1. Introduction

Cancer of lung in males and cervix in females are among the highest incident in India. Prevalence of cervical cancers is seen more among women with poor nutritional status. Nutrition is related to cancer in at least three aspects: as part of the etiology of cancer, as a support modality in the care of cancer patients and as an actual therapy for cancer. In addition, virtually all types of cancer tend to affect the intake of nutrients and/or their metabolism.

Malnutrition is a significant cause of impaired function, clinical morbidity and worse outcome from surgery or illness (Keys, et al, 1950) (Jeejeebhoy, 1988) (Hill, et al, 1992) (Stratton, et al, 2003). Its detection and treatment are, therefore, important components in the clinical management of many conditions. The prevalence of malnutrition-associated morbidity in patients with cancer ranges from 40-80% (Gordon, et al, 2005). The process of nutritional and functional decline in the patient with cancer is so common that it is often accepted as part of the disease itself and its treatment. Currently, there is evidence that the presence of a systemic inflammatory response (SIR) is associated with increased weight loss, elevated resting energy expenditure, loss of lean tissue and functional decline (McMillan, 2009).

Malnutrition is associated with a higher risk of developing complications and with mortality, sometimes lengthening the hospital stay by up to 90%, thus increasing hospitalization costs by 35-75% (Vassallo, 2003). Malnutrition is also related with a reduction in response (Muscaritoli, et al, 2006) (Ottery, 1994), hence influencing QOL of patients, their sense of well-being, and emotional aspects.

Simple and rapid screening programmes (Stratton, et al, 2003) are based largely on changes in body weight and food intake. Those patients found to be at nutritional risk, on routine screening, may need more detailed assessment, including bedside measurements of function, to decide the severity of malnutrition, the most appropriate treatment, and to serve as a baseline for monitoring subsequent response to nutritional support. Estimation of body composition by anthropometry is a well-established method for the assessment of nutritional status. However, these "static" measures take a significant time to respond to both nutritional depletion and repletion. Dynamic measures of nutritional status such as hand grip strength (for skeletal muscle function) and PEFR
(for respiratory muscle function) were described many decades ago, but have not gained widespread popularity. Voluntary muscle strength as measured by hand dynamometry has been shown to predict surgical outcome (Klidjian, et al, 1980) (Hunt, et al, 1985) (Webb, et al, 1989) (Bohannon, 2001) (Lobo, et al, 2000) and has also been shown to increase rapidly after the institution of nutritional support. Hill and his group, (Hill, et al, 1992) using neutron activation techniques, have correlated percentage loss of body protein with deteriorating skeletal and respiratory muscle function and have shown rapid improvement in these parameters following nutritional support. Although some of these studies have used bedside techniques, many have employed methodology which is less applicable to ordinary clinical practice. It is generally accepted that rapid screening of nutritional status should lead to more detailed assessment of those at risk (Stratton, et al, 2003). This assessment should include functional measurements and it is important that such tests be applicable to daily practice and should correlate well with nutritional status and outcome, as well as being sensitive to nutritional support.

Malnutrition is related with hypoalbuminemia, and both are common in patients with NSCLC and Ca Cx (Lochs, et al, 2003), especially in non-developed countries, where malnutrition is prevalent in itself. Currently, there are certain clinical and biochemical measurements utilized in the nutritional evaluation of oncologic patients, such as the Subjective Global Assessment (SGA) (Bauer J, et al, 2002), as well as the albumin serum levels, which reflects both the loss of the amount of lean tissue and systemic inflammatory response (McMillan, 2009) (Detsky, et al, 1984) (Kuzuya, et al, 2005) (Laky, et al, 2007). Neutrophil Lymphocyte Ratio (NLR) and the Platelet Lymphocyte Ratio (PLR) have also been demonstrated as indicators of systemic inflammatory response (McMillan, 2009). The magnitude of the increase PLR and NLR has been shown to be associated with poorer survival in patients with cancer, particularly in patients with advanced disease (Yamanaka, et al, 2007) (Sarraf, et al, 2009) (Walsh, et al, 2005).

restoration of lost lean mass which may not be achievable during illness and takes many weeks
during convalescence. Functional tests may, therefore, be the most sensitive and relevant
measure of short-term changes in nutritional status and of the response to nutritional therapy
important and most prevalent side effect of cancer chemotherapy in cancer patients. Fatigue has
been shown to be under the same cluster of cancer related symptoms such as anorexia, nausea etc
and is often related to nutritional status and dietary preferences of cancer patients. Of all these
symptoms, fatigue is without doubt the symptom most commonly experienced. It can be the first
manifestation of an underlying disease process. Subsequent treatment with surgery, radio- or
chemotherapy may induce or worsen feelings of fatigue. Assessment of fatigue and quality of
life may also serve as an indirect measure of nutritional status. (Smets, et al, 1993)

Further both cancer and treatment related toxicity may cause severe side effects such as anorexia,
nausea and vomiting, fatigue, infections etc that may prelude towards malnutrition (Perdue,
2005). Therefore assessing malnutrition and correction of the same assumes importance in the
context of not just improving the functional status of patients but also in reducing treatment
toxicity and affecting treatment response.

In this study we will evaluate nutritional status of patients with NSCLC and Gynecologic
malignancies before and during chemotherapy and evaluate the effects of nutritional status in
modulating treatment toxicity, fatigue and functional quality of life.