PRESCRIPTION PATTERN FOR TREATMENT OF HEMORRHOIDS UNDER THE UNIVERSAL COVERAGE POLICY OF THAILAND

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Abstract. The Universal Coverage Policy (UCP) or "30 Baht Scheme" was launched in Thailand in 2001. The policy caused a cutback in the budgets of all public hospitals and health service centers. Traditional medicine was then viewed as an alternative to save costs. This study examines whether this had any influence on hemorrhoid treatment prescription patterns, ratio of traditional/modern medicine, or the cost of hemorrhoid treatment after the UCP was implemented at a community hospital. The traditional medicine prescribed was Petch Sang Kart and the modern alternative was Proctosedyl. All hemorrhoid prescriptions at a community hospital from October 2000 to January 2003 were surveyed. Segmented Regression Analysis was applied to evaluate prescription trends, the ratios between the types of medicine, and the hemorrhoid treatment cost. A total of 256 prescriptions were analyzed. The average number of traditional medicine prescriptions per month were more than modern medicine (41 *versus* 16). During the study period, the trend of modern medicine use and the treatment cost was decreased ($p<0.01$). The ratio of traditional/modern medicine increased 0.2 times ($p=0.02$).

INTRODUCTION

Hemorrhoidal problems are common, affecting millions of men and women in the United States and elsewhere (Digestive Disease Statistics, 2003). A large database survey conducted in the United States and England found a prevalence of about 4%, with approximately 10 million people in the United States alone reporting symptoms associated with hemorrhoids. In general, the development of symptoms before age 20 was usual. About half of all people by age 50 have hemorrhoids to some extent (Faccini *et al*, 2001). Women may begin to have hemorrhoids during pregnancy. Johanson and Sonnenberg (1990) asserted that hemorrhoidal disease is most frequent in ages 45 to 65 in both genders, and declines thereafter. Hemorrhoids usually do not pose a danger to health, however, chronic bleeding from hemorrhoids may lead to anemia.

In Thailand, the perception is that hemorrhoid are a minor, temporary problem. In most cases, hemorrhoid symptoms resolve spontaneously within a few days. There is a lack of database information on the nature and extent of hemorrhoids in Thailand. Clinical data from Mae On Hospital (2002) suggests that it is a significant problem.

The Universal Coverage Policy (UCP) or "30 Baht Scheme" for each visit or admission was launched in Thailand in 2001(Towse and Mills, 2004). The policy has effected budget allocations to health service centers and public hospitals. The hospital has to reduce the cost of treatment, due to increasing demand and a constrained budget. Some hospitals have implemented this policy by prescribing traditional medicines to lower the cost of treatment under the UCP. Mae On Hospital is a 10-bed community hospital in Chiang Mai. It launched its policy of using traditional medicines in 1994. In 1995, a traditional medicine center at Mae On Hospi-

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tal was established for alternative treatment and cost-reduction. The traditional medicines used include Andrographis Paniculata, Cissus Gradrangularis Linn., (Petch Sang Kart), Curcuma Longa Linn. and Galic, produced by the local people at Mae On Hospital. In addition, well-trained traditional medicine specialists from the Ministry of Public Health supervise the local people from time to time to ensure the quality of the medicines.

This study aimed to assess the trends of hemorrhoid prescription writing, by comparing the number of traditional and modern medicines prescribed, and comparing the ratio of the medicines, and the cost of hemorrhoid treatment before and after the UCP implementation at Mae On Hospital. Petch Sang Kart and Proctosedyl are the traditional and modern medicines prescribed to patients with hemorrhoids. In order to explore the impact of the UCP on hemorrhoid treatment, the average number of prescriptions before and after policy implementation was observed monthly.

MATERIALS AND METHODS

Design

Interrupted time-series design with retrospective data collection.

Study site

Mae On Hospital was chosen to observe the trends of traditional and modern medicines, and the cost of treatment. Petch Sang Kart is a traditional medicine, and Proctosedyl is a modern medicine prescribed to patients with hemorrhoids. This study was carried out over 28 months, 12 months before and 16 months after implementation of the UCP.

Methods

All hemorrhoid prescriptions at Mae On Hospital during October 2000 to January 2003 were collected. The trends of prescriptions, cost of traditional and modern medicines were compared before and after the universal coverage scheme. The total number of hemorrhoid prescriptions during the study period was 256. Over 60 % of the prescriptions were female. The patients were between 10 and 81 years old, with an average age of 46 (SD= 15.21). Most of the patients received traditional medicine; half of them received both traditional and modern medicines. The number of drugs prescribed per visit per month was examined to observe the prescription pattern. Segmented Regression Analysis was applied to identify changes, including gradual changes over time due to the UCP.

