2. Review of Literature

Cancer is the cause of death in approximately 23% of deaths each year in the United States. Rates are rising as more people live to an old age and as mass lifestyle changes occur in the developing world. (Mrian, et al, 2010).

Cancer patients prior to chemotherapy shows a weight loss ranges from 32% among NHL (Non Hodgkin’s Lymphoma) to 87% in gastric cancer (Dewys, et al, 1980). BMI (Basal Metabolic Index) of a cancer patient on chemotherapy is directly related to the survival rate. A poor BMI has a lower chance of survive than a patient with high BMI (Boker, et al, 2012).

Cancer cachexia is a syndrome characterized by a marked weight loss, anorexia, asthenia and anemia. The degree of cachexia is inversely correlated with the survival time of the patient including geriatric population. Cachexia also leads to muscle wasting known as sarcopenia that decreases the quality of life, increasing morbidity and decreasing life expectancy (Argilés, et al, 2006).

Wasting of skeletal muscle is also a prominent feature of patients with lung cancer, despite normal or heavy body weights and higher BMI. It was seen in 46.8% patients with NSCLC (Non small cell lung Carcinoma). Therefore sarcopenia is a nutritional risk factor, a prognostic factor, and as a predictor of cancer treatment toxicity for all category of BMI (Baracos, et al, 2010).

Therefore its important to identify patient who are at a risk of developing cachexia by assesing their nutritional status. MNA (Mini nutritional assessment) can be use to assess the nutritional status of the patients before starting any treatment and thus detect patients who are at a risk of developing cachexia (Gioulbasanis, et al, 2011). PG- SGA (Patient generated- Subjective Global Assessment) is another tool to assess the nutritional status of cancer patient. PG-SGA scores were higher for patients experiencing FN (febrile neutropenia) and may be a reasonably predictive marker of FN in patients receiving multi-agent primary chemotherapy (Phippen, et al, 2011).

Cancer patients undergo different kinds of treatment depending on the kind and stage of the cancer, which includes chemotherapy, radiation, surgery, etc. All these treatment have different side effects which lead to different toxicities. Toxicities may occur early in the course of the treatment or within few weeks after the treatment. Loss of lean body mass called sarcopenia which is associated with poor performance status, 5-fluorouracil toxicity, and shortened survival, that was seen among 50 % of patients undergoing chemotheray with normal or even higher BMI (Prado, et al, 2009). Studies done on older patients with breast cancer showed 53% of risk for developing grade 3-5 toxicity (Hurria, et al, 2011) (Hurria, et al, 2006). Altered nutritional
and inflammatory status correlates with increased risk of severe hematological toxicity following chemotherapy (Alexandre, et al, 2003).
Patients with metastatic breast cancer and NSCLC undergoing chemotherapy has the ability to meet or exceed energy requirements which led to gains in body fat among them, but it did not prevent loss of FFM (fat free mass) (Harvie, et al, 2005).

Chemotherapy in lung cancer has some benefits, still lung cancer patients have a poor QOL and nutritional status. Patients with constitutional symptoms, higher smoking burden, and poor KPS (Karnofsky Performance Scale) are less likely to respond to chemotherapy. Management of NSCLC must include strategies to improve QOL, nutritional status and pulmonary reserve to achieve comprehensive benefit (Mohan, et al, 2008). Even in patients with multiple myeloma who are on chemotherapy showed a decrease in nutritional status and QOL (Iversen, et al, 2010).

Nausea and vomiting are common side effects seen in patients undergoing chemotherapy, resulting in adverse effect on patient's physical, psychological and social well-being (Perdue, 2005). Lack of appetite, change in taste, weight loss and difficulty in eating is some other side effects commonly seen in patients with chemotherapy.