

Cost-Effectiveness Of The Injury Treatment On Diabetes Based On The Leg Between Modern Treatment Method With Conventional Treatment Method Of Bone

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Abstract: The aim of the research was to analyze cost effectiveness of the injury on diabetic leg based on the difference between modern treatment method and conventional method. The research was a quasi experimental study conducted in nurse independent practice and Tenriawaru hospital of bone. The sample was determined using purposive sampling method based on inclusive criteria. The data were obtained using instrument on the study of Bates-Jensen and record sheets of material cost of injury treatment. The difference of cost effectiveness between modern method and conventional method was examined using independent t-test with a confident level of 95%. The results of independent t-test indicate that there is a difference of cost effectiveness between modern treatment method and conventional method with a value of $p = 0,001$. Therefore, health service institution need to develop treatment method of injury on diabetic leg using modern treatment method.

Keywords: modern and conventional treatment method, cost-effectiveness

1. INTRODUCTION

Diabetes mellitus is a heterogeneous group of disorders characterized by an increase in blood glucose levels, or hyperglycemia. The impact is very large which will affect the quality of life of patients, especially in patients with diabetic foot wound complications (Smlezter and Bare, 2002). World Health Organization (World Health Organization) estimates that the number of diabetics mellitus in Indonesia will increase by two to three-fold by 2030 from 8.4 million reached 21.3 million people (Society of Endocrinology Indonesia, 2011). According to Hess (2004) in the United States about 2.5% of patients developing diabetes mellitus onset of diabetic foot wounds per year and 15% of patients with diabetic foot wounds which eventually undergo amputation. Diabetic foot wound care requires a multi-disciplinary treatment that involves the physician to control blood sugar levels, a nutritionist in managing diet and nurses who perform maintenance. Techniques currently experiencing rapid growth, which has been using modern wound care dressings such as alginate, foam, hydrocolloid, hydrogel, while still using conventional treatments betadine and gauze. Principles of modern wound care products is to keep moisture around the wound environment (moist) to improve wound healing and maintain a fluid loss of tissue and cell death, (Widasari 2008). The logical consequence of the treatment of diabetic foot wounds is the burden of the cost to be borne by the patient. Currently the measurement of the burden of financing wound care becomes very important in helping ease the burden to be borne by the patient.

Financing effectively become part of the health service, so that the care product should be taken into consideration in the management of patients (Frank, 2006). Research results Ohura et al., 2004, in Japan about cost-effective treatment of decubitus ulcers showed that the bandage modern more effective and efficient than the process of healing and reduction in maintenance costs compared to bandage conventional, the study said several financing individuals may differ in other countries with conditions the same on the client. Variations in the type of treatment method will lead to differences in the costs and results of treatment, so that the necessary analysis to determine the cost-effectiveness of care using treatment methods are most cost-effective (Widasari, 2008) Based on the above, the researchers tried to do research with the title of "cost-effectiveness analysis, treatment of diabetic foot wounds among modern treatment methods with conventional treatments in independent practice nurses and hospital BLUD Tenriawaru in Bone regency.

2. MATERIALS AND METHODS

Location and Design Research

This research was conducted BLUD Hospital Tenriawaru to conventional treatments and intervention methods Independent Practice Nurse for the intervention of modern treatment methods in Bone regency. This study uses a quasi experimental, testing is done is to test the homogeneity and normality of the data, then performed the independent t test at the significance level of 0.05 and CI 95% to see the difference in average scores developmental injuries and the average cost-effectiveness of wound care diabetic foot with using modern and conventional wound care.

Population and Sample

Population is conventional for the entire group of patients diabetic foot wounds treated Tenriawaru BLUD Hospital, and the entire group of patients treated modern independent practice nurse with diabetic foot wounds Bone

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district. Samples of 20 each - each 10 conventional and modern group selected by purposive sampling and have met the inclusion criteria, namely patients while hospitalized Tenriawaru and independent practice nurses for 15 days.

Method Of Collecting Data

Data collection was done by researchers using an instrument assessment scores range wound status of Bates-Jensen to know the progress of the wound, reliability instrument has been tested in adult patients in the hospital room acute care by nurses enterostomal coefficient reliability is 0.975 (Bates-Jansen & Sussman, 1998). As for the financing component for the treatment of diabetic foot wounds with a bandage two different materials using the instrument recording sheet wound treatment material costs.

Data analysis

Data were analyzed based on the scale measurement and research purposes by using a software program computerization, univariate analysis was done to see the

proportion of the respondent's age, grade wounds, old injuries and blood sugar level frequency distribution balanced development of the wound and the total cost of materials used in wound care, For bivariate analysis used independent t-test notice the difference in average scores injured development, the difference in average effectiveness of diabetic foot wound care financing by using modern and conventional bandage. This study used a significance level of $p > 0.05$ and 95% confidence intervals.

3. RESULTS

Characteristics Of Respondents

Characteristics of research subjects include; age, grade cuts, long experienced Luka, the value of the GDS and scores injured in the early development of diabetes foot wounds. Characteristics of study subjects is seen in Table 1.

Table 1: Characteristics of Research Subjects
(N20: Modern 10 Conventional 10)

Characteristics	Conventional Treatment Methods				Modern treatment methods				p value
	mean	SD	Min-Max	95 % CI	mean	SD	Min-Max	95 % CI	
Age	63,9	5,607	55-71	61,00-67,44	64,8	4,872	57-70	62,50-67,20	0,409
Grade cuts	3,5	0,527	3,0 - 4,0	3,33-3,75	3,6	0,516	3,0 - 4,0	3,27-3,89	0,548
Old wound	3,5	0,527	3,0 - 4,0	3,20-3,80	3,7	0,483	3,0 - 4,0	3,40-4,00	0,207
The value of GDS	297,6	58,27	220-381	265,00-328,23	274,2	62,1	200-381	233,75-315,43	0,833
Scores Early development of wound	44,4	7,88	35-59	40,00-48,80	43,9	7,13	35-55	38,91-49,19	0,854

Source: Primary Data

In Table 1 is described that the statistical test of homogeneity of variance modern treatment group and conventional treatment group $p \text{ value} > 0.005$, means that respondents homogeneous so that did not affect the results.

The Average Difference Scores Development Of Diabetic Foot Wound Care Using Modern Methods Compared Conventional Treatment Methods

Table 2. Differences Mean Luka The Development Effectiveness Score Treated Using Modern Treatment Compared to Conventional Treatment

Method	Mean	SD	SE	p value
Modern treatment	35,37	6,046	2,137	0,015
Conventional treatment	42,22	1,792	0,633	

Source: Primary Data

Table 2 illustrates that the statistical test result was obtained $p = 0.015$ at $\alpha 5\%$ means that there are significant differences in the average scores on the development of wound care Diabetic Foot Wound using modern treatment methods compared to conventional treatment methods. This can be seen in the graph balanced development of lesions (Figure 1) and the effectiveness of wound development from beginning to end treatment for 15 days (Figure 2) as follows:

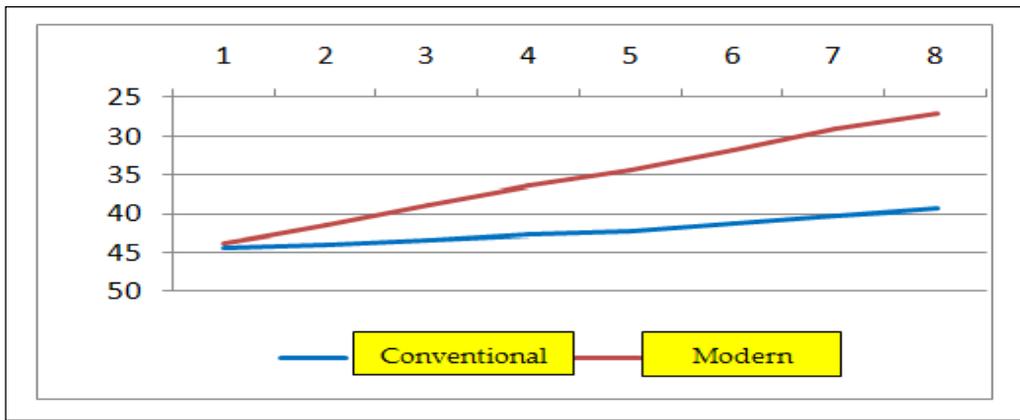


Figure 1. Development of Wound Scores between Modern and Conventional Treatment Methods In Diabetic Foot Wounds Clients

Figure 1 shows after an assessment using a range of instruments assessment of Bate-Jensen 8 times during the 15-day assessment (interval 1 day) found that injuries to the development of modern treatment methods faster than conventional

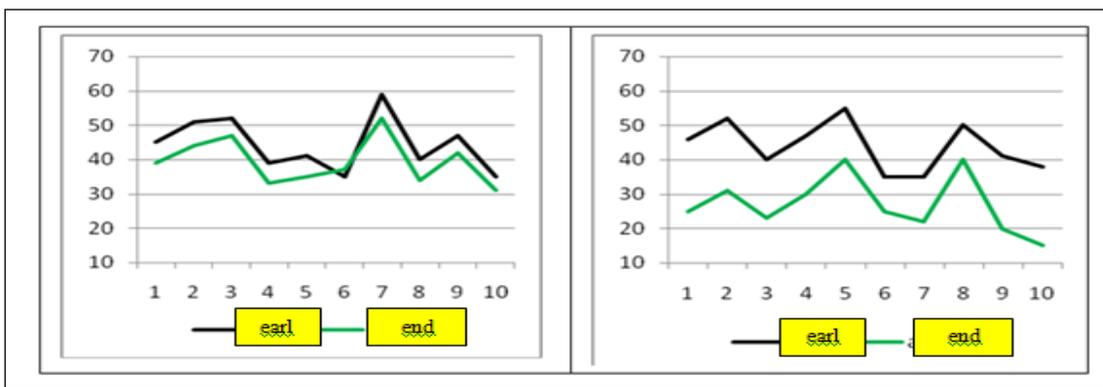


Figure 2. The effectiveness of development from start to finish wound care between Modern And Conventional treatment methods

Figure 2 shows after an assessment using a range of instruments assessment of Bate-Jensen 8 times for 15 to 10 conventional and modern respondents found that the more 'effective modern treatment method than conventional.

Cost-Effectiveness The mean difference Wound Care Diabetic Foot Care Between Modern And Conventional

Table 3. Differences Average Cost-Effectiveness every Wound Care Using Modern Treatment Compared to Conventional Treatment

method	Mean	SD	SE	p value
Modern treatment	3.183,02	418,176	130,265	0,001
Conventional treatment	2.327,98	368,447	148,847	

Source: Primary Data

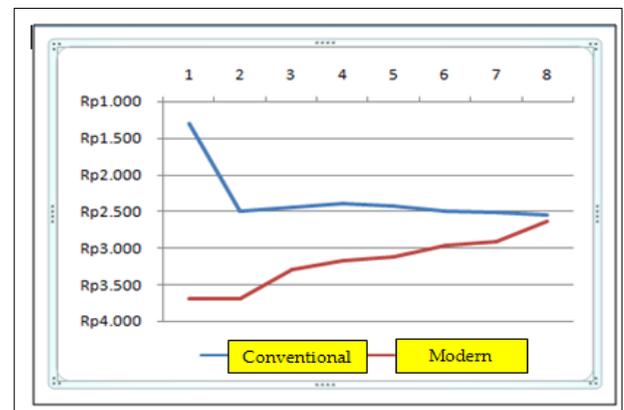


Figure 3 The difference in average effectiveness - average Financing Each Care

Table 3 explains that the statistical t-test result independent obtained $p = 0.001$ at $\alpha 5\%$ means that there are significant differences in the average cost-effectiveness in the treatment of Diabetic Foot Wounds using modern treatment methods compared to conventional treatment methods. Graph effectiveness every Wound Care Financing (8 times assessment) as follows:

