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Research Article

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Association Between Anthropometry and Wound Dehiscence of Patients with Oral Squamous Cell Carcinoma

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ABSTRACT
Nutritional status is a sensitive indicator of health. There is not a single parameter that serve as the only and best parameter to evaluate malnourished patients or patients with risk for malnutrition. Patients with oral squamous cell carcinoma were a focus of concern for nutritional impairment. Nutritional impairment is a common phenomenon among the patients with oral squamous cell carcinoma. But it is often ignored in treatments and follow-up care. The objective of the study was to assess relationship between anthropometry and wound dehiscence of patients with oral squamous cell carcinoma. Sixty oral squamous cell carcinoma patients were histologically confirmed. This study was descriptive and cross-sectional study. All patients were studied and followed until discharge from hospital. Surgery of primary lesion with neck dissection were performed for all patients under general anesthesia. The mean age was 47.6±10.8 years in group I, 49.7±8.6 years in group II. The mean BMI was statistically significant ($p<0.05$) between two groups. Statistically significant relationship was found between BMI and wound dehiscence. So, every patient should assess nutritional status pre-operatively to reduce post-operative wound dehiscence.

Keywords: Anthropometry, Wound Dehiscence, Oral Squamous Cell Carcinoma

Introduction

Patients with oral squamous cell carcinoma were one of the focused areas of concern for malnutrition. Oral squamous cell carcinoma directly impairs oral intake and the increasingly intensive treatments magnify the risk for severe malnutrition. Antineoplastic therapy not only contribute to local disease control and survival, but also create and exacerbate multiple symptoms that further compromise oral intake. Oral squamous cell carcinoma patients often require non-volitional feeding [1-3]. Unlike simple malnutrition, cancer patients' negative energy balance and profound skeletal muscle wasting was driven by a combination of reduced food intake and abnormal metabolism. Nutritional status impairment was reported frequently in oral squamous cell carcinoma patients. The previous studies had shown, a clear relationship between nutritional deficit and morbidity. Most of these study reports focused malnutrition to be present in 35% to 50% of all oral squamous cell carcinoma patients [4-9]. But there was no available data, research work, research paper in our country on anthropometry assessment in oral squamous cell carcinoma patients.

Materials and Methods

This cross sectional was carried out from 1st January 2014 to 31st December, 2014 in Oral & Maxillofacial Surgery Department, Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka, Bangladesh and consecutively Dhaka Dental College in Oral & Maxillofacial Surgery Department, Dhaka Dental College & Hospital, Dhaka, Bangladesh. Anthropometry was performed on the day prior to operation in oral squamous cell carcinoma in adult patients. Admitted-patients visiting the study places were used as the study population. The patient samples

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of 60 consecutive patients diagnosed with oral squamous cell carcinoma were served as cases. The cases were assigned to sub categories based on their matched inclusion criteria. The samples were collected after obtaining institutional review board approval and with their informed consent. In this study, 60 patients presenting with oral squamous cell carcinoma were selected. Data were collected through a structured data collection sheet including questionnaire. A sample of such data collection sheet was attached. Data were collected by the researcher himself in close supervision of the guide. The participants were histologically confirmed oral squamous cell carcinoma patients. They were received surgery, radiotherapy, chemotherapy or a combination of these as per necessity. Stratified sample design was applied after interviews, clinical examinations and simultaneous investigations by the doctor. All patients were studied followed until discharge from hospital. Surgery of primary lesion with neck dissection were performed in case of all patients under general anesthesia. The patients were operated under general anesthesia post-operatively were maintained by nasogastric tube until 7 days. Postoperative complication was wound dehiscence. Patients were undergone for total maxillectomy/ mandibulectomy should be examined clinically until 7 days. In all patients, swallowing was started 8-12 days postoperatively, by drinking water, and gradually extended to a complete diet.

Results

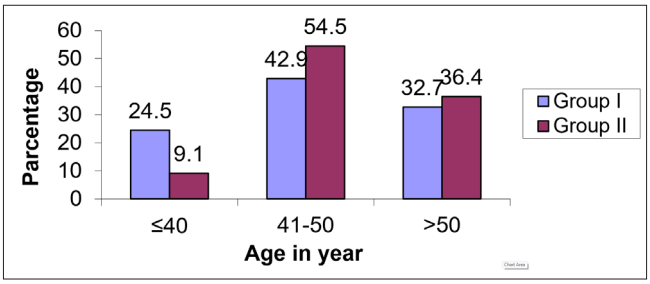

Figure 1: Age distribution of the study patients

Regarding the age of the patients, it was found that majority (42.9%) patients were age belonged to 41-50 years in group I and 6(54.5%) patients were age in group II, The mean age was found 47.6±10.8 years in group I, 49.7±8.6 years in group II. The mean age was not statistically significant (p>0.05) among two groups.

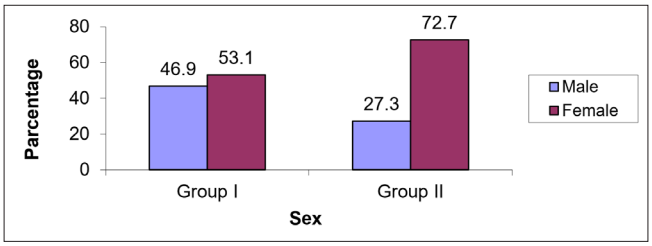

Figure 2: Sex distribution of the study patients

Regarding the sex of the patients, it was found that majority (53.1%) patients were female in group I, 8(72.7%) were male in group II. The difference was not statistically significant (p>0.05) among groups.

Table 1: Distribution of the study patients by BMI status (n=60)

BMI status	Group I (n=49)		Group II (n=11)		p value
	n	%	n	%	
>18.5 (Normal nutrition)	42	85.7	1	9.1	
17.1-18.5 (Mild malnutrition)	7	14.3	3	27.3	
16-17 (Moderate malnutrition)	0	0.0	7	63.6	
Mean±SD	21.3	±2.2	17.1	±1.4	0.001[s]
Range (min-max)	18.2	-25.23	14.1	-19.9	

Group I= No complication, Group II= Wound dehiscence

Regarding the BMI status of the patients, it was found that 42(85.7%) patients were normal nutrition in group I and 7(63.6%) moderate malnutrition in group II. The mean BMI was found 21.3±2.2 kg/m^2 in group I and 17.1±1.4 kg/m^2 in group II. The mean BMI was statistically significant (p<0.05) between two groups.

Table 2: Distribution of the study patients by percent ideal body weight (n=60)

Percent ideal body weight (%)	Group I (n=49)		Group II (n=11)		p value
	n	%	n	%	
≥90 (Normal nutrition)	32	65.3	2	18.2	
80-89 (Mild malnutrition)	17	34.7	3	27.3	
70-79 (Moderate malnutrition)	0	0.0	6	54.5	
Mean±SD	97.0	±11.4	81.6	±6.5	0.001[s]
Range (min-max)	81.7	-126.19	72.6	-93.9	

Regarding the percent ideal body weight of the patients, it was found that 32(65.3%) patients were normal nutrition in group I and 6(54.5%) moderate malnutrition in group II. The mean percent ideal body weight was found 97.0±11.4 percent in group I, 81.6±6.5 percent in group II The mean percent ideal body weight was statistically significant (p<0.05) between two groups.

Discussion

Nutritional impairment is reported frequently in oral cancer patients. In previous studies, a clear relation between nutritional deficit and morbidity had been shown. Most of these studies reported malnutrition to be present in 35% to 50% of all oral cancer patients [4-9]. The importance of nutrition on maxillofacial surgery was first recognized in 1930s, when surgical outcomes were noted to be adversely affected by malnutrition. In 1936, Cuthbertson's descriptions of the adverse effect of malnutrition on his patients made surgeons aware of this relationship. Although this connection was recognized, there was little to be done for hospitalized patients for the next 30 years. Oral squamous cell carcinoma is becoming a prevalent disease in all study age groups especially in our population. Surgery is the treatment of choice for most the cancer. Change in nutritional status is associated with reduced organ function and deterioration of immune status. The presence of a chronic inflammation, as observed in cancer

for instance, increases catabolism and greatly alters immune defenses [10]. Various studies have highlighted a correlation between malnutrition and post-operative complications in oral cancer patients, in the specific context of surgery where an altered nutritional status is associated with increased surgical morbidity and mortality. Nutritional assessment is currently recommended, particularly in situations where nutritional deficit is associated with an increased risk of complications. Keeping these points in mind, this study was conducted to assess nutritional status and their relationship to post-operative wound dehiscence in oral squamous cell carcinoma patients to a satisfactory level. The study was performed as cross-sectional and conducted in Oral and Maxillofacial Surgery Department, BSMMU and Dhaka Dental College and Hospital. Regarding the BMI status of the patients in this study it was found that 42(85.7%) patients were normal nutrition in group I and 7(63.6%) moderate malnutrition in group II. The mean BMI was found 21.3±2.2 kg/m^2 in group I and 17.1±1.4 kg/m^2 in group II. The mean BMI was statistically significant between two groups. Pacelli F et al [11]. shown in mal-nutrient patient the rate of post-operative wound dehiscence was 11.7%. In case of normal nutrition patient, the rate of post-operative wound dehiscence was 9.4%. Regarding the percent ideal body weight of the patients in this study it was found that. that 32(65.3%) patients were normal nutrition in group I and 6(54.5%) moderate malnutrition in group II. The mean percent ideal body weight was found 97.0±11.4 percent in group I, 81.6±6.5 percent in group II The mean percent ideal body weight was statistically significant between two groups. Regarding the age of the patients, it was found that majority (42.9%) patients were age belonged to 41-50 years in group I and 6(54.5%) patients were age in group II, The mean age was found 47.6±10.8 years in group I, 49.7±8.6 years in group II. The mean age was not statistically significant ($p>0.05$) among two groups. Regarding the sex of the patients, it was found that majority (53.1%) patients were female in group I, 8(72.7%) were male in group II. The difference was not statistically significant among two groups. From the current study it has been seen that each of the parameters of nutritional status related to wound dehiscence. In the past, numerous studies have demonstrated various parameters as nutritional parameters. The sample size of the study was relatively small. Malnutrition related to post-operative wound dehiscence. So, every cancer patient should assess nutritional status pre-operatively because preoperative nutrition may reduce post-operative complications (wound dehiscence) in this patient group. Further studies are needed in future to investigate whether it is possible to counteract the adverse effects of malnutrition on surgery by preoperative nutritional support.

Conclusion

In summary, we conclude that the different nutritional parameters used in the study reflect the nutritional status of the oral cancer patient. Relating the individual parameters and postoperative course showed every individual parameter to predict wound dehiscence. The findings of this study may have a major impact on surgical strategies in the future, because pre-operative nutrition might reduce postoperative complications in this patient group. Further studies are needed in future to investigate whether it is possible to counteract the adverse effects of malnutrition on surgery by preoperative nutritional support.

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