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Research Article

Optimal Experimental Effect of Clinical Information Management on the Prevention of Complications After Hip Joint Surgery

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Abstract: The hip fracture feels pain next to the femur and pelvis and has difficulty walking. After hip fracture, side effects can occur throughout the whole body including ulcer, pneumonia, and hematocardial thrombosis. Therefore, this study is the optimal experimental effect of clinical information management to prevent complications in patients with hip joint surgery. Experimental group of 83 patients which was assigned as group with intervention, while the control group of 83 patients was assigned as group without intervention. The comparison of dietary behavior and physical condition after the application of clinical information management was analyzed as t-test. The results of this study are as follows. Firstly, muscle strength after hip joint surgery has been strengthened after management than before health management ($t=-4.15$, $p<.01$). Secondly, after hip joint surgery, complications decreased significantly to 30-40% after training compared to pre-health management($t=-8.13$, $p<.01$). Therefore, clinical information management has proven effective in reducing complications after hip joint surgery.

Keywords : Clinical information management, Complications, Hip joint surgery, Muscle strength

1.lntroduction

A hip joint is a joint that connects the pelvis to the femur. The main cause of hip joint surgery is acute trauma, resulting in hip injury **(Wyller, T. B. Watne, L. O. Torbergsen, A. Engedal, K. Frihagen, F. Juliebø, V. Ingvild, S.Skovlund, E. Ræder, J., & Conroy, S. 2012)**. The hip joint is the part that connects the pelvis to the femur. If a hip fracture occurs, surgery should be performed. A hip fracture is a serious injury that can result in poor prognosis even if surgery has been (**Van Munster, B. C. Barbara, C. Ohanna, C., & Korevaar, H. 2008),** Hip joint surgery continues to increase due to fall accidents in winter. The case of an old man, osteoporosis causes bone weakness, resulting in loss of muscle strength and nervousness. It lacks the sense of balance of the body and easily causes fractures **(Marcantonio, E. R. Marcantonio, M., & Jonathan, R. 2003).** Hip joint surgery often has poor prognosis. If a hip bone is broken, walking becomes difficult without surgery. As a result, long-term bed life causes problems such as cardiovascular, blood pressure, and digestion (**Scott, W. C. Keelan, R. Enseki, M. J., & Kolber, J. 2015),**

The number of hip fracture patients with femoral fractures around hip joints has doubled in the last 10 years. For those aged 65 or older, the risk of dying within a year is about 15 percent if a hip fracture occurs **(Michelle, J. Lespasio, N, Sodhi M. A., & Mont. 2019).** ln particular people with type 2 diabetes have a greater risk of hip fractures than normal people, according to a study. For women, the incidence of hip fractures was 32.3 per 10,000 diabetics, twice as high as that of non-diabetes. Men also suffered hip fractures in 14 out of 10,000 diabetics. In non-diabetes, 7.8 people occurred, nearly doubling the gap. The cause of death of hip fractures is fatal complications caused by fractures rather than problems with the fractures themselves. In order to prevent complications, daily activities such as walking, muscle strengthening exercise and stretching must be carried out as soon as possible after surgery **(Frank, B. Annette, E. Matthias, C. Klotz, Nicholas, A. Beckmann, S. Wolf, l., & Thomas, D. 2014).** Lying in bed for a long time reduces metabolic function and increases the risk of internal complications **(Marc, R., & Safran, M. R., 2019)**. After hip fracture, side effects can occur throughout the whole body including pressure ulcer, pneumonia, and hematocardial thrombosis. Thus, it needs to take a preventive view of fractures. Hip joint surgery is important to prevent post-operative complications, such as pneumonia, embolism or sleep disorder that can occur after hip surgery, and a deterioration in the function of the heart (**Weber, M. Egermann, H. Thierjung., & Kloth, J, 2015).**

So patients after surgery are required to manage after hip joint surgery. Therefore, this study is to measure the novel effect of clinical information management to prevent complications after hip joint surgery. Adequate practice behavior after hip joint surgery will improve their health status in accordance with proper system. The system will contribute to the establishment of a systematic database through clinical trials and useful methods.