The units analyzed were the monthly mean number of medicines, the ratio between the mean number for traditional/modern medicine, and the average monthly cost of treatment. The average number of medicines per visit per month was calculated from the total number of medicines prescribed during that month, and divided by the total number of hemorrhoid patients during that same month. The ratio of traditional to modern medicines was from the average number of Petch Sang Kart per visit per month divided by the average number of Proctosedyl per visit per month. The average cost of hemorrhoid treatment per visit per month was calculated from the total cost of hemorrhoid treatment per month divided by the total number of hemorrhoid patients per month.

RESULTS

Medicine prescription per visit per month

The average number of medicines per visit per month during the study period indicated changes in prescribing patterns (Fig 1). The trend lines for Proctosedyl and Petch Sang Kart had different patterns of change. The trend line for Proctosedyl, both pre-and post-policy, did not change much, and remained stable, while the line for Petch Sang Kart was unstable. The number of Petch Sang Kart prescriptions per visit per month was higher than Proctosedyl's.

Ratio of medicine prescriptions per visit per month

The prescription pattern ratio of the average number of traditional medicine/modern medicines prescribed per visit per month is shown in Fig 2. The trend line was unstable pre-and post-UCP, and the ratio was high for the 18th month and at the end of the study (8.1 times and 7.9 times, respectively).

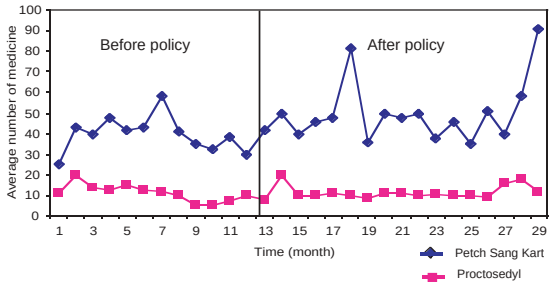

Fig 1–The average number of medicines per visit per month.

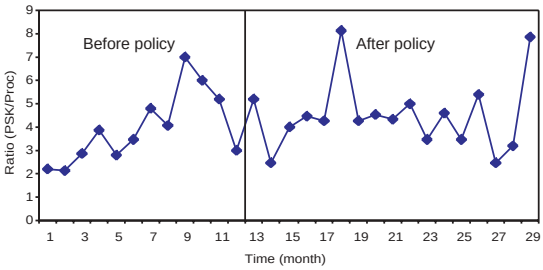

Fig 2–The ratio of medicine prescriptions per visit per month.

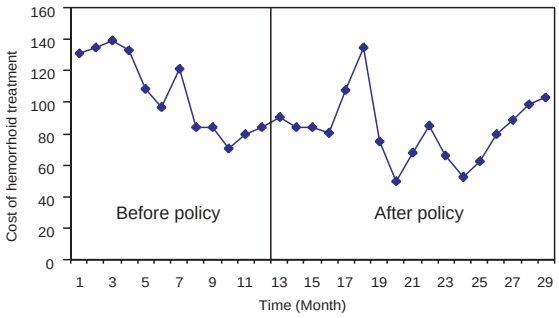

Fig 3–The average cost of hemorrhoid treatment per visit per month (baht).

Cost of hemorrhoid treatment

Fig 3 presents the average cost of hemorrhoid treatment per visit per month. The trend of the cost of treatment declined before UCP implementation. At the starting point of UCP implementation, the cost of hemorrhoid treatment was higher than at the end of the pre-policy period.

Segmented Regression Analysis

Segment Regression Analysis was applied to analyze the average number of medicines per visit per month, the ratio of the medicines, and the average cost of hemorrhoid treatment per visit per month (Table 1). At the beginning of the observation period, the average number of suppositories of Petch Sang Kart and Protosedyl per visit per month were 41.76 (95% CI: 25.43 to 58.09) and 16.77 (95% CI: 12.66 to 20.88), respectively. The average number of Proctosedyl suppositories decreased by 0.85 of a suppository ($p<0.01$). The ratio of traditional/modern medicine was 2.12 (95% CI: 0.26 to 3.97) and increased by 0.2 times ($p = 0.02$).The average cost of hemorrhoid treatment was 145.95 baht per visit per month (95% CI: 122.71 to 169.21). The cost significantly decreased by 6.11 baht during the observation time ($p<0.01$).

DISCUSSION

Segmented Regression Analysis is a tool to assess the prescription pattern and cost of the treatment. This analysis is appropriate to study effects of intervention conduced as part of a randomized trial as well as interventions that constitute a natural experiment. It also allows the researchers to control baseline levels and trends, and to assess how much the UCP changed the outcome of interest. Wegner *et al* (2002) asserted that Segmented Regression Analysis required data on continuous or counted outcome measures, summarized at regular, and evenly spaced intervals. Thus the prescription pattern of hemorrhoid treatment in the community hospital was observed before and after the UCP.

According to the recommendation of Wegner *et al* (2002), a number of time points before and after the policy and a number of observations at each point in the time series are sufficient to conduct segmented regression analysis. There was some missing data. The outliers were corrected by averaging the data. The Durbin-Watson statistical test for autocorrelation of the error term in the regