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Review Article

Nutritional considerations for patients undergoing maxillofacial surgery – A literature review

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ABSTRACT

Malnutrition is one of the most common causes of morbidity in patients undergoing maxillofacial surgery. In these patients, normal food intake is impaired because of the disease state and is complicated further by the surgical procedures. Surgery imparts controlled injury and delays wound healing capacity. Consideration should be given to the nutritional status of these patients in both preoperative and postoperative period so as to reduce postoperative complications. It should be imperative upon the part of dental professional to identify patients at nutritional risk, perform nutritional screening tests and provide dietary guidelines. In this paper we have focused on nutritional risk, nutritional assessment, and recommendations for such kind of patients.

1. Introduction

Nutrition is defined as the science of how the body utilizes food to meet requirements for development, growth, repair, and maintenance.[1] There are six classes of nutrients found in food: carbohydrates, fats, proteins, vitamins, minerals, and water.[2] First three categories are energy producing nutrients; that is, they provide calories and enable the body to generate energy for carrying on its many functions.[2] Although the latter three do not provide energy, they facilitate a variety of activities in the body. In the patient having dental surgery, there are several considerations that impact and rely on nutritional status.[2] Malnutrition accounts for one of the major factors contributing to the postsurgical morbidity.[3] Firstly, surgery

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imparts controlled injury and delays or lengthens the process of healing.[4] Secondly, the success of the body to heal itself is critically dependent on the extent of the injury and the presence of sufficient and continued nutrition.[4] The mouth is the portal for entry of food into the body; thus, disease of the oral and maxillofacial region and/or surgery of these structures may result in impaired food intake both prior to and after surgery.[4] The severity and duration of impairment is dependent on the disease state and the surgical intervention required correcting it.[4] The dentist must be cognizant of methods to ensure the patient has appropriate nutritional support.

2. Nutrition and wound healing

Patients undergoing surgical procedures require protein source and energy. Carbohydrates, proteins and fatty acids are chief source of energy.[5] The body requires an adequate supply of carbohydrates to prevent protein catabolism and fatty acid metabolism.[5] Alternatively, excess glucose or hyperglycemia is not beneficial as it results in decreased leukocyte function, in dehydration and in metabolic acidosis.[5] Wound healing requires energy,[5] thus nutritional status of patient affects wound healing.[5] Although, protein serves as a source of energy, its primary purpose is cellular proliferation and cell repair.[5] Prognosis of the maxillofacial surgery depends upon bone healing.[5] Protein plays vital role in fracture repair. Patients who are severely malnourished, demonstrate delayed wound healing and impaired wound contraction.[5] A malnourished patient has increased susceptibility towards infection. All these conditions lead to prolonged rehabilitative period.[5]

3. Surgical considerations

The dentist can be confronted with numerous situations that require dietary management. Patients must be first assessed for baseline nutritional status and then assessed for the impact that dental treatment will have on the nutritional status.[4] Treatment of head and neck cancer may severely affect the patient's normal eating pattern.[4] The surgical resection of oro-facial structures can impair patient's dietary intake.[4]

Chemotherapy/radiotherapy may produce irreversible changes in cancer patients. Oral mucositis occurring during acute treatment phase of chemotherapy or radiotherapy may produce severe pain and may alter the patient's dietary intake. Altered taste sensation and xerostomia may also be found following the therapy for oral cancer which affects the nutritional intake of the patient.[4]

4. Basic diet

The basic dietary requirement for the surgical patients includes adequate amount of proteins, vitamins and minerals.[6] In addition sufficient calorie from carbohydrates and lipids are necessary to provide energy.[6] Except for the patients who require artificial nutritional support, the maxillofacial surgery patients should follow food guide that is organized into four major food groups to achieve optimal nutrition. A food group in the food guide includes:

- Milk Group: 2 or more cups.
- Meat Group: 1 or more servings – fish, poultry, eggs.
- Vegetable–Fruit Group: 4 or more servings: include citrus fruits for vitamin C, green and deep yellow vegetables for vitamin A, other vegetables, fruits and potatoes.
- Bread–Cereal Group: 4 or more servings of whole grain enriched or restored products.[7]

There are several modes of support that are commonly used in the ambulatory patients during perioperative period[4]: clear liquid diet, full liquid diet, pureed diet, mechanical soft diet, and regular diet.[4] A clear liquid diet is often used in immediate postoperative period after a parenteral sedation.[4] A patient is advised for complete diet after he gains recovery from gastrointestinal intolerance. The diet is low in nutrients.[4]

A fully liquid diet is more nutritionally complete. The diet is good for patients who cannot chew or swallow foods. A fully liquid diet frequently consists of milk products. But, it should be used with caution in patients with lactose intolerance.[4]

A pureed or mechanical soft diet is transitional diet. These diets provide patients with increased consistency and food texture. A pureed diet can be administered easily in patients. A soft diet allows more freedom in selecting food items and also is less monotonous than liquid diet. Meats and fruits can be made quite flavored. Meats can be thinned with milk to make broth, while fruits can be used or is added to other foods.[8]

4.1. *Nutritional support*

Nutritional support is indicated in patients who cannot have adequate nutrition by diet alone. On the contrary, artificial nutritional support in well-nourished or undernourished patients may either provide no benefit or may increase patient morbidity. Nutritional support for a malnourished patient:

- Promotes growth, tissue healing and maturation of collagen.[9]
- Enhances immunity.[10]
- Reduces muscle bulk and function.[11]
- Prevents septicaemia.[12]

4.2. *Nutritional assessment*

All patients should be assessed perioperatively by the dietician and this should be an integral part of multidisciplinary team approach in managing nutritional deficient patients. Following information should be used to assess nutritional status of the patient:

- History: preoperative weight, recent weight loss if any, loss of appetite, ability to swallow. Unintentional weight loss of more than 10% body weight within 6 months is considered hazardous. Proper nutritional support is indicated in these patients.[13]

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