Figure 3 shows the effectiveness of the average - average financing obtained that modern treatment methods are more effective than conventional, can be seen in the graph, the better the lower the injured development costs.

DISCUSSION

In wound care management results that can be used to evaluate the effectiveness of an action are: 1) change in wound area, 2) improvement of the severity of the wound, 3) improvement subjectively on the wound, 4) wound healing time, 5) wound healing in total. This study shows that there are differences in the average - average score of development of diabetic foot wounds among modern methods of treatment than conventional treatment methods with the statistical test p value = 0.015. This is supported by research results Hess (2004), that the treatment of patients with diabetic foot wounds using modern bandage will show an area closure at week 4 and recovered a total of 12 weeks. Ohura et al., (2004), also reported his research in Japan on cost-effective treatment of decubitus ulcers that modern dressings are more effective and efficient than the healing process. Wound care given to the patient must be able to provide warmth and moist environment (moist) on the wound. Moist conditions on the surface of the wound can enhance the development process of the wound, prevent tissue dehydration and cell death of these conditions can also increase the interaction between cells and growth factors. The principle of treatment methods of modern and conventional alike that keep moisture, warmth, and prevent it from trauma but the bandage modern more can provide the environment moist than a bandage gauze which tend to quickly dry (Widasari, 2008), The method of modern treatments are a good option to improve effectiveness development wounds. According to Gould, et al (1996), cost-effectiveness analysis is a method used to evaluate the results and expenses incurred in an intervention designed to improve health status. so how to estimate the cost-effectiveness analysis, ie by comparing the costs as the numerator by the denominator changes in health status. In this study, indicating a significant difference in the average cost-effectiveness in the treatment of diabetic wounds between the use of modern methods of treatment than conventional treatment methods with a significance level of $P = 0.001$. Furthermore, Frank (2006), states that the effective financing measure in the treatment of wounds is influenced by (1) the material used, (2) care services, (3) standard set fee. This is supported Ohura et al., (2004), the work was also expressed about the effective financing ulcer treatment shows that modern dressings are more effective and efficient than a decrease in maintenance costs compared to conventional bandages. The time limits are determined by the type of wound healing wounds and environment extrinsic and intrinsic. According to Hess (2004), explains that the intrinsic factors that affect wound healing are age, obesity, nutrition, circulation and oxygenation, vesikuler insufficiency, drugs, immunosuppression and radiation therapy, chronic disease (hyperglycemia), old injuries. Local factors are infections, stress, environment and negrotik. But in this study were included as an intrinsic factor confounding factors only age, the value of GDS, old injuries. While grade wound inclusion criteria included as a sample according to Wegner and score early development assessment wound was determined using a range of values of the Bates-Jensen. Statistical analysis showed that all of the characteristics of the respondents have a value of $p > 0.005$, it illustrates that the homogeneous for age, old injuries, grade cuts, the value of GDS, scores the early development of the wound, so that the characteristics of the respondents did not affect the result of the development of the wound and the cost-effectiveness of

wound care.

CONCLUSION AND SUGGESTION

Conclusion

1. Care and financing of diabetic foot wounds more effectively with modern method compared with conventional treatment methods.

Suggestion

1. The hospital management should give particular attention related to the application of modern wound care methods.
2. Patients with diabetic wounds suggested using health facilities applying modern wound care methods so as to determine its effectiveness in terms of cost, time change of a bandage, the duration of treatment, the acceleration of the growth of scar tissue and comfort during the turn of the bandage.

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