

Journal of Oncology Research and Treatments

> *Corresponding author: Solomon Genet, Department of Medical Biochemistry, Addis Ababa University, Addis Ababa, Ethiopia, Tel: +251 933944457; E-mail: solgen73@yahoo.com

Received auth 0 scn/ Tc 0 Tw 0Copyright:f0 T(Acceptcr-0.447)]T/T)111SQm ombremeskel

Page 2 of 6

anthropometric parameters as cancer malnutrition markers among 50 new breast cancer patients attending Tikur Anbesa Specialized Hospital, Addis Ababa with age and sex matched 50 healthy individuals as controls. Convenient sampling method was used to recruit patients. Patients with renal and liver failure and those who had surgery, those taking chemotherapy, radiotherapy and dialysis, or those using immunosuppressive medication were excluded from the study.

Blood sample and data collection procedures

A er the study participants had been asked for their consent, blood (5ml) was withdrawn from the study participants. e sample was collected by quali ed professional nurses in the hospital.

In addition, the questionnaire was lled by face to face interview and some anthropometric indicators were also measured following standard procedures. Blood collected in appropriate tubes was allowed to stand for 30 minutes at room temperature to allow complete clotting and clot retraction. Samples were then centrifuged at 4000 rpm for 10 min to extract serum. e serum extracted was used to determine the levels of albumin, total protein, creatinine and urea. About 2ml of the blood was kept in EDTA coated tubes and hematological pro les were determined for all samples using a hematological analyzer. Safety precautions were taken while handling blood and disposing it.

Test procedures of Biochemical markers

Serum albumin level was measured by the method of bromocresol green [12].

Total protein was determined by using an automatic chemistry analyzer. Measurement was performed by a Biuret reaction using a total protein reagent kit. Total serum globulins were determined by subtracting the values of albumin from total protein.

[globulin (g/dl)] = [Total Protein (g/dl)] – [Albumin (g/dl)].

Serum creatinine reacts with picric acid in alkaline solution

	· · · ·

malnutrition between control group and study subjects. e results obtained are shown below (Table 3). e overall prevalence of malnutrition was 32%, with 12% and 20% cases of moderate and mild malnutrition, respectively according to serum albumin. According to total lymphocyte count prevalence of malnutrition were 46%; with 4%, sever; 4%, moderate and 38% mild malnutrition in the patient group. In addition 2% were, severely; 34%, mildly malnourished; 14% were overweight and 12% obese based on body mass index. ere was no statistically signi cant prevalence of malnutrition using serum total protein and creatinine level in the study group. ere was almost no prevalence of malnutrition in the control group through all biochemical nutritional markers assessed in the study.

Pearson correlation analysis for anthropometric and biochemical measurements for the patient and control group were done and are

e patient's mean value of serum creatinine level was $(0.72 \pm 0.03 \text{ mg/l})$ and the control mean was $(0.96 \pm 0.03 \text{ mg/l}) \text{ P} < 0.0001$. is shows that the creatinine level had really gone down for the breast cancer patients than control groups. Urea mean value level for study group was $(25.19 \pm 1.22 \text{ mg/l})$ and for control group $(21.62 \pm 1.01 \text{ mg/l})$ with a P< 0.033. In addition total lymphocytes count (TLC) was determined for both groups and its mean value for the patient group $(1.73 \times 103 \pm 0.29 \text{ cells/mm}^3)$ & the control group $(2.35 \times 103 \pm 0.15 \text{ cells/mm}^3)$ with P< 0.0001. Anthropometric parameter such as body mass index was determined by measuring weight and height of both groups. e mean body mass index value was $17.97 \pm 0.6 \text{ kg/m}^2$ for study group and $20.43 \pm 0.64 \text{ kg/m}^2$ for control group. e results of the two groups are shown in (Table 2).

Serum albumin, total lymphocyte count, total protein, creatinine and body mass index were measured to see the prevalence of Citation: Gebremeskel K, Tigeneh W, Genet S (2020) Assessment of Malnutrition among Female Breast Cancer Patients using Biochemical Markers. J Oncol Res Treat 5: 148.

Page 4 of 6

Page 5 of 6

low plasma albumin concentration is a re ection of poor diet or poor appetite that minimizes amino acids availability for plasma protein biosynthesis.

ere was signi cant higher serum globulin in the patient than the control group, which agrees with other works. In response to reduced levels of serum albumin in breast cancer patients, albumin to globulin ratio is lowered due to an increase in globulins; mainly immunoglobulin's synthesized by lymphocytes to compensate for the reduced serum albumin. Failure of lymphocytes to raise globulins to levels that is high enough to compensate for the reduced albumin may indicate advanced disease, where protein synthesis is reduced but protein catabolism is accelerated.

Signi cantly lower serum creatinine level was observed in the study group than the control group, which may be attributable to muscle mass wasting of breast cancer patients. A large proportion of the breast cancer patients in this study were stage III and above, which may have lost muscle mass as a result of increased breakdown of muscle protein to provide the essential amino acids required for protein synthesis and energy metabolism gluconeogenesis for the tumor cells [19,20]. In contrast to decreased protein synthesis in muscle cells, tumor cells exhibit increased protein synthesis in liver. Removal of speci c amino acids by the tumor leads to a depression of host protein synthesis [21].

e condition of sarcopenia in an individual with otherwise normal body weight would result in a disproportionately low contribution of muscle derived metabolites. It is estimated that 20% or more of patients with cancer may have sarcopenia, i.e. signi cant loss of muscle mass, Citation: Gebremeskel K, Tigeneh W, Genet S (2020) Assessment of Malnutrition among Female Breast Cancer Patients using Biochemical Markers. J Oncol Res Treat 5: 148.

Page 6 of 6

12. Doumas BT, Watson WA, Biggs HG (1971) Albumin standards and the