ADHERENCE TO ANTIPLATELET THERAPY AFTER CORONARY STENTING AT HOAN MY CUU LONG GENERAL HOSPITAL IN CAN THO CITY IN 2020

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ABSTRACT

*Background: Adherence to antiplatelet therapy was an effective method to decrease cardiovascular complications, re-hospitalization, mortality rate and treatment costs. In addition, it was also useful in increasing quality of life among patients. **Objectives:** To examine the adherence to antiplatelet therapy among patients after coronary interventions and analyze related factors. **Materials and methods:** The study design was the analytical and descriptive cross-sectional study. A sample size was 254 outpatients in Hoan My Cuu Long General Hospital. Adherence to antiplatelet therapy was assessed through the questionnaires based on Morisky Medication Adherence Scale (MMAS - 8). **Results:** The rate of adherence to antiplatelet therapy among patients was quite high at 3 months; it began to decline by 6 months, 12 months, and more than 12 months (less than 3 month was 100%; from 3 to 6 months 71%, from 6 to 12 months 83.7%, and after 12 months 85.7% of patients). Adherence rate of patients in Hoan My Cuu Long general hospital was 83.1%. The study found that the adherence to antiplatelet therapy was associated with the relevant factors such as distance to hospital, income per month, knowledge of medicine and diseases, hospital services and healthcare staffs. **Conclusions:** The rate of adherence to antiplatelet therapy among patients was quite high.*

Keywords: adherence, antiplatelet therapy, Hoan My Cuu Long, Can Tho

I. INTRODUCTION

Adherence to antiplatelet therapy was an effective method to decrease cardiovascular complications, re-hospitalization, mortality rate and treatment costs [3], [5]. In addition, it was also useful in increasing quality of life among patients. Hoan My Cuu Long is a general hospital which has provided care and followed up many post-percutaneous coronary intervention patients. In the year 2019, there were 280 patients who came to Outpatient Department of Hoan My Cuu Long hospital for their re-examinations. However, situation of lacking of cardiologist in Outpatient department lead to inadequate health education and evaluation of patient's adherence to antiplatelet therapy.

Findings of the study which examined adherence to antiplatelet therapy and its related factors among post-percutaneous coronary intervention patients could be evidences to develop quality of care improvement strategy in the hospital, especially in Outpatient department. Therefore, the study was conducted to 1) examine the adherence to antiplatelet therapy among post-percutaneous coronary intervention patients; 2) indicate factors related to adherence to antiplatelet therapy among post-percutaneous coronary intervention patients.

II. MATERIALS AND METHODS

2.1. Study design

A cross-sectional descriptive design was used to examine the adherence to antiplatelet therapy among post-percutaneous coronary intervention patients and its related factors.

2.2. Study population, sample, and data collection

Population: all of patients who are in the situation of post-percutaneous coronary intervention at Hoan My Cuu Long general hospital.

This calculator uses the following formula for the sample size n

$$n = Z^2 \, 1\text{-}\alpha/2 \quad \frac{p \times (1\text{-} p)}{d^2}$$

+ n: minimum sample size
+ Z^2 $1\text{-}\alpha/2$ = 1.96: Z statistic for a level of confidence at α=0.05
+ p= 0.85: results from a research of De V. T. (2010) [3]
+ d= 0.05 precision (if the precision is 5% then $d = 0.05$)

Based on the formula, n = 196. For preventing data collection errors, we added 10% more into sample size. The research sample was at least 216. Therefore, we conducted entire sample including 254 patients who are post-percutaneous coronary intervention at Cardiovascular intervention department of Hoan My Cuu Long general hospital from January 01 to December 31, 2019.

2.3. Research instruments

Demographic Questionnaire: patient's demographic data was collected by using a demographic questionnaire which contained information of his characteristics including age, gender, educational level, occupation, address, family income, with or without health insurance, comorbid conditions and how long after the percutaneous coronary intervention.

Patient's adherence was measured by using Morisky Medication Adherence Scale (MMAS – 8) which was an 8-item structured, self-report measured that assesses medication adherence. The first 7 items were yes or no question, while the last item was a 5 likert scale regarding how often the individual had difficulty remembering to take medicine. The total score was calculated by sum of each items score. It ranged from 0 to 8 scores. It was also categorized as non-adherence (0–5 scores) and adherence (6–8 scores) [1], [5].

The Vietnamese version of MMAS - 8 was tested for their internal consistency reliability with 20 patients who had the similar characteristics to the sample of this study. Their reliabilities were 0.81.

