

THE DIFFERENCE OF STROKE NON HEMORRHAGIC PATIENTS ON LENGTH OF STAY AND COST OF TREATMENT BEFORE AND AFTER CLINICAL PATHWAY IMPLEMENTATION AT PANTI RAPIH HOSPITAL

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Abstract

Indonesia global health insurance system was established since January, 1st 2014. This is an effort to all Indonesian for increasing highest degree of their health statue. One indicator of the effectiveness and efficiency of health services is to minimize length of stay. This is encourage multidisciplinary to implementing clinical pathway for some diagnose as quality control and cost control.

This study conducted by analytical survey with a retrospective design on SNH patients hospitalized at Panti Rapih Hospital from July to December 2014 that were used medical record of patients during care, data collecting techniques were used study documentation and interview. Total subjects were 68, consisted 34 before clinical pathway group and 34 after clinical pathway group.

The averages of SNH patients on LOS both without other variable correlation and complication disease correlation before and after clinical pathway implementation were ($P < 0,05$) meanwhile average stroke non hemorrhagic patients on cost of treatment both group without other variable correlation and complication disease correlation before and after clinical pathway implementation were ($P > 0,05$).

There were any difference about LOS and cost of treatment because of clinical pathway on SNH patients with complication, however clinical pathway couldn't changed SNH patients without complication.

Keyword : Clinical Pathway, Length of Stay, Cost of Treatment

A. Introduction

Integrated care pathways are structured multidisciplinary care plans which detail essential steps in cares of patients with a specific clinical problem. They have been proposed as a way of encouraging the translation of national guidelines into local protocols and their subsequent application to clinical practice. They are also a mean of improving systematic collection and abstraction of clinical data for audit and promoting change in practice¹.

Ischemic stroke results in bland (non hemorrhagic) ischemia and infarction in a typically vascular distribution. The vascular distribution is often very helpful in differentiating stroke from tumor or demyelin².

Highly number of stroke non hemorrhagic patients at Panti Rapih Hospital approximately 60 – 70 patients with their highly cost of treatment encouraging medical committee to implementing clinical pathway for stroke non hemorrhagic disease.

Based on previous study in medical record instalation at Panti Rapih Hospital taken by January 12th – 15th, 2015. Clinical pathway were evaluated by CP's team that has been implemented for some diagnose. There were Partus Spontan, Pre Eclampsia, Dengue Fever of Children, Non STEMI, STEMI, Stroke Non Hemorrhagic, BPH, and Fracture Femur. These diagnose have chosen because of highly increased of these disease sufferer and these cost of treatment. From sample that were taken on

earlier study, there were 40 medical records of stroke non hemorrhagic patients divided into 20 medical records were before clinical pathway and 20 medical records were after clinical pathway. Stroke non hemorrhagic has chosen because it had the highest number of patients that hospitalized than others.

B. Method

The study was conducted by analytical survey with retrospective design on stroke non hemorrhagic patients hospitalized at Panti Rapih Hospital from July to December 2014 that were used medical records of patients during care, data collecting techniques used study documentation and interview. Total number of subjects were 68, consisted of 34 patients before clinical pathway and 34 patients after clinical pathway. Data were analyzed with statistic to evaluate the average of Length Of Stay (LOS) and Cost Of Treatment with early examination data distribution. Because of both these variable hadn't normally distributed so data were analyzed by Mann Whitney U Test. It is used because data was statistic non parametric, each variable hadn't correlation to another. The conclusion can be take by the results of Mann Whitney U test with the results of (sig) or p value. If p value < 0,05 means that there are

significant difference and p value > 0,05 that means no significant difference.

C. Result and discussion

Based on study documentation result, all medical records patient hospitalized during 2014 period at Panti Rapih there were consisted of stroke, stroke ischemic, and stroke hemorrhagic with its code I64, I63., and I61.9 were 672. Afterwards, population of stroke non hemorrhagic only was chosen in July to December period. July to September without clinical pathway and October to December with clinical pathway.

1. Data distribution of age

The average of stroke non hemorrhagic patients before clinical pathway were 63,97 ± 8,744 with range of age 50 – 83 while after clinical pathway were 63,03 ± 11,642 with range of age 38 – 87. The result of Mann Whitney U test explained that p value > 0,05 it was concluded that there was no significant difference about both of group. The same result was showed before, with data distribution about ages of stroke non hemorrhagic patients, their range were 56-70 (52,5 %) and 30 – 55 (47,5%). This is because one of stroke non hemorrhagic factor that can't be control is age. It is about

Tabel 1. Characteristics of stroke non hemorrhagic patients before and after implementation of clinical pathway