2. Material and Methods

2.1.Systematic Approach to Prevention of Complications After Hip Joint Surgery

Figure 1 shows a systematic approach to preventing complications after hip joint surgery. Optimum system or hip joint treatment is as follows. 1) Efficiency : evaluating the quality of health management system 2) Change **:** eliciting the effects of the health care system contents 3) Reliability : deriving reliability of clinical information management 4) Feasibility : strengthening physical immunity after hip joint surgery: 5) Connection : connectivity to other medical institutions 6) Speed : system speed used for patient application 7) Convenience : convenience of applying the clinical information management to patients.

2.2. Materials and Ethical Considerations

The subjects of this study were surveyed and interviewed from August 17 to October 23, 2019. We examined experimental group of 83 patients who mediated the application of the clinical information management and the control group of 83 patients who did not mediated. The study was conducted on a total of 166 people The effects of the system before and after application of health management on physical symptoms and health practice were measured for 8, 16, 24 and 32 days. This research was conducted after obtaining research approval from the research ethics-related cooperation group. The purpose and procedure of this study were explained. This study informed the subjects before data collection that they should ensure confidentiality of the data they have subscribed to. This study also indicated that it would not be used for any purpose other research or exposed to others. The study subjects voluntarily included those who agreed in writing.

2.3 Research Tools

This study is a tool used to prevent complications after hip joint surgery. We used a five-point scale of the Likert. The higher the score, the better the patient's condition. In previous studies **(Enseki, K. R. Martin, R. L. Draovitch, P. Bryan, T. Kelly, B. T. Philippon, M. J., & Schenker, M. L. 2006 : Frank, B. Annette, E. Matthias, C. Klotz, Nicholas, A. Beckmann, S. Wolf, l., & Thomas, D. 2014),** the Cronbach's α was .927, On the other hand, in this study, the Cronbach's α was .861.

2.4. Methods

The basic information of the participants was analyzed by Chi-square test. Health practice for preventing complications after hip joint surgery was measured by t-test before and after clinical information management was applied. The comparison of dietary behavior and physical condition after the application of clinical information management was analyzed as t-test. With the application of the system, the strategy for preventing complications after hip joint surgery was carried out by t-test.

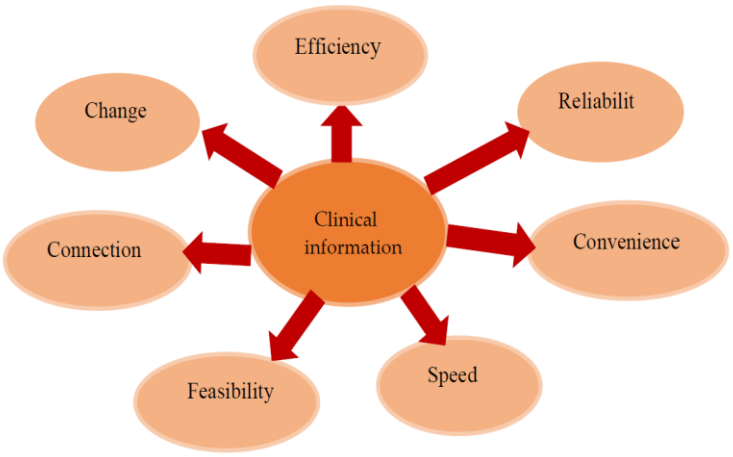

Figure 1. Systematic approach to clinical information management

3. Results

3.1.Basic information of participants in the study

Table 1 shows basic information about participants in the study. 34.9**%** of experimental groups who exercise regularly was significantly lower than 51.8% of control groups who exercise regulary(X^2=3.69, p<.05). 67.5% of the alcohol-drinking experimental group was significantly higher than 42.2% of the control group(X^2=3.42, p<.01). Adequate sleep conditions were significantly lower than 62.7% of control groups for 45.8% of experimental groups(X^2=5.81, p<.05).