2.4. Data analyses

Data were collected, encoded, inputted by using Epidata 3.1 and analyzed by using SPSS 20.0. Descriptive statistics in terms of frequency, percent, mean, standard deviation, and range were used to examine demographic characteristics, adherence to antiplatelet therapy among patients. Chi-squared ($\chi2$) test was used to determine relationships between adherence to antiplatelet therapy among post-percutaneous coronary intervention patients and its associated factors including demographic characteristics, knowledge, healthcare services and healthcare provider supports. Statistically significant was considered at lower than 0.05.

2.5. Ethical considerations

The Institutional Review Board for graduate study of Public Health University and Hoan My Cuu Long General Hospital approved this study.

III. RESULTS

3.1. Demographic characteristics

Most of research participants were older than 60 years old (78%), had healthcare insurance (99.2%) and were Kinh (85.8%). More than a half of patients were retired (52.4%), had 2 or more comorbid conditions (73.6%) and lived outside Can Tho city (66.9%). There were 48% of them completed secondary and high school, 35.5% of them completed primary school, 11.5% had college/university level of education or higher, and 5.1% were illiterate. In term of how long after the percutaneous coronary intervention, 6 to 12 months was the most common among subjects (57.1%) and more than 12 months was the second one (24.8%). Almost all of patients had personal income higher than 1,500,000VND per month (92.1%).

3.2. Patient's adherence to antiplatelet therapy after percutaneous coronary intervention

The incidence of adherence to antiplatelet therapy among post-percutaneous coronary intervention patients was 83.1%. The highest incidence was group of patients under three months followed up (100%). It decreased to 71% among 3 to 6 months followed up patients. The incidence of adherence was 83.7% and 85.7% in 6 to 12 months and more than 12 months (**Figure 1** and **Figure 2**).
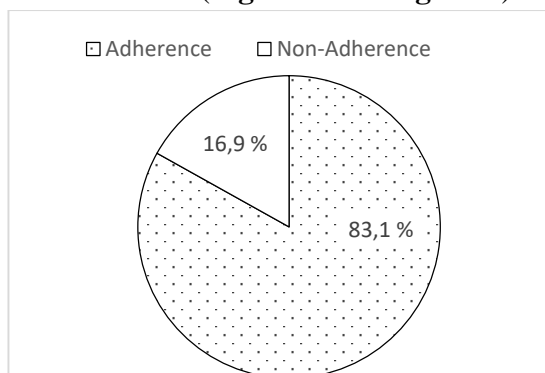

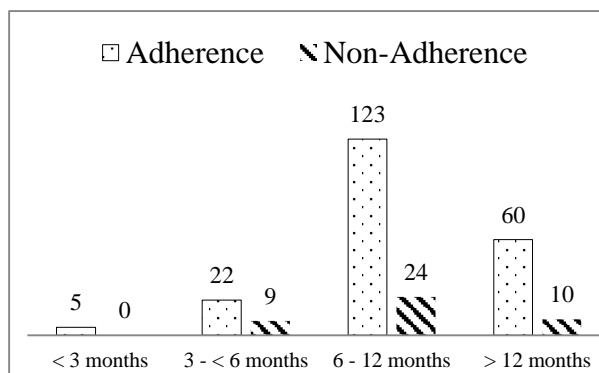**Figure 1.** Percentage of patients' adherence to antiplatelet therapy

Figure 2. Patients' adherence to therapy after intervention

3.3. Factors related to adherence to antiplatelet therapy among post-percutaneous coronary intervention patients

Table 1. Relationship between patient's demographic characteristics and adherence to antiplatelet therapy

Demographic Characteristics (n = 254)		Non-Adherence		Adherence		OR (95%CI)	p
		n	%	n	%		
Accommodation	Outside Can Tho	35	20.6	135	79.4	2.46 (1.09-5.58)	**0.027**
	Can Tho	8	9.5	76	90.5		
Income	≤1,500,000VND	7	35.0	13	65.0	2.96 (1.11-7.931)	**0.025**
	> 1,500,000VND	36	15.4	198	84.6		

Patients who lived outside Can Tho city and had low income less than 1,500,000VND had worse adherence than patients who lived in Can Tho city and had higher income (p=0.027 and 0.025 in order).

