An Analysis of the Strategic Effect of Information System on the Immuity Enhancement of Gallbladder Patients

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Abstract*:* This paper is to conduct a strategic analysis of the information system to improve the immunity system of gallbladder cancer patients. The subjects of the study were 146 people who visited internal medicine clinics located in Chungcheong Province from March 11 to May 13, 2019. The group of people who mediated the information system was classified as 53 people and those who did not mediated the information system were classified as 53 people. The change in patient condition was analyzed as t-test following the application of the information system. The application of the body's immune system to the information system was measured at 4, 8, 12, 16, 20 and 24 weeks. The results of this study are as follows. First, LDL, a bad cholesterol decreased significantly after the information system was applied($t=3.72$, $p<.05$). Second, the physical immunity continued to increase after the application of the information system. However, the body's immunity has tended to decline since the 16th. Therefore, **t**o prevent the incidence of gallbladder cancer, diet management such as greasy and meat diet is required.

Keywords : *Information system, Immunity, Enhancement, Gallbladder patients*

1. Introduction

Gallbladder cancer is a mass of cancer cells in the gallbladder. Gallbladder cancer is called bad cancer along with pancreatic cancer and bile duct cancer [1],[2],[3]. It usually occurs more in women than in men and is often accompanied by cholelithiasis in 85% of patients. Gallbladder cancer is difficult to recognize and is often found in the 3rd and 4th stages of diagnosis [4],[5],[6], It is one of the most careful cancers because the prognosis for treatment is not good. Gallbladder cancer caused by a combination of environmental and genetic factors [7],[8]. It is also a risk of recurrence and metastasis after surgery, so people should be careful.

The side effects of cancer treatment vary from person to person. The treatment of gallbladder cancer usually weakens the immune system as well. Immunity works to kill or neutralize pathogens against infection or cancer. People should increase people's immune system through people's usual lifestyle and food control, as people may be worried about the virus' health [9],[17]. We need to find ways to boost our immune system. To that end, we are looking for a strategy to improve our immune system through the application of the information system. In the preceding study, there is a study of gallbladder cancer. However, research on immunity is insufficient [10],[11],[16].

Therefore, this study analyzes the strategic effectiveness of the information system to enhance the immune of gallbladder cancer patients. Through the application of this information system, we aim to improve the efficiency and quality of life of the system to enhance patient satisfaction.

2. Materials and Methods

2.1 Design of Information System for Strengthening　　Immunity

Figure 1 shows the strategic design of the information system for enhancing immunity of gallbladder cancer patients. The steps for building a new information system are as follows : Reliability, efficiency, connection, automation, cost, convenience and speed**.**

2.2 Materials and Methods

The subjects of the study were 146 people who visited internal medicine clinics located in Chungcheong Province from March 11 to May 13, 2019. The group of people who mediated the information system was classified as 53 people and those who did not mediated the information system were classified as 53 people. Basic information was performed in chi-square test. The data were surveyed and interviewed. The change in patient condition was analyzed as t-test following the application of the information system. The application of the body's immune system to the information system was measured at 4, 8, 12, 16, 20 and 24 weeks.
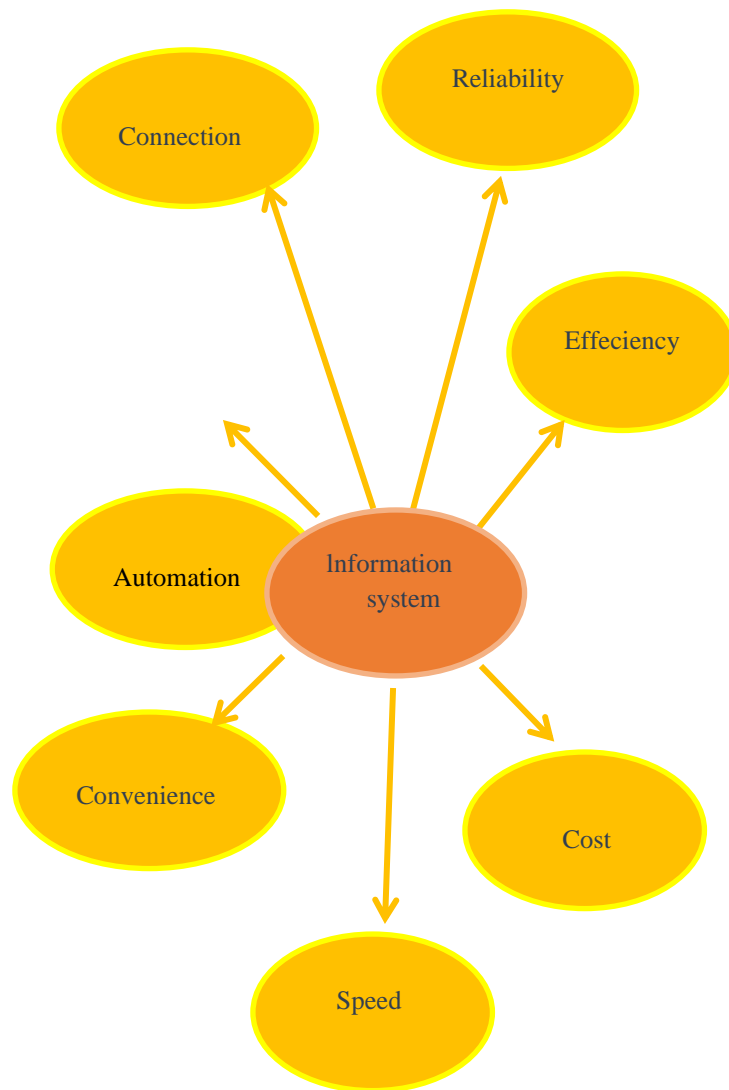
Fig. 1 Strengthening Immunity in Patients with Gallbladder Cancer

3.
4.   Result

3.1 Basic lnformation of Respondents

   Table 1 shows the basic information of the respondents. 39.6% of experimental group eat meat more frequently than 26.4% of the control group. Regular exercise showed that 37.7% of the control group were significantly higher than 22.6% of the experimental group(X^2=1.69, p<.05).

