

## A New Method For Medical Information Systems to Improve Physical Function after Surgery for Ovarian Cancer

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**Abstract:** The study is to identify a new method for medical information systems to improve physical function after surgery for ovarian cancer. Experimental group investigated 61 people who were consisted of members by the application of mediating technology while the normal members of 61 people were consisted of people without mediating technology. The  $\chi^2$ -test was used for the examination of the general variables between two groups. The t-test was performed the difference of life habits by the application of medical information systems. The results are as follows. Firstly, male with 47.5% in the experimental group showed a higher rate than male with 42.6% in the normal people. While female of 52.5% in the test group was observed less than female with 57.4% in the normal group. Secondly, for vitamin intake, the mean point ( $79.51 \pm 0.69$ ) of the group which have eaten vitamin in the post-test by mediating technology system were statistically significantly higher than the mean point ( $51.84 \pm 2.93$ ) of the group in the pre-test by the application of medical information systems ( $t = -5.17$ ,  $p = 0.000$ ). Thirdly, the data achieved a significantly higher rate in the group observed than the normal group, even the days passed 20 days by the application of medical information systems. Therefore, the study conducted to evaluate the effectiveness of medical information systems. This impact of medical information system will have a technique on prevention of ovarian cancer.

**Key words:** Method, medical information systems, physical function, ovarian cancer, surgery, vitamin intake

### INTRODUCTION

Cervical cancer is the most frequent occurrence of female genital organs. But ovarian cancer has the highest mortality rate among female cancer cases in Korea. Surgery for ovarian cancer is commonly performed by salpingo-oophorectomy. Salpingo-oophorectomy is the operative dissection of both ovaries and right or left ovary (Petri *et al.*, 2012; Yurkovetsky and Zoya, 2010).

Ovarian cancer can not know early stage which appear their symptoms because their body responses are not felt. The first method of ovarian cancer is operation. Ovarian cancer is the 6th most common form of cancer in women. Early symptoms are often absent or associated with other problems, thus early diagnosis is uncommon. When the ovaries are dissected, a female is at a five times more disease of stroke or myocardial infarction (Hedlund, 1997; Hardie *et al.*, 1997).

Surgery for ovarian cancer is factorrelated to increased risk of osteoporosis and bone fractures. Therefore, the improvement of life quality through the development of clinical information system is important information technology which can provide to oophorectomy patients. The strategic approach of medical technology system adoption to improve life quality after surgery for ovarian cancer needs to chronic disease patients (Chanoit *et al.*, 2001; Holton *et al.*, 2001).

The incidence of ovarian cancer can find when parts in one ovary or right and left ovaries are out of function. Although, every ages of women are easy to appear the incidence of ovarian cancer, approximately 95% of female observed with the disease are over 40 years old and almost illnesses appear in female over 50 years old, according to National Statistical Center. Additionally, the majority of ovarian cancer were *in situ* (25.6%) or local (49.6%) stage. The National Statistical Center reports that there are much more than 35,294 recent ovarian cancer and about 195,826 mortalities from female ovarian cancer in the UK in 2014. Additionally, according to this situation, it occurred from 2013 to 2014, 3.1% of female observed now will be presented illness with ovarian cancer at this environment during women lifecycle. The total 6 years associated with proportion of life existence since, 2006 (Kim, 2016; Lee *et al.*, 2016; Carney *et al.*, 2002).

This research tries to implement a management control system to raise the performance of an experiment with the objective to achieve to the entire success toward a special strategy for ovarian cancer. Information was collected from the major problem in order to detect the key characteristics of life habits where a change of treatment is needed (Jakeways *et al.*, 2004; Mastrocinque and Fantoni, 2003; Lee, 2014). The system was developed to understand the effect that has the control system in the management of the positive results

observed in the analysis of results. In order to maintain the strategies, it was necessary to develop information system to check the system status (Lee, 2014a, b; Fingland, 2008). Therefore, the supply of mediating technology of information system is only solution of the problem of ovarian cancer and the best way that can improve physical status to patients with ovarian cancer after salpingo-oophorectomy. The research is needed to explore the development of experimental technology to improve physical status after operation.

Thus, the study is to identify a new method for medical information systems to improve physical function after surgery for ovarian cancer. The positive results will play an important role in the establishment of future medical system and data that provides invaluable insights in the effect of a medical information system.

**MATERIALS AND METHODS**

**Predictive modeling technology:** The design of medical technology system is as follows. Planning stage: construction of medical technology system application stage: input, stratege, process, analysis, application; Effectiveness stage: physical function, measurement; Final phase: verifying study, impact, usability of system in Fig. 1.

