

## **Summary**

### **Impact of A Designed Dietary Protocol on Post Operative Outcome among Cancer Patients Undergoing Gastrectomy at Cairo University Hospital**

#### **Background:**

Nutrition is one of the major problems that can affect the health condition of cancer patients undergoing gastric surgery. Compromised nutritional status results from surgical intervention that induces trauma and produces physiological stress on the body; the tumor-induced effects on nutritional status; and altered metabolism (hyper metabolism) which could contribute to protein calorie malnutrition. Therefore, there is a great need for preoperative as well as postoperative correction of nutritional deficiencies; providing nutrients reserve that enable patients to withstand catabolic stress of negative nitrogen balance and starvation, and teaching patients how to avoid or minimize the experienced dietary related problems.

#### **Subjects and method:**

**Aim of the study:** to examine the impact of a designed dietary protocol on postoperative outcome of patients undergoing Gastrectomy.

**To fulfill the aim of this study, the following four research hypotheses were formulated.**

H1: Gastrectomy patients who will receive the designed dietary protocol will exhibit a better nutritional status than the control group ones.

H2: Gastrectomy patients who will receive the designed dietary protocol will experience fewer frequency of dumping syndrome symptoms than those of the control group.

H3: Gastrectomy patients who will receive the designed dietary protocol will show a better wound healing than the control group ones.

H4: The mean knowledge scores of the study group subjects will be higher than that of the control group ones.

**Patients' outcome in the current study** refers to, nutritional status; wound healing; knowledge scores; compliance with the prescribed regimen; and occurrence of dumping syndrome symptoms.

**Theoretical frame work:** Orem's Self Care Deficit Theory (1995) was adopted as a theoretical framework for the current study.

**Research design:** A quasi-experimental research design was carried out in the current study.

**Sample:** A sample of convenience including 60 hospitalized adult male and female cancer patients undergoing total or subtotal Gastrectomy was included in the current study, with the following inclusion criteria: adults, with an age ranged between 20 – 60 years old; having no metastasis (resectable), and willing to participate in the study. The sample was divided into two homogenous groups (30 subjects each), with the following matching criteria: age group (1–5 years), level of education, co- morbidity diseases, and type of surgery.

**Setting: the current study was** conducted at different surgical wards of the National Cancer Institute and the General Surgical Wards of El-Manial University Hospital.

**Tools of data collection:** Six tools were utilized to collect data pertinent to the study: Socio-demographic and medical data sheet; Knowledge assessment sheet; Compliance assessment sheet; Dumping syndrome assessment sheet; Nutritional assessment sheet; and Wound healing assessment sheet.

**Procedure:** Data were collected over a period of 21 month, starting from February, 2004 to October, 2005. The sample was divided into two homogenous groups: control and experimental (30 subjects each), with the following matching criteria: age group (1–5 years), level of education, co-morbidity diseases, and type of surgery. Each patient either in the control or the study group has been assessed seven times; on admission, preoperatively, postoperatively, before discharge, after one, two, and three months.

The present study was carried out on three phases: preparation phase, implementation phase, and evaluation phase. **The preparation phase** was concerned with managerial arrangements in addition to construction and preparation of different data collection tools, and designing the dietary instructional booklet. As regards to **the implementation** phase, it was concerned with assessment of nutritional status, provision of designed dietary/nutritional formulas, patients' teaching, wound healing, and knowledge level assessment. Concerning the **evaluation phase**, it focused on evaluating patients' knowledge, nutritional status, presence of complications during hospitalization and after discharge, as well as evaluating compliance to the prescribed regimen.

Main findings of the present study were as follows:

As regards nutritional assessment results:

- Male patients represented more than half (53.3%), of the study group as compared to 70% of the control group ones.
- The majority (83.3%) of the study and control group subjects' ages ranged between 35– <55 years old, with a mean age of  $45.4 \pm 9.46$  and  $50 \pm 8.86$  respectively.
- Most of both the study and control groups were married, illiterate, and from rural areas (93.3% & 93.3%, 50% & 50% and 56.7% & 66.7% respectively).
- Approximately two thirds (70%) of both the study and control group subjects had undergone partial gastrectomy, while less than one third (30%) undergone total gastrectomy.
- The mean total length of hospital stay among the control group was  $20.1 \pm 8.14$  as compared to  $17.66 \pm 6.26$  of the study group.
- Nutritional assessment, revealed that both the whole study and control group subjects (100%) were admitted with manifestations of malnutrition.
- A relative stability in body weight was noticed among the study group males (81.25%, 43.3%, & 31%), and females (78.6%, 42.8%, & 35.7% ) respectively, as compared to the control group males (76.2%, 76.2% & 90.5% ) and females (55.5%, 77.8% & 77.8% respectively ), whose body weight changed significantly.
- Different degrees of muscle depletion were found among the control group's males (90.5%, 80.95%, 90.5%, 90.5%, & 90.5%), and females (77.8%, 88.9%, 88.9%, 88.9% & 88.9%), as compared to the study group subjects' males (50%, 56.25%, 56.25%, 50%, & 56.25%), and females (64.3%, 57.1%, 71.4%, 78.7%, & 78.7%), in different assessment periods.
- No correlations were found between anthropometric measurements and hospital stay.
- A statistically significant difference was found between the two studied groups as regards laboratory investigations, in different assessment periods.
- Changes in laboratory data were not correlated neither to age, nor to gender of both the study and control group subjects.

- No correlations were found between:
  - The studied groups' laboratory investigations and anthropometric measurements and hospital stay .
- Only serum albumin and serum cholesterol levels were found to be negatively correlated with hospital stay among the control group subjects (  $r = -0.396$ ) and ( $r = -0.553$ ) respectively at  $p \leq 0.05$ .
- Gastrointestinal tract risk factors attributed to nutritional status alteration such as decreased appetite, taste alteration, vomiting, diarrhea, and constipation were frequently experienced by the control group subjects than the study group ones indicating a statistically significant difference.
- Reduction in the proportion of those with malnutrition in the study group was noticed to be 66.7%, 43.3%, 40% , and 26.7%, as compared to the control group ones which represented 100%, 100%, 83.3%, and 76.7%, who remained at risk of malnutrition.

As regards dumping syndrome symptoms:

- Dumping syndrome symptoms were experienced by the control group subjects, irrespective of the type of surgery, more frequently than the study group ones all over the different assessment periods, with the following percentages (100% & 80%, 100% & 63.3%, 100% & 50%, and 100% & 56.7% respectively).
- Among dumping symptoms were, cramping abdominal pain, diarrhea, dizziness, palpitation, and diaphoresis with the following percentages (30% & 16.7%, 20% & 10%, 43.3% & 13.3%, 30% & 16.7%, 46.7% & 30% and 26.7% & 0 respectively).
- Dumping syndrome symptoms were common among all the study and control group subjects who had undergone total gastrectomy. It also affected half of the study group subjects (50%), and all of the control group subjects with partial gastrectomy.
- Early dumping symptoms were found among 43.3% of the control group subjects and 3.3% of the study group ones in the first follow up assessment period.
- Late dumping symptoms affected 43.3% and 30% of the control group subjects, and 6.7% and 10% of the study group ones in the second and third follow up assessments respectively.

- No statistically significant differences were found between the subjects' knowledge level, compliance level, gender, and occurrence of dumping syndrome symptoms. So the second hypothesis was supported.

As regards wound healing:

- Most of the control group subjects had moderate to extensive wound inflammation (93.3% & 66.7% and 76.7% & 40 respectively), and purulent exudates (66.7% & 60% and 30% & 33.3% respectively) as compared to a minority of the study group subjects.

- A tendency to delayed wound healing was noticed among the control group subjects as compared to the study group ones (40% & 23.3% respectively).

- The extent of inflammation was not significantly affected by age.

- No statistically significant difference was found between the type of exudates and age among the study group subjects, while a statistically significant difference was found in this regard among the control group subjects ( $\chi^2 = 7.28$ , at  $p \leq 0.05$ ).

- Types of exudates were found to differ significantly in relation to gender among the study and control group subjects.

- Purulent exudates and delayed wound healing were common among subjects with total gastrectomy in both the study and control group subjects.

- Delayed wound healing was observed among subjects of age  $< 45$  in the study group.

- Wound healing differed significantly in relation to age among the study group subjects. However, no statistically significant difference was found in this regards among the control group subjects.

- In spite of the noticed differences regarding certain wound healing parameters they were not up to the significant level. Therefore, the third hypothesis was not supported.

As regards knowledge:

- High statistically significant differences were found between the two studied groups as regards the total knowledge scores ( $t = 28.53, 33.6, 36.24, \& 52.5$  respectively, at  $p \leq 0.001$ ).

-The majority of the study group exhibited satisfactory and good level of knowledge during different assessment periods (60%, 80%, 86.7%, & 100% respectively). However, the control group subjects remained with unsatisfactory knowledge level during the assessment periods.

- Gradual improvement in the knowledge level was noticed among males (75.5%, 81.25%, & 100%) and females (85.7%, 92.8%, & 100), all through the different follow up assessment periods.
- No correlation was found between knowledge scores (total and sub total) and age between both the study and control group subjects.
- No statistically significant difference was found between males and females as regards knowledge level.
- An improvement in the compliance scores was noticed among the study group subjects as compared to the control group ones, with a statistically significant difference in the different assessment periods ( $\chi^2 = 19.5$ , at  $p \leq 0.001$ ). That is why the fourth hypothesis was supported.
- No statistically significant difference was found between subjects' compliance and educational level

### Conclusion

Based upon findings of the present study, one can conclude that, cancer stomach patients who had undergone gastric resection showed manifestations of malnutrition. When the study group subjects received nutritional care through using a designed (tailored) TPN regimen, as well as dietary instructions (dietary counseling), they showed improvement in their nutritional status as compared to the control group ones. Using supportive educative approach of Orem's Self-Care (1995) helped in reducing frequency and symptoms of dumping syndrome, in addition to achieving higher knowledge and compliance scores. However, wound healing was not found to be affected by the nutritional intervention in the current study.

### Recommendations

Based upon findings of the current study, the following recommendations can be deduced:

- Establishment of patients' educational centers in hospitals to be equipped by suitable related educational materials, medias and audio-visual aids for helping patients to live with their limitations.
- Establishment of a hot line for dealing with dangerous situations related to their basic needs, and could suddenly arise.
- Establishing a nutritional counseling team to provide information and aid in problems resolution.

- Performing nutritional assessment for all hospitalized patients on regular bases.
- Identification and reporting of patients who are at risk of nutritional disruption, or actually malnourished.
- Collaboration between health care team members as doctors, nurses, pharmacist and dietitians to correct patients' nutritional deficiencies based on a comprehensive nutritional assessment.
- Ensuring adequate nutritional intake and correcting nutritional deficiencies before and after surgery for all surgical patients.
- Dietitians should be capable of designing an individualized oral nutritional regimen that fit patient's condition.
- Laboratory investigations, such as serum prealbumin, calcium, magnesium, phosphorous, and cholesterol should be available, and routinely done.