Table 1. Basic information of participants in the study

Variables	Experi group N(%)	Cont group N(%)	X^2
Age			
≤59	18(21.7)	27(32.5)	6.42*
60-69	34(41.0)	41(49.4)	
≥70	31(37.3)	15(18.1)	
Gender			
Male	45(54.2)	40(48.2)	1.85
Female	38(45.8)	43(51.8)	
Exercise			
Regular exercise	29(34.9)	43(51.8)	3.69*
Non-exercise	54(65.1)	40(48.2)	
Other chronic Diseases			
Yes	57(68.7)	45(54.2)	1.94*
No	26(31.3)	38(45.8)	
Educational level			
Under middle school	38(45.8)	27(32.5)	9.38
High school	24(28.9)	32(38.6)	
Over college	21(25.3)	24(28.9)	
Married state			
Married	69(83.1)	66(79.5)	4.61
Single	14(16.9)	17(20.5)	
Smoking status			
Smoking	45(54.2)	36(43.4)	1.75*
Non-smoking	38(45.8)	47(56.6)	
Drinking status			
Drinking alcohol	56(67.5)	35(42.2)	3.42**
Non-drinking	27(32.5)	48(57.8)	
Sleep conditions			
Appropriate	38(45.8)	52(62.7)	5.81*
Inappropriate	45(54.2)	31(37.3)	

Total	83(100.0)	83(100.0)	

* p<.05 **p<..01

3.2 Changes in dietary habits and physical status after system application

Table 2 shows the comparison of dietary behavior and physical condition after the application of the clinical information management. ln terms of onion intake, the mean of the experimental group(43.96±3.82) was significantly lower than the mean of the control group(25.61±3.75) of control group(t=5.73, p=.000). Clinical training to strengthen immunity showed that 41.62% of the experimental group had a significantly higher rate than 25.86% of the control group(t=6.28, p=.000).

Table 2. Changes in dietary habits and physical condition after system application

Items	Experimental group	Control group	t	p
	Mean±S.D	Mean±S.D		
Onion intake	43.96±3.82	25.61±3.75	5.73	.000
Garlic intake	41.63±1.47	29.52±1.63	0.78	.000
Well-balanced diet	39.51±3.52	27.15±3.48	1.92	.267
Muscle strength	28.94±3.58	32.17±3.45	-3.95	.846
Hypertension	39.28±0.63	31.59±1.97	1.56	.061
Cholesterol	35.41±3.27	33.05±2.44	4.13*	.069
Constipation	38.67±0.46	34.16±1.72	2.59	.735
Stress	40.15±1.82	37.84±1.57	5.41	.659
Diabetes mellius	34.15±3.47	32,62±3.14	1.83	812
Clinical training of immunity	41.62±0.53	25.86±0.96	6.28	.000

3.3. Physical symptoms and health practice

Figure 2 shows the physical symptoms and health practice before and after application of the clinical information management over time. The symptom of complication has been on the decline since 8 days compared to before the system was applied. However, it has increased since 40 days after the system was applied. Figure 3 shows health practice through the application of clinical information management to prevent complications after hip joint surgery. Muscle strength has improved continuously since the system was applied. However, muscle strength showed a tendency to decrease slightly from the 32nd after the system was applied compared to before the system.

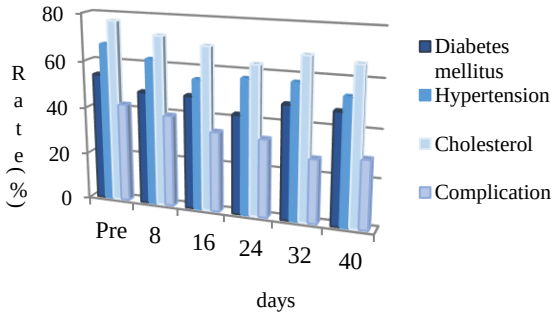

Figure 2. Physical symptoms

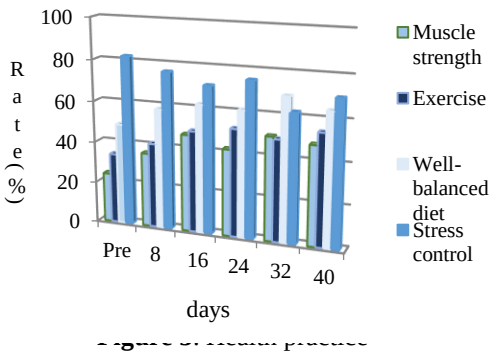

Figure 3. Health practice

3.4 Evaluation of the function of the clinical information management

Figure 4 shows an assessment of the function of the clinical information management. Research participants were mostly satisfied with the function of the clinical information management. The convenience of the clinical information management was highly rated at 96% or more.