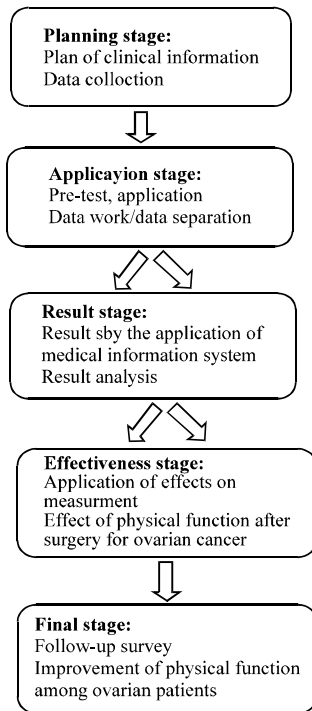


Fig. 1: Design of advanced information systems

**Materials:** The data were achieved through fill out the paper of form structured and interview from January 16 to March 30, 2017. It has time to fill out this survey. Experimental group investigated of 61 people who were consisted of members by the application of mediating technology while the normal members of 61 people were consisted of people with out mediating technology.

General variables of basic information were measured by percentage and number. The  $\chi^2$ -test was used for the the general variables of basic information between two groups. In addition, the t-test was performed the difference of life habits by the application of medical information systems. On the other hand, the t-test was performed health change in physical and mental function by medical information systems. The data analyzed physical function after surgery in participants with ovarian cancer using SPSS 18.0.

**RESULTS AND DISCUSSION**

**General variables of basic information:** General variables of basic information are next contents (Table 1). The proportion of unmarried subjects (23.0%) in the experimental group were a lower rate than the proportion (26.2%) of normal group. The subject’s sex was analyzed. Male with 47.5% in the experimental group showed a higher rate than male with 42.6% in the normal people. While female of 52.5% in the test group was observed less than female with 57.4% in the normal group.

**Difference of life habits by medical information systems:** Contents described below are the difference of life habits

Table 1: General variables of basic information

Variables	No. (%)		$\chi^2$
	Exp	Cont	
<b>Marital status</b>			
Unmarried	14 (23.0)	16 (26.2)	4.2
Married	47 (77.0)	45 (73.8)	
<b>Gender</b>			
Man	29 (47.5)	26 (42.6)	9.5
Female	32 (52.5)	35 (57.4)	
<b>Age</b>			
-40	4 (6.6)	9 (14.8)	10.7
41-50	10 (16.4)	22 (36.1)	
51-60	22 (36.1)	13 (21.3)	
>60	25 (41.0)	17 (27.9)	
<b>Monthly income</b>			
99	15 (24.6)	9 (14.8)	6.1
100-200	9 (14.8)	11 (18.0)	
201-299	17 (27.9)	23 (37.7)	
300	20 (32.8)	18 (29.5)	
<b>Education</b>			
Under middle	16 (26.3)	15 (24.6)	4.8
High school	25 (41.0)	21 (34.4)	
University	20 (32.8)	25 (41.0)	
Total	61 (100.0)	61 (100.0)	