Characteristics	Before clinical pathway	After clinical pathway	P value
	n (34)	n (34)	
Ages	63,97 ± 8,744 50 – 83	63,03 ± 11,642 38 – 87	P= 0,672*
Gender :			
a. Male	22 (65 %)	22 (68 %)	P= 0,881**
b. Female	12 (35 %)	11 (32 %)	P= 0,835**
Complication of disease :			
a. Yes	17 (50 %)	27 (79 %)	P= 0,423**
b. No	17 (50 %)	7 (21 %)	P= 0,353**

* : Mann Whitney U Test

** : Chi Square Test

degeneration process attack old. The vein will lose flexibility because of atherosclerosis.³

Adults (> 55) have twice possibility from suffering of stroke non hemorrhagic.⁴

2. Data distribution of gender

The results showed that 65 % from 34 patients before clinical pathway and 68 % from 34 patients after clinical pathway were male. The result of Chi Square Test explained that p value > 0,05 it concluded that there were no significant difference about gender before and after clinical pathway. 64 % stroke non hemorrhagic patients were male. It is because males were more often smoking than female.⁵

3. Data distribution of Complication of disease

The results showed that 50 % or 17 patients had complication disease during care before clinical pathway and 21 % or 7 patients had complication disease during care after clinical pathway. The most complication disease of stroke non hemorrhagic that written on medical record patients was Urinary Tract Infection. The results of Chi Square Test showed that p

value > 0,05 it concluded that there were no significant difference about both of groups. The same result was showed that about 9 % patients with complication disease before clinical pathway and 5,92 % patients with complication disease after clinical pathway. Statistics result showed that p value were 0,480 > 0,05 it concluded that there were no significant difference about both of groups.⁶

Based on statistic test, both of groups showed that data distribution weren't normal. So statistic test used Mann Whitney U test. The average of stroke non hemorrhagic patients on Length Of Stay (LOS) before clinical pathway were $7,32 \pm 4,297$ day and after clinical pathway were $5,32 \pm 1,512$ day. The result of Mann Whitney U Test explained that p value < 0,05 it concluded that there were significant difference about two groups analyzed. The same result shows that the everage of Length Of Stay after clinical pathway implementation were 7.3 ± 0.5 day and before clinical pathway implementation were 10.9 ± 1.2 day. It concluded that there were significant diference because $p < 0,05$.⁷ Other researches with some different result

Table 2. The difference of stroke non hemorrhagic patients length of stay before and after clinical pathway.

	Before clinical pathway (day) n = 34	After clinical pathway (day) n = 34	P values
The average of Length Of Stay patients	$7,32 \pm 4,297$	$5,32 \pm 1,512$	0,014*
The average of Length Of Stay patients with complication disease	$8,76 \pm 5,506$	$5,43 \pm 0,976$	0,043*

* = Mann Whitney U Test

Table 3. The difference of stroke non hemorrhagic patients cost of treatment before and after clinical pathway

	Before clinical pathway (Rp) n = 34	After clinical pathway (Rp) n = 34	P values
The average of cost of treatment	$8.198.691 \pm 10.026.026$ 2.613.000 – 61.017.000	$6.362.543 \pm 3.249.981$ 2.373.500 – 13.062.000	0,447*
The average of cost of treatment with complication disease	$11.222.382 \pm 13.552.217$ 3.160.500 – 61.017.000	$8.157.738 \pm 4.054.705$ 3.830.500 – 13.025.666	0,824*

* = Mann Whitney U Test

showed that clinical pathway implementation weren't given an impact to decrease the average of Length Of Stay (LOS) and cost of treatment.⁸ Same result showed that clinical pathway of Congestive Heart Failure hadn't different on patients Length Of Stay and cost of treatment.⁹

Patient's Length Of Stay (LOS) with complication disease before and after clinical pathway were $8,76 \pm 5,506$ day and $5,43 \pm 0,976$ day with p value based from Mann Whitney U Test $< 0,05$. It concluded that there were significant difference about two groups analyzed. This result implied that clinical pathway were effective to decrease number of complication disease. The same result also showed about clinical pathway on Acute Myocardial Infarction that Patient's Length Of Stay had significant decreased.¹⁰ But, others results also showed by some researcher who interested about clinical pathway management in hospital. That clinical pathway had no significant difference for stroke diagnosis. It was happened because of clinical pathway hadn't implemented effectively.¹¹ The same result also showed that after their research about clinical pathway on Pneumonia that had no significant difference about two of groups (before and after). The result also showed that clinical pathway couldn't afford to decrease the number of patients mortality because of complication disease.¹² Another research about clinical pathway showed that clinical pathway on renal transplant. The average of patient's Length Of Stay with complication disease before clinical pathway explained that standar deviation value was 38,9 day and after clinical pathway was 18,9 day. P value $> 0,002$ there were no significant difference.¹³

Based on statistics test, both of groups explained that data distribution weren't normal. So statistics test used Mann Whitney U test. The average of patient's cost of treatment without other factor correlation before clinical pathway were Rp. $8.198.691 \pm$ Rp. $10.026.026$ with minimum and maximum cost Rp. $2.613.000 -$ Rp. $61.017.000$. While after clinical pathway were Rp. $6.362.543 \pm$ Rp. $3.249.981$ with minimum and maximum cost were Rp. $2.373.500 -$ Rp.

