Health Dietary Program for Patient after Sleeve Gastrectomy: Case - Control Study

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ABSTRACT
Background: In general, obesity has been increasing at an alarming rate over the past 50 years. In 2022, obesity and its comorbidities accounted for 14.3 percent of this world healthcare expenditure. Weight loss surgery is considered a safe and durable treatment option for obesity. The techniques have been continuously evolving to yield better outcomes. The studies showed that post-operative complications increased with physical inactivity and therefore reduces patient's quality of life (1), The Gastroenterology Endoscopic Department Al-Kindy-Teaching Hospital – Baghdad-Iraq (2019), mentioned that dietary habits play a significant role in the development of gastrointestinal disorders(2). so that this activity describes the dietary program after sleeve gastrectomy and highlights the role of the interprofessional team in the management of patients with obesity. and the extent to which a patient's behavior conforms to the instructions given by health practitioners (3). **Objective:** To find out the effectiveness of rehabilitation program on patient's nutritional status after sleeve gastrectomy, to find out the relationship between patient's nutritional status and demographic characteristics (age, sex, and level of education)**. Material and Methods:** The design used in the current study is a quasi-experimental design -experimental design (two - groups comparison), the study was conducted in center of hepatopathy and digestive diseases in AL-Hussein Teaching Hospital at AL-Muthanna city in Iraq. Study Sample: A non-probability (purposive) sample was taken from patients who performed gastric sleeve and the sample was (50) patients. Use questionnaire in this study. **Result:** It was found that there is an effectiveness of the program on the case group with the post-test when compared with the control group after implementation program. **Conclusion:** The patient after sleeve gastrectomy have inadequate knowledge concerning dietary. The program which implemented on patients had a benefit feedback on patients.

1. Introduction

Obesity is a long-term (chronic) health condition that progresses over time. Obesity is defined by excess body fat (adipose tissue) that may impair health. Weight management is complex for most individuals, as indicated by the high numbers of obesity worldwide (3). Nutritional intervention was cost effective and was associated with an improvement in nutritional status and a greater functional recovery (4). Sleeve gastrectomy is a surgery to lose weight by reducing food consumption. It is usually performed for those whose body mass index is more than 40, and after trying to lose weight by improving the diet and exercising to help lose excess weight and reduce the risk of health problems related to it that life-threatening. This operation is performed through the use of a laparoscope and the insertion of equipment through multiple small incisions in the upper abdomen. During the resection, about 75% to 80% of the stomach is removed, making it the size of a tube and banana-shaped, which reduces the size of the stomach. The amount of food consumed. In addition, this surgical procedure is accompanied by hormonal changes that help in losing weight and alleviating health conditions associated with being overweight, such as: high blood pressure, or cardiovascular disease. to achieve a better healthy life, it is preferable physical activity on an ongoing basis(5), add to It is recommended follow a strict diet as soon as the stomach surgery is completed, as some foods may cause disruption of the healing process and lead to its leakage. The post-operative diet consists of four stages, which are explained as follows:

The first week

which extends from the first day after surgery to seven days, and only clear liquids are consumed at a rate ranging from 30 to 60 milliliters per hour. The nutritionist determines how long the patient will spend in this stage (6).

The second and third weeks

This stage lasts 14 days and it is recommended to consume 60-70 grams of protein sources in the form of mashed water or skim milk or fat-free broth, or shake, in addition to drinking about 8 cups of clear fluids (7).

The fourth and fifth weeks

This stage is characterized by gradually adding soft foods. This stage usually lasts about one to two weeks. This part of the diet includes soft meat and cooked vegetables, and it is recommended to consume 60-70 grams of protein daily, in addition to two liters of fluid, and meals should be divided into three to six small meals (6).

In the sixth week

solid foods can be consumed in this stage, and the same advice as in the third stage must be followed, as the amount of protein, vitamin supplements, and the recommended amount of clear fluids remain the same, and more fruits and vegetables can be carefully added to the diet, with small amounts of fat and sugar with caution, in addition to drinking caffeine in moderation (7).

2. Methodology

The study design

The design used in this study is a quasi-experimental design -experimental design (two-group comparison), which was attained through the pre and post-tests method for study sample.

Study Setting

The study was conducted in AL-Hussein Teaching Hospital at AL-Muthanna city in Iraq.

Study Sample

A non-probability (purposive) sample was taken from patients who performed sleeve gastrectomy surgery was (50) patients (control group 25 patient and case group 25patien).

Study Instrument

The multiple-choice questionnaire was used as a study tool Pre and post–test after the implementation of the program, which contains (4) sub domain included (Food Consumption, Fluid Consumption, Dietary Habits, and Lifestyle).

Data Analysis

Use data analysis such as frequencies, percentages, Pearson correlation coefficient test, paired t-test and ANOVA test to measure the level of knowledge.

Ethical Consideration

Approval was gained from the Ethics Committee of the College of Nursing. Permission was obtained from AL-Hussein Teaching Hospital, orally and written.

3. Results and Discussion

Table1. The study sample's socio-demographic characteristics (Experimental and control group).

Sociodemographic Characteristics		Case n=25		Control n=25		Sig
		F	%	F	%	
Age (years)	20-30	7	28.0	7	28.0	0.58 **NS**
	31-40	9	36.0	11	44.0	
	41-50	5	20.0	4	16.0	
	51 and More	4	16.0	3	12.0	

	Mean ±SD	**37.969±13.499**		**38.350±11.27**		
Sex	Male	14	56.0	14	56.0	0.10 **NS**
	Female	11	44.0	11	44.0	
Education Level	Don't Read and Write	1	4.0	1	4.0	0.09 **NS**
	Read and Write	9	36.0	9	36.0	
	Academic	8	32.0	8	32.0	
	Diploma	5	20.0	5	20.0	
	College and Above	2	8.0	2	8.0	
Marital Status	Single	6	24.0	5	20.0	0.42 **NS**
	Married	12	48.0	15	60.0	
	Widow	4	16.0	3	12.0	
	Divorced	3	12.0	2	8.0	

Table 2. Evaluation of Case Group at Pre-test and Post-test Measurement Regarding Nutritional Status After Sleeve Gastrectomy

Nutritional Status	**Items**	**Pre-test**				**Post-test I**			
		Committed		**Un-committed**		**Committed**		**Un-committed**	
		F	**%**	**F**	**%**	**F**	**%**	**F**	**%**
Food Consumption	1. How many meals do you eat per day?	4	16	21	84	20	80	5	20
	2. How often do you eat sweets per week? (excluding breakfasts)	3	12	22	88	19	76	6	24
	3. How much vegetables do you eat during a meal? (One serving is equivalent to = half a cup of cooked vegetables or a cup of uncooked vegetables)	5	20	20	80	20	80	5	20
	Total		16		84		78.66		21.33
Fluid Consumption	4. How many glasses of water do you drink during a meal?	2	8	23	92	20	80	5	20
	5. Do you drink alcohol?	3	12	22	88	21	84	4	16
	6. How many times a week do you drink soft drinks?	3	12	22	88	11	44	14	56
	Total		10.66		89.33		69.33		30.66
Dietary Habits	7. How fast can eat main meals?	2	8	23	92	22	88	3	12
	8. How hungry do you feel before a meal?	3	12	22	88	21	84	4	16
	9. What level of satiety do you feel after a meal?	5	20	20	80	19	76	6	24
	Total		13.33		86.66		82.66		17.33
Lifestyle	10. How long do you spend on physical activity?	4	16	21	84	19	76	6	24
	11. How often do you measure your weight?	3	12	22	88	21	84	4	16
	Total		14		86		80		20
Overall assessment			13.49		86.49		77.66		22.33

Table 3. Evaluation of Control Group Responses in the Pre-test and Post-test Measurement Regarding Nutritional Status After Sleeve Gastrectomy

Nutritional Status	Items	Pre-test				Post-test I			
		Committed		Un-committed		Committed		Un-committed	
		F	%	F	%	F	%	F	%
Food Consumption	1. How many meals do you eat per day?	3	12	22	88	3	12	22	88
	2. How often do you eat sweets per week? (excluding breakfasts)	5	20	20	80	8	32	17	68
	3. How much vegetables do you eat during a meal? (One serving is equivalent to = half a cup of cooked vegetables or a cup of uncooked vegetables)	3	12	22	88	4	16	21	84
	Total		14.66		85.33		20		80
Fluid Consumption	4. How many glasses of water do you drink during a meal?	3	12	22	88	2	8	23	92
	5. Do you drink alcohol?	3	12	22	88	8	32	17	68
	6. How many times a week do you drink soft drinks?	6	24	19	76	5	20	20	80
	Total		16		84		20		80
Dietary Habits	7. How fast can eat main meals?	5	20	20	80	8	32	17	68
	8. How hungry do you feel before a meal?	5	20	20	80	1	4	24	96
	9. What level of satiety do you feel after a meal?	6	24	19	76	3	12	22	88
	Total		21.33		78.66		16		84
Lifestyle	10. How long do you spend on physical activity?	5	20	20	80	4	16	21	84
	11. How often do you measure your weight?	6	24	19	76	8	32	17	68
	Total		22		78		24		76
Overall assessment			18.49		81.50		20		80

Table 4. Overall Assessment of Nutritional Status After Sleeve Gastrectomy at Two Level of Measurement for Case and Control Group.

Main Domain	Groups	Periods of Measurements	Mean ± SD	Evaluation
Nutritional Status After Sleeve Gastrectomy	Case Group n=25	Pre-Test	1.13±(0.131)	Uncommitted
		Post-test	1.77±(0.105)	Committed
	Control Group n=25	Pre-Test	1.18±(0.098)	Uncommitted
		Post-test	1.19± (0.135)	Uncommitted

Table 5. Comparison between Case and Control Groups Regarding Nutritional Status After Sleeve Gastrectomy at Pre, Posttest

Main Domain	Periods of Measurements	Groups	Mean ± SD	p-value
Nutritional Status After Sleeve Gastrectomy	Pre-Test	Case	1.13± 0.131	0.127NS
		Control	1.18± 0.098	
	Post-Test	Case	1.77± 0.105	0.001 HS
		Control	1.19± 0.135	
	Independent Sample t-test d.f =48			

Table 6. Relationship between the Patients' Nutritional Status after Sleeve Gastrectomy and Their Age, Sex, Level of Education, and Marital Status

Variables		Sum of Squares	Df	Mean Square	F	Sig. P≤0.05
Age	Between Groups Within Groups Total	.0440 .2420 0.286	3 21 24	.0150 0.012	1.268	0.311 NS
Level of Education	Between Groups Within Groups Total	.0350 .2510 0.286	4 20 24	.0090 0.013	.6980	0.603 NS
Marital Status	Between Groups Within Groups Total	2.157 2.317 4.473	3 21 24	0.719 0.110	6.517	0.03 S

S=Sig ≤0.05, HS= high sig≤ 0.01, NS=non-sig>0.05

Sex	N	Mean	Std. Deviation	t-value	d.f.	P-Value
Male	14	1.70	0.097	2.802	23	0.01 **HS**
Female	11	1.80	0.094			

The results were revealed that **(**36%**)** of case group and **(**44%**)** of control group at age (31-40) years old. Al-Hamad and Hassan (2019**),** in study conducted about program to change people with PUD lifestyle found largest percentage of the participants were over 30 years age (8). The finding of the present study shows that (56%**)** of the study sample are females more than males in case and control groups Ali and kadhim (2023), regarding gender, the majority of the study group (60%) was female (9). The level of education included in the present study was education (36%) of case and control groups read and write, Heymsfield and Wadden, (2017) evaluate of 112 patients in types and causes of bariatric surgery, at Debra Tabor General Hospital, northwest Ethiopia. Their results showed that more than half of the participants did not get the bachelor's degree (54.85%). According to the marital status, most of the samples in present study were 48%, 60% of case and control groups respectively married. Mohammed and Abdulwahid(2022) found in their study, a marred people were the highest percentage (29.2%), followed by those who are separated (25%), followed by those who are divorced and widower (20.8%) (10). The nutritional status improved in case group after implementation the program, the nutrition status had four subdomain this included, food consumption that change from 16% committed at pretest to 78.66% at posttest , fluid consumption also it changed from 10.66% committed at pretest to 69.33 **%** at posttest , likewise alteration in dietary habits was from 13.33% committed at pretest to 82.66% at posttest , while lifestyle was 14% at pretest committed improved to 80% at posttest .In general, nutritional status improved from13.49% committed at pretest to 77.66 at posttest. While the control group commitment of patient remains uncommitted 81.50% at pretest, and 80% at posttest. Schwartz 2017 A descriptive study to assess

nutritional state for patient in Esfahan City, Iran. Find that the nutritional state was low and increased immediately after intervention with statistically significant difference compared to pre-intervention for study group. The result of study shows that there were high significant statistical association between the patients' Nutritional Status and patient sex and significant with marital status (11). Khudhair (2022) observed that there was no significant relationship between gender and BMI .Heymsfield(2017), which refers that significant association between the patients' nutritional status and gender (12). However, Bett (2019) found in his study had more effect on marital status (13).

4. Conclusion

1-Adherence to the nutritional status significantly corrected.

2- Six, and marital status of patients do significantly affect their nutritional status.

Recommendation

1.Provide patient education courses to help them learn more about diet after sleeve gastrectomy.

2 .Providing booklets for patient related to diet after sleeve gastrectomy .

4 .Due to a lack of studies on sleeve gastrectomy in Iraq, the researcher suggested more research.

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