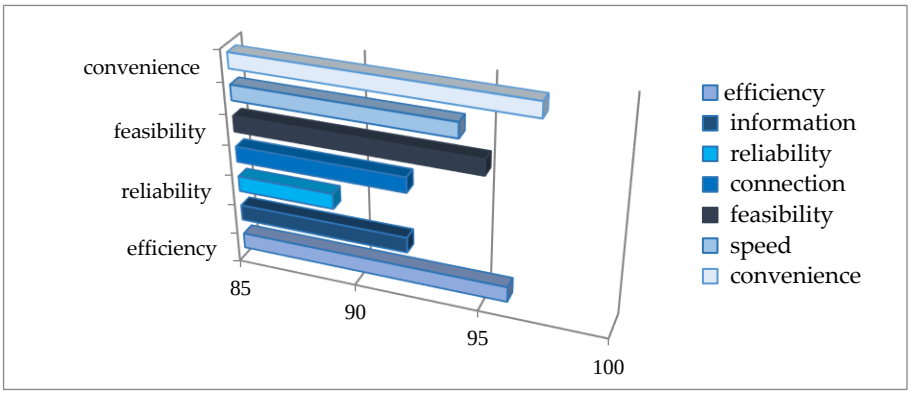

Figure 4. Evaluation of the function of clinical information management

4. Discussion

This study is to apply a new strategy to prevent complications in patients with hip joint surgery. This study had a positive effect on preventing hip complications. As a result, the experimental groups who have been eating onion showed a statistically significantly increase of muscle strength. This showed similar results to other studies on arthritis **(Chen, M., & Shang, X. F. 2015 : Kumar, P. Hoydonckx Y., & Bhatia, A 2019).** This study was derived that participants with hip joint surgery should focus on muscle strength and dietary habits to enhance immunity function and prevent complication. From the result, it will help that the research may be used as statistical data for improving physical status for hip joint patients.

This study using the health care system showed less complications after application than before the system was applied. This showed a study similar to the operations on the knee joints **(Enseki, K. R. Martin, R. L. Draovitch, P. Bryan, T. Kelly, B. T. Philippon, M. J., & Schenker, M. L. 2006 : LeBlanc, K. E. Muncie, H. L., & LeBlanc, L. L. 2014).** Therefore, it needs to maintain daily management. The data was verified throughout the statistical analysis how effective application contributes to enhance physical function for the prevention of complication after hip joint surgery. The future study should focus on the study the application effect as enhancement of physical function after hip joint surgery throughout more research based on data mining.

Thus, this paper was verified that the implemented mediation was derived significant positive effects on the symptoms of participants and diet habits. Current practice of exercise in hip joint patients was obtained through application of the clinical information management. Therefore, adequate practice behavior after hip joint surgery will improve their health status in accordance with proper system. The system can contribute to preventing complications and improving immunity function in patients with hip joint surgery. Prevention of complications after hip joint surgery should extend the effectiveness of the clinical information management to more joint surgery patients. Based on the results of empirical analysis, this study presents academic and practical implications for the prevention of postoperative complications. adequate practice behavior after hip joint surgery will improve their health status in accordance with proper system.

5. Conclusion

This study is to measure the novel effect of the clinical information management to prevent complications after hip joint surgery. The results of this study are as follows. Firstly, the experimental group showed a significantly higher rate in onion intake than control group($t=-5.73$, $p<.01$). Secondly, after clinical training on physical immunity, the experimental group has improved more significantly than the control group($t=-6.28$, $p<.01$). Thirdly, muscle strength after hip joint surgery has been strengthened after management than before health management($t=-$

4.15, p<.01). Fourthly, after hip surgery, complications decreased significantly to 30-40% after training compared to pre-health management(t=-8.13, p<.01). Thereforethe clinical information management has proven effective in reducing complications after hip joint surgery.The system will contribute to the establishment of a systematic database through clinical trials and useful methods.

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