Development of Database System for Improving a Range of Health Related Behaviors after Gastrectomy

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Abstract. This paper is to develop a database system for improving a range of health related behaviors after gastrectomy. The subjects of this paper were 122 patients who had been visited a general hospital which located in Metropolitan area. The pairwise t-test was done to compare the before and after intervention effect of health practice rate in gastrectomy patients As a result of this study, in terms of abdominal pain, subjects' score(33.57 ± 1.64) after application significantly decreased than subjects(45.18 ± 1.92) before application($t=1.85$, $p=.037$). On the other hand, for nutritional status, there was a significant difference in practicing the healthy lifestyles of nutritional status after application of database system($t=-0.47$, $p=.000$). Systematic adoption of a database system to minimize the damage of gastrectomy will contribute effectively to the rapid disease recovery and prevention.

Keywords: Development, Database system, Health related behaviors, Gastrectomy

1 Introduction

Stomach cancer, also called gastric cancer, is one of the most common cancers in Korea. In fact, Korea has the highest rate of stomach cancer in the world. According to the Korea Central Cancer Registry, over the course of 7 years, 9,620 men and 2,773 women developed stomach cancer. Previous study assessed the effects of salt preference in relation to gastric cancer in more than 2.2 million South Korean adults aged 30 to 80 years old[1]. The exact cause of this cancer is unknown. Doctors say helicobacter pylori infection, gastritis, smoking and high consumption of salted, smoked and pickled foods are the main risk factors of stomach cancer. This cancer is curable if it is detected at an early stage. Unfortunately, early onset stomach cancer only has few symptoms. It is often found at later stages. Treatment for stomach cancer includes gastrectomy, chemotherapy and radiation therapy[2].

Gastrectomy is a surgical weight-loss procedure in which the stomach is reduced to about 25% of its original size, by surgical removal of a large portion of the stomach along the greater curvature. The result is a tube like structure. The procedure permanently reduces the size of the stomach, although there could be some dilatation of the stomach later on in life. The procedure is generally performed laparoscopically

and is irreversible. Many patients suffer with anemia after gastrectomy due to decreased oral intake and malabsoption is the most common cause of anemia in gastrectomized patients [3].

In order to solve the urgent problem, we should look for the practical plans. However, there were few studies to deal with effect of information system for the prevention in patients with stomach cancer until present. We also don't have any national program about it[4],[5]. Therefore, the database system including gastrectomy are urgently needed to control the increasing prevalence of stomach cancer and produce its related desirable outcomes. Thus, this paper attempted to estimate the effect of it on the change of health status in patients with gastrectomy for the prevention of stomach cancer through development of a database system.

2 Materials and Methods

2.1 Study Materials

Study participants were patients who were treated with gastrectomy at least 3 months ago by general surgery of a general hospital in Metropolitan area. The data were collected by interview and self-administered questionnaire. 122 subjects who participated in this study between February 17 and March 31, 2014 were surveyed.

2.2 Study Methods

General characteristics of study subjects were measured by percentage and number. The pairwise t-test was done to compare the health related behaviors before and after application of database system. It was also performed to determine the statistical significant differences between the two groups on the satisfaction of a database system for measurement of health behaviors for the prevention of recurrence in gastrectomy patients.

3 Results

3.1 General Characteristics of Study Subjects

Table 1 presents general characteristics of study subjects. In terms of gender, female(57.4%) of the control group showed a higher rate than female(47.5%) of the experimental group. In a marital status, married respondents(75.4%) of the control group were a higher rate than respondents(68.9%) of the experimental group. On the

other hand, In terms of cause of reduced diet intake, the experimental group showed the highest in the abdominal pain(18.0%), while the control group showed the highest rate in the cause of stress(26.2%).

Table 1. General Characteristics of Study Subjects

Variables	Experimental group N(%)	Control group N(%)	Variables	Experimental group N(%)	Control group N(%)
Age/yrs.			≥400	14(23.0)	17(27.9)
<40	5(8.2)	9(14.8)	Education level		
40-49	8(13.1)	12(19.7)	Under middle .†	19(31.1)	21(34.4)
50-59	16(26.2)	19(31.1)	High school s.	27(44.3)	23(37.7)
60-69	21(34.4)	15(24.6)	Over college	15(24.6)	17(27.9)
≥70	11(18.0)	6(9.8)	Cause of reduced iet Intake		
Gender			Fear	5(8.2)	8(13.1)
Male	32(52.5)	26(42.6)	Abdominal pain	9(14.8)	4(6.6)
Female	29(47.5)	35(57.4)	Abdominal discomfort	11(18.0)	7(11.5)
Marital status			Dyspepsia	8(13.1)	
Single	19(31.1)	15(24.6)	Heartburn	5(8.2)	8(13.1)
Married	42(68.9)	46(75.4)	Stress	6(9.8)	16(26.2)
Monthly income			Epigastric pain	9(14,8)	1(1.6)
<200	29(47.5)	21(34.4)	Nausea/Vomiting	5(8.2)	3(4.9)
201-400	18(29.5)	23(37.7)	Others	3(4.9)	14(23.0)
Total	61(100.	61(100.0)	Total	61(100.0)	61(100.0)

3.2 Health Related Behaviors Before and After Application of Database System

Table 2 represents health related behaviors before and after application of database system. In terms of abdominal pain, subjects' score(33.57±1.64) after application significantly decreased than subjects(45.18±1.92) before application(t=1.85, p=.037). On the other hand, for nutritional status, there was a significant difference in practicing the healthy lifestyles of nutritional status after application of database system(t=-0.47, p=.000).

Table 2. Health Related Behaviors Before and After Application of Database System

Items /application	Before Mean±S.D	After Mean±S.D	t	P
Physical symptoms				
Abdominal pain	45.18±1.92	33.57±1.64	1.85	.037
Abdominal discomfort	63.42±0.36	52.91±0.48	0.49	.062
Dyspepsia	57.38±0.95	49.26±0.75	0.82	.074
Heartburn	51.60±1.92	37.94±1.28	1.47	.005
Epigastric pain	47.25±0.48	48.21±0.43	1.63	.284
Nausea/vomiting	51.93±1.56	45.68±1.57	0.39	.093
Health practice				
Exercise	38.59±1.81	62.50±1.39	-1.82	.000
Nutritional status	37.24±0.35	58.62±0.85	-0.47	.000
Smoking	52.78±0.69	37.15±0.27	0.92	.000
Alcohol drinking	59.19±1.37	42.91±1.73	1.76	.078
Stress status	60.42±0.52	48.56±0.29	0.54	.001
Physical status				
Diabetes mellitus	57.09±1.48	52.48±1.69	1.76	.472
Hypertension control	61.53±1.61	56.72±1.24	0.49	.035
Cholesterol control	58.26±0.37	45.19±0.72	0.61	.017

4   Discussion

The purpose of this study is to identify an efficient intervention program for the health promotion in patients with gastrectomy based on the database system. This paper is to develop the database system for improving a range of health related behaviors after gastrectomy. As a result of this study, statistically significantly positive changes of health status such as gastric pain, heartburn, hypertension control and nutritional status. It diminished the progression rate of gastrectomy patients. The findings were similar with the previous studies on the other operation patients[6],[7]. This study suggests that individuals with gastrectomy patients should be targeted for specific health behavioral intervention to prevent the recurrence of stomach cancer. Based on the results obtained by the study, it is anticipated that this paper may be used as basic data for developing and interventing health promotion behavior for the stomach cancer patients. However, the result shows that in order to maintain desirable food behaviors, convergence educational program for gastrectomy patients focus on health promoting behavior is more successful than single program. The results of this paper, after receiving intervention, there was a positive change for psychiatric status after intervention than before intervention in the mean score of stress status. The finding was consistent with the result of earlier researches[8],[9]. Therefore, it needs to perform systematic stress management. There is a need for the program to be implemented on the groups who characterize having lower levels of health knowledge and health promoting behavior.

5   Conclusion

This paper is to develop the database system for improving a range of health related behaviors after gastrectomy. For this purpose, this research developed a database system. It conducted a positive effect on health improvement of gastrectomy patients. This paper found that the health promotion behavior in gastrectomy patients was increased by 58.62-62.50% compared with the previous status and the patients positively perceived on a database system. The database system for health promotion can be applied to any hospital which has health promotion center.

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