Table 1. Basic lnformation of Respondents

Variables	Experimental group.. N(%)	Control group N(%)	X^2
Carnivorous intake			
Frequently	21(39.6)	14(26,4)	4.85
Sometimes	32(60.4)	39(73.6)	
Regular exercise			
Yes	12(22.6)	20(37.7)	1.69*
No	41(77.4)	33(62.3)	
Age/years			

<49	7(13.2)	14(19.7)	10.72
50-59	11(20.8)	12(16.9)	
60-69	19(35.8)	20(28.2)	
≥70	16(30.2)	25(35.2)	
Alcohol drinking			
Frequently	23(43.4)	20(28.2)	3.15*
Non-drinking	30(56.6)	51(71.8)	
Marriage status			
Single	23(32.4)	16(30.2)	1.38
Married	48(67.6)	37(69.8)	
BMI (kg/m²)			
<18.5	15(28.3)	19(35.8)	7.24
18.5-24.9	11(20.8)	9(17.0)	
≥25	27(50.9)	25(47.2)	
Total	53(100.0)	53(100.0)	

*P<.05

3.2 Comparison of Patient Conditions After lnformation System Application

Table 2 compares the patient's condition before and after the information system intervention. LDL, a bad cholesterol, decreased significantly after the information system was applied(t=3.72, p<.05). Fat intake was significantly reduced after application than by the information system(t=4.93, p<.05).

Table 2 Comparison of Patient Conditions After lnformation System Application

Variables	Before Mean±S.D	After Mean±S.D	t
LDL cholesterol	51.18±3.26	39.62±3.64	3.72*
Hypertension	47.92±0.85	41.57±0.31	6.18
BMl	43.84±1.63	39.62±1.59	1.54
Fat intake	46.16±3.48	35.19±2.82	4.93*
Sugar intake	44.27±0.29	38.47±0.65	1.61
Abdominal pain	35.12±4.58	23.65±3.41	5.37
Nausea	27.54±0.36	19.47±0.53	2.86
Dizziness	31.07±1.47	25.41±3.74	-7.15
Diarrhea	23.11±3.52	18.26±1.59	5.38
Cancer reccurence	15.78±0.37	12.51±4.27	2.94
Immunity	23.31±2.94	35.47±3.63	1.72

* p<.05

3.3 Before and after the application of the information system of the body's immune system

Figure 2 shows a comparison of before and after the application of the information system of the body's immune system. The physical immunity continued to increase after the application of the information system. However, the body's immunity has tended to decline since the 16th.
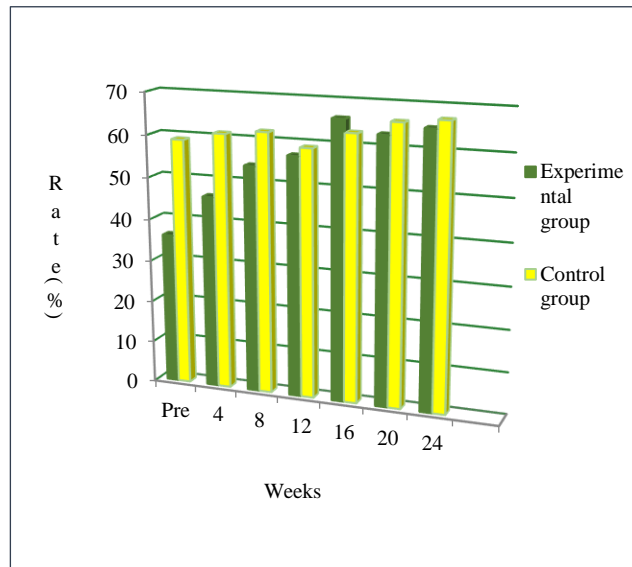

Fig. 2 Application of the Information System of the Body's Immune System

5. Discussion

This study aims to measure the effectiveness of information systems to strengthen immunity in patients with gallbladder cancer. As a result of this study, cholesterol has been significantly reduced since the application of the information system. This is consistent with bile duct cancer studied in previous studies [12],[13]. Bile is made up of three components: cholesterol, fatty acid, and bile salt. After gallbladder resection due to gallbladder cancer, each tissue and organ of the body plays its own role, so life is maintained.

Gallbladder is especially necessary to manage properly because the cause of LDL cholesterol is high. lf people have cholelithiasis, they have a much higher incidence of gallbladder cancer. It's better to prevent gallbladder cancer through regular checkups [14],[15]. To prevent the recurrence of gallbladder cancer, diet management such as greasy and meat diet is required.

The limitation of this study was for patients who visited the internal medicine department of a general hospital. Therefore, there is a limit to the generalization of the results. However, these results confirm that the application of the information system is effective in reducing gallbladder cancer incidence

6. Conclusion

This study analyzes the strategic effectiveness of the information system to enhance the immune of gallbladder cancer patients. The results of this study are as follows.. First, LDL, a bad cholesterol decreased significantly after the information system was applied(t=3.72, p<.05). Second, the physical immunity continued to increase after the application of the information system. However, the body's immunity has tended to decline since the 16th. Therefore, **t**o prevent the incidence of gallbladder cancer, diet management such as greasy and meat diet is required.

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