$13.062.000$. P value $> 0,05$, it concluded that clinical pathway hadn't significant difference. Although there were any decreased about cost of treatment after clinical pathway implementation but it didn't meant statistically. The same results were showed that background on increased of CVA's cost of treatment. His results explained that clinical pathway could effort to decrease cost of treatment amount 14,6 %. But it hadn't significant difference.⁷ The same result also showed that even though the result explain that there were decreased about cost of treatment but it hadn't statistically significant difference.¹⁴

The average of patient's cost of treatment before clinical pathway were Rp. $11.222.382 \pm$ Rp. $13.552.217$ with minimum and maximum cost were Rp. $3.160.500 -$ Rp. $61.017.000$ while after clinical pathway were Rp. $8.157.738 \pm$ Rp. $4.054.705$ with minimum and maximum cost were Rp. $3.830.500 -$ Rp. $13.025.666$. P value showed that $> 0,05$ so it concluded that there were no significant difference about two groups. The same results were showed on clinical pathway of TURP at Aga Khan University Hospital. Those results explained that there were significant increased about completing documentation, consultation and education for patients family. But from those results there were no significant difference about cost of treatment before and after clinical pathway.¹⁵ Another same results explained that clinical pathway of liver had significant decreased. But clinical pathway with complication disease correlation to outcomes hadn't significant difference.¹⁶

The development and implementation of a clinical pathway for patients with stroke during acute hospital phase can positively affect outcome in the form of reductions in length of stay, charges, and complications while improving and standardizing the quality of care.⁷

The implementation of clinical pathway is most likely to succeed when the decision to developing is take on an organizational basis. Senior management commitment and a strong medical and nursing are essential. Pathway documentation is more likely to be used if it is simple, clear and user friendly. The process of

pathway development considers why tasks and interventions are performed, and by whom, since it promotes greater awareness of the role of each professional involved in the care cycle.¹⁷

Success of clinical pathway implementation can be achieved by good organization of physician who serve medical care because clinical pathway are structured multidisciplinary care plans which detail essential steps in the care of patients with a specific clinical problem. They have been proposed as a way of encouraging the translation of national guideline into local protocols and their subsequent application to clinical practice. They are also a means of improving systematic collection and abstraction of clinical data for audit and of promoting change in practice.¹

The main areas of concern for the patients of stroke are the treatment and outcomes and discover the ways for optimum management of a stroke patient. There is a certainty that if the patients stroke receive organized care, they will surely have better outcomes and prognosis. In a hospital setting, the well-trained staff and multidisciplinary approach to treatment and care characterize the stroke unit. The core disciplines for such multidisciplinary teams are: medical treatment, nursing, physiotherapy, occupational therapy, speech, language therapy and social work. The Clinical Pathways ensure a goal-defined, making certain a well-defined efficient diagnosis, organized and time-specified plan of treatment of the patients with stroke, which can as certain evidence based practice and an improvement in the quality of outcomes at a lower cost.¹⁸

They are designed to explicitly define what kind of continuity of care the patients should receive, at what time they should receive this care and what are the roles of the various multidisciplinary teams in the patient care. It has been seen, without much of much evidence to support this, which integrated care pathways are increasingly being implemented into the care of the patients with acute stroke and rehabilitation of the stroke patients. They have been shown to improve the patient outcomes, the quality of the care, decrease in the interventions ordered for

the patients and decrease in the costs and also decrease in the length of the stay. They should not be seen as a 'cookbook' for healthcare – with prescriptive, step-by-step instructions – but rather as a set of appropriate, evidence-based activities and interventions for a specific user group. Care pathways are instruments that can reduce improper access to hospital emergency services, inappropriate admissions and unplanned discharges. So, to a great extent, they can help avoid

unmotivated and undesirable interruptions of care, which can damage people in need and be a waste of resources. Wasted resources are particularly common in situations where different professionals intervene without consulting each other, creating unnecessary and costly overlaps and confusion.¹⁸

D. Conclusion

The average of stroke non hemorrhagic patients on Length Of Stay (LOS) both groups without other variable correlation and complication disease correlation before and after clinical pathway implementation ($P < 0,05$) it concluded that there were significant difference that meant clinical pathway implementation effective to decrease number of complication disease. However, the average of stroke non hemorrhagic patients on cost of treatment both groups without other variable correlation and complication disease correlation before and after clinical pathway implementation ($P > 0,05$) there were no significant difference that meant decreased Patient's Length Of Stay (LOS) wasn't given impact to decrease patient's cost of treatment.

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