Table 2. Relationship between patient's knowledge and adherence (n = 254)

Patient's knowledge		Non-Adherence		Adherence		OR (95%CI)	p
		n	%	n	%		
Type of intervention	No	35	28.7	87	71.3	6.23 (2.76-14.10)	**0.005**
	Yes	8	6.1	124	93.9		
Post-intervention Medication	No	39	34.5	74	65.5	18.05 (6.21-52.47)	**0.005**
	Yes	4	2.8	137	97.2		

There were positive significant correlations between knowledge of types of intervention and post-intervention medication among patients and their adherence to antiplatelet therapy (p=0.005 as shown in **Table 2**).

Table 3. Relationship between healthcare services and patient's adherence to antiplatelet therapy (n = 254)

Factors		Non-Adherence		Adherence		OR (95%CI)	p
		n	%	n	%		
Time for health education	Too short/Short	28	40.6	41	59.4	7.74 (3.79-15.8)	0.005
	Too long/Long	15	8.1	170	91.9		
Frequency of education	None/rarely	23	74.2	8	25.8	29.18 (11.55-73.69)	0.005
	Permanent/ occasionally	20	9.0	203	91.0		
Patient's satisfaction to health education	Unsatisfied	4	44.4	5	55.6	4.23 (1.09-16.44)	0.025
	Satisfied	39	15.9	206	84.1		

The findings showed that healthcare services and education were also related to patient's adherence. The shorter time for health education was provided the higher ratio of non-adherence (p=0.005). The non-adherence incidence among patients who received medical instruction inadequately was 29.18 times higher than patients who received instruction adequately (p=0.005). Non-adherence incidence among patients who were unsatisfied to health education was 4.23 times higher than patients who were satisfied (p=0.025).

IV. DISCUSSION

4.1. The adherence to antiplatelet therapy among post-percutaneous coronary intervention patients

The study findings showed a high percent of adherence to antiplatelet therapy among post-percutaneous coronary intervention patients (83.1%). Our result was similar to result from Vo T. D. *et al*. in 2013 [3]. However, this finding was higher than finding of 70.86% patients who had adherence to medication therapy of Dinh A. T. in 2015 [4]. Reason might come from participants' demographic characteristics. Most of patients lived in provinces of Mekong delta where Can Tho city was the central, therefore, it was not taken too much time for transportation and patients were easier to follow doctor's descriptions.

In the term of relationship between time for following up and patient's adherence, the highest incidence of patient's adherence was in the group of 3 to 6 months after

intervention patients (71%). The good adherence might come from enough health education from doctors and nurses during time of following up. But after 6 months, patient's adherence decreased mildly. These results were consistent with common patient's situation. At the beginning time post-percutaneous coronary intervention, patient focused on their health and doctor's descriptions more than later. Especially, when they had enough knowledge and recovered, they believed in health education and adhered to therapy. And then, when they got better and the signs and symptoms were improved, patients' attention to disease and medication were decreased. Besides, using antiplatelet therapy brought them some side effects such as headache, gastrointestinal bleeding, bruising, diarrhea or constipation. Thus, patients might give up using medication [6], [7].

4.2. Factors related to adherence to antiplatelet therapy among post-percutaneous coronary intervention patients

In term of demographic characteristics, there were 2 factors related to patient's adherence to antiplatelet therapy ($p < 0.05$) including family income and patient's accommodations. It was consistent with previous studies. Vo T. D. (2013) reported that the patients who had lower income had higher incidence of non-adherence than others [3]. The same result was also found in a study of Dinh A. T. (2015). According to Dinh A. T. (2015), the was a negative correlation between patient's adherence and distance from patient's house to the hospital [4].

Our study also showed that there was a positive correlation between patient's adherence and their knowledge about disease and antiplatelet medication. The more patients understanded about disease and medical therapy, the more adherence they practiced. Because when patients had knowledge about the disease, they would understand importance of adherence and practice adherence better [2], [7]. In the order hand, healthcare services and patiens' satisfaction also had positive relationships with patient's adherence. Because good healthcare service and higher patient's satisfaction built a good belief in medical service and helped them followed medical therapy [7].

Limitations: the study instruments asked about patient's practice in the past, it might lead to errors.

Suggestion: an intervention study to gain a deeper understanding of factors related to patient's adherence should be developed. Besides, unit of healthcare education which focused on medical adherence and outpatient management model should be developed.

V. CONCLUSIONS

The incidence of adherence to antiplatelet therapy among post-percutaneous coronary intervention patients was 83,1%. The highest incidence was group of patients under three months followed up. It decreased to 71% among 3 to 6 months followed up patients. A negative correlation between patients' accommodations, family income and their adherence; a positive correlation between patient's knowledge about disease and medical therapy, healthcare service, education, and patient's satisfaction and their adherence were reported.

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