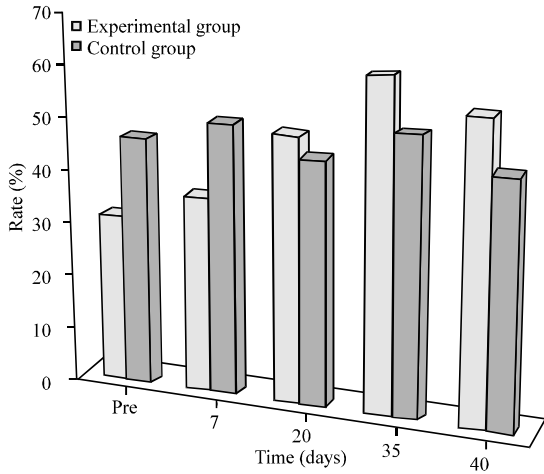


Fig. 2: Health change in physical function

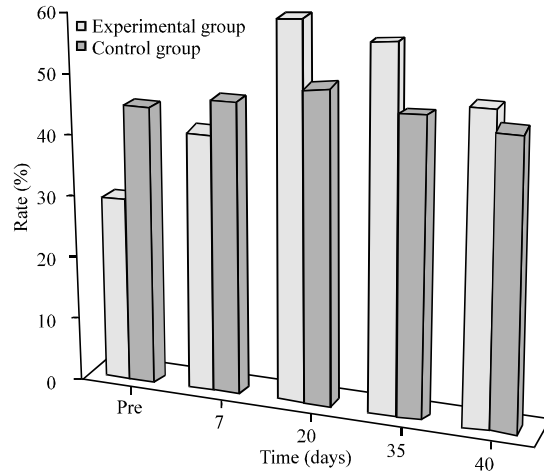


Fig. 3: Health change in mental function

Table 2: Difference of lifehabits by medical information systems

Variables	Mean±SD		t-values	p-values
	Pre-test	Post-test		
Vitamin intake	51.84±2.93	79.51±0.69	-5.17	0.000
Exercise	46.17±0.52	82.41±2.16	-2.84	0.000
Stress	81.45±2.92	64.18±1.92	5.62	0.001
Hypertension	65.70±1.58	48.25±0.64	1.37	0.002
Alcohol	70.35±2.47	45.09±1.62	6.18	0.000
Vegetable	56.21±1.52	76.15±0/85	-1.63	0.000
Cholesterol	78.54±1.38	63.79±2.17	2.60	0.047
DM	53.72±2.19	51.29±1.28	-1.49	0.726
Soybean	59.08±2.05	72.28±2.91	-4.27	0.001
Carrot intake	42.30±1.78	65.74±1.93	-2.94	0.000
Onion	56.17±0.27	72.59±2.36	-5.52	0.000
Cancer screening	53.24±1.64	75.28±1.47	1.33	0.000
Acupressure	36.18±1.49	51.16±1.83	-2.48	0.000
Tomato	52.72±0.62	59.63±3.37	-4.12	0.000
Garlic	45.39±2.52	56.38±0.63	-1.56	0.000
Meditation	29.14±5.78	62.49±1.37	-3.27	0.000
Listening to music	34.61±0.68	57.63±2.15	-0.54	0.000

by medical information systems after surgery for ovarian cancer in Table 2. For vitamin intake, the mean point (79.51±0.69) of the group which have eaten vitamin in the post-test by mediating technology system were statistically significantly higher than the mean point (51.84±2.93) of the group in the pre-test by the application of medical information systems (t = -5.17, p = 0.000).

**Health changes in physical and mental function:** As below, it indicates health changes in physical function by medical information systems in Fig. 2. The data achieved a significantly higher rate in the group observed than the normal group, even the days passed 20 days by the application of medical information systems.

In particular, the variation was estimated to increase more rapidly with time elapsed of 30 days after the application of medical information systems.

**Health change in mental function:** It indicates the health change in mental function by the application of medical information systems in Fig. 3. The data achieved a significantly higher rate in the group observed than the normal group, even the days passed 15 days by the application of medical information systems.

However, the effect was decreased rapidly with time elapsed of 35 days after application as compared to before application.

The study is to explore the usability of medical technology to enhance physical function after surgery for ovarian cancer. The conclusions of this research are as next contents. Physical function after surgery for ovarian cancer patients who has eaten vitamin diminished the symptoms of body illnesses. The achieved data was similar with the previous researches on the vaginal cancer (Lee 2014a, b; Hancock *et al.*, 2005).

This study indicated that participants with ovarian cancer should be focused on mediating technology to prevent the observed disease related to the ovarian cancer. From contents on the data obtained, it expects that this may be used an effective data for using and connecting medical information systems for enhancing physical function.

In addition, systematic studies should be established continually in order to prove results of this study. The present work appeared that life habit rate of mediating technology was increased from 61.5-71.4% by the mediating technology system which is similar to data conducted from previous contents (Marcovich *et al.*, 2001; Zhang *et al.*, 2004; Ornstein *et al.*, 2008).

However, it indicated that the mediating technology is not persisted for 40 days of time. Accordingly, in order to persist the mediating technology, it is very important to

perform regular training. The conclusion drawn will contribute to improve physical function after surgery for ovarian cancer.

### CONCLUSION

The study is to identify a new method for medical information systems to improve physical function after surgery for ovarian cancer. The results are as follows. Firstly, for vitamin intake, the mean point ( $79.51 \pm 0.69$ ) of the group which have eaten vitamin in the post-test by medical information systems were statistically significantly higher than the mean point ( $51.84 \pm 2.93$ ) of the group in the pre-test by the application of medical information systems ( $t = -5.17, p = 0.000$ ). Secondly, the data achieved a significantly higher rate in the group observed than the normal group, even the days passed 20 days by the application of medical information systems. Therefore, the study conducted to evaluate the effectiveness of medical information systems. This impact of medical information system will have a technique on prevention of ovarian cancer.

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