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Role of Two Question Canadian Nutritional Screening Tool in Plastic Surgery

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Abstract

The purpose of this article is to convey the importance of nutrition in plastic surgery, to suggest outpatient nutritional interventions within the surgical care setting, and to assist the plastic surgeon in incorporating nutrition as a key practise enhancement strategy for the care of wound patients in the future. Nutritional state has a well-known impact on surgical results. Malnutrition is widespread among the hospitalized patient population, and up to 1 in 4 plastic surgery outpatients are at risk for malnutrition. Micro- and macronutrients are essential for optimal wound healing. Certain patient populations in the field of plastic surgery are more vulnerable to malnutrition, hence, universal screening and interventions should be implemented. Exposure and incentive interventions have been used in outpatient settings to increase optimal nutritional consumption and overcome obstacles. Universal screening utilising established and quick measures like the Canadian Nutritional Screening Tool (CNST) is suggested in the clinical context. Such screening should be accompanied by proper blood tests, BMI measures, and, if necessary, immediate referral to a dietitian. The term "rehabilitation" was coined with the help of surgery, and it refers to the dietary optimization of patients as well as the promotion of functional capacity development prior to surgery.

Keywords: Canadian Nutritional Screening Tool (CNST); Malnutrition; nutritional screening tool.

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INTRODUCTION

Patients' preoperative health, including their nutritional status, has the greatest impact on surgery results.[1,2] On admission, up to 45 percent of hospital inpatients are malnourished.[4] A universal nutritional screening platform was established in response to the scale of the problem, based on the Integrated Nutrition Pathway for Acute Care[5] and recommendations from the American Society for Parenteral and Enteral Nutrition.[6] The 2-question Canadian Nutritional Screening Tool (CNST)[7] is used for universal triage in this screening platform.

This nutritional screening technique is simple to apply in a crowded tertiary care facility, practical in an outpatient setting, and accurate.[8] The objective of this article is to emphasise the relevance of nutrition in plastic surgery, to recommend outpatient nutritional therapies in the context of surgical care, and to aid plastic surgeons in adopting nutrition as a substantial practise enhancement approach for patient care.

MATERIALS AND METHODS

This study was conducted in the Department of Plastic surgery in a Tertiary care centre in South India. Departmental ethical clearance and consent from the subject was obtained. In this study, we have used the 2-question Canadian nutritional screening tool (Table 1)[15] to assess the nutritional risk of the patient under question. It is simple (2 questions taking <5 minutes), shows good sensitivity and specificity, and accurately predicts adverse outcomes when validated against the Subjective Global Assessment gold standard.[5]

Table 1:2: Question Canadian Nutritional Screening Tool (CNST)[15]

	Date		Date	
	Admission		Rescreening	
Ask the patient the following questins*	**Ye**	**No**	**Yes**	**No**
Have you lost weight in the past 6 months **WITHOUR TRYING** to lose this weight?				
If the patiend reports a weight loss but gained it back, consider it as NO weight loss.				
Have you been eating less than usual **FOR MORE THAN A WEEK?**				
Two "YES" answers indicate nutrition risk+				

* If the patient is unable to answer the questions, a knowledgeable informant can be used to obain the information. If the patient is uncertain regarding weight loss, ask if clothing is now fitting more loosely.

The CNST consists of 2 questions:

1. Have you lost weight in the past 6 months without trying to?
2. Have you been eating less than usual for a week?, where 2 "yes" answers indicate nutritional risk.

The patient details are as follows: 35 year old female admitted in Burns ICU with 25% second degree burns. The CNST was applied initially prior to admission and the patients was managed accordingly.

RESULT

According to the 2-question Canadian nutritional screening tool the patient was found to have no nutritional risk; hence, patient was managed conservatively with adequate intravenous fluids resuscitation and nutritional requirements as per standard guidelines and regular dressings.

The patients course in the hospital was uneventful; she recovered well and was discharged in a timely manner.

DISCUSSION

In surgical patients, proper nutrition is critical. Macronutrients are required for wound healing at all stages. Protein deprivation, for example, causes a prolongation of the inflammatory phase by reducing fibroblast proliferation, proteoglycan production, and neo-angiogenesis.[9] Wound healing necessitates proper nutritional support, but wounds also raise basal caloric and protein requirements.[9] Micronutrients are also important in the healing process of wounds. Vitamin A stimulates fibroblasts, whereas vitamin C enhances collagen synthesis and fibroblast proliferation, and zinc is required for protein and collagen synthesis.[12] The amino acids arginine and glutamine have been extensively researched.[13] Arginine supplementation has been proven to improve wound tensile strength and glutamine supplementation has been demonstrated to improve nitrogen balance and immune function following major surgery, trauma, or sepsis, despite the fact that there are no current guidelines for its usage in clinical practise.[13] Malnourished people have a weaker immune system, which results in lower T-cell function, phagocytic activity, complement, and antibody levels. This puts them at a higher risk of wound infection.[10] The plastic surgeon should be concerned about delayed wound healing and an increased risk of postoperative wound problems and infections due to a reversible dietary cause.

Over the last few decades, the relevance of nutrition in holistic patient care has sparked a

nutritional revolution. The introduction and execution of whole parenteral feeding in the late 1960s was a key innovation. The high incidence of protein-calorie malnutrition in hospitalised and postoperative patients underscored the importance of establishing a nutritional care plan. Various nutritional assessments and quantifications of nutritional deficits have now been devised to identify people who are at risk.[11,12,13,14] In connection to head and neck reconstructions, burns, patients receiving chemo or radiotherapy, such as breast oncologic reconstructions, and wounds, nutrition is especially important to the plastic surgeon.[9]

Importantly, if diagnosed, malnutrition is a reversible condition. Following a clinical examination, it is recommended that a rapid nutritional screening tool, such as the CNST, be used to facilitate the recognition and screening of malnutrition risk, in addition to documenting patients' BMI. These measurements can be taken by nursing professionals as part of normal quick clinical examinations prior to clinical encounters. Patients' self-reporting of the CNST's two questions upon presentation to the clinic could be an appropriate alternative if there are limits or a manpower shortage. Blood tests, including albumin/prealbumin levels, might be ordered by the plastic surgeon as a first-line inquiry if clinical suspicion for malnutrition is present, as indicated by two "Yes" answers on the CNST.

As part of the "prehabilitation" paradigm, prompt referral to a dietician for perioperative nutritional optimization should be reinforced. Further investigations, such as blood tests to examine patients' macro-(eg, albumin) and micronutrient status (eg, vitamins A, B12, C, D, E, iron, folate) are also highly beneficial in identifying particular reversible deficiencies after adequate nutritional specialist consultation. Prehabilitation is the metabolic augmentation of a patient's preoperative status in order to increase physiologic reserves, and it includes physical activity, psychological evaluation, and nutrition treatment. Preoperative therapies may include glycemic control advice, access to weight loss programmes, or assistance with personally tailored workouts. The capacity to test or intervene on a patient's nutritional condition may be influenced by system, practise, and patient restrictions. Nutritional optimization should be possible in this era of patient-centered care, especially in perioperative patients at risk of malnutrition.

The Canadian Nutritional Screening Tool (CNST) is a new hospital-based tool developed by the Canadian Malnutrition Task Force. A study carried out by Karen et al reported that 1:4 plastic surgery patients are malnourished. The data granularity was insufficient to further elucidate the nature of the nutritional risk, the type of plastic surgery consult, and the impact of nutrition on postoperative complications.[4]

In our study it was found that CNST tool could be performed by nursing staff as a routine assessment or in case of shortage of personnel patient's self-reporting is acceptable. This tool was found to be found be rapid, easier to use, feasible; simple to apply in a crowded tertiary care facility, practical in an outpatient setting, and accurate. It can be also be used as a screening tool to order further investigations to rule out malnutrition in patients. .The limitations of our study is that, since this single case report study , definite conclusions cannot be made. This study can also be used asa the basis for a larger prospective study to determine the efficacy of CNST and if nutritional interventions could optimise patients before surgery.

CONCLUSION

Once diagnosed, malnutrition is a treatable condition. Following a clinical evaluation, we would advise plastic surgeons to promote the diagnosis and screening of malnutrition risk by using a fast nutritional screening tool such as the Canadian Nutritional Screening Tool (CNST) in conjunction with recording patients' BMI. These measurements can be used as standard quick clinical assessments before clinical visits.

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