotion. A cancer cachexia clinic (nutritional assessment with bi-monthly follow up) was newly established to deliver the intervention at individual level. After 6 months of intervention, patients who had the intervention had a significantly lower risk for development of cachexia (OR=0.27, 95% CI 0.09-0.75) compared to the control group, with non-significant improvements in body composition, survival and recurrence status.

Conclusions and recommendations: Cachexia Staging Score is identified as a valid tool to detect cancer cachexia among patients with advance stage cancers. The prevalence of cancer cachexia among patients with advanced stage cancers THK was 75.0%. Frequent missing of main meals, experiencing frequent disturbances to food intake, nutritional formula use, having unsatisfactory physically activity level, cancer type and having cancer recurrence were identified as associated factors for cancer cachexia. The developed intervention package which was delivered through the newly established cancer cachexia clinic was identified as an effective intervention to combat cachexia. The use of CSS is recommended to screen patients with advanced stage cancers for cachexia. Establishing a sperate clinic to address nutritional aspects (dietary counselling and physical activity promotion) of cancer patients is recommended, where the patients vulnerable for cachexia can be followed up along with the standard oncology care.

Key words: prevalence, cancer cachexia, associated factors, nutritional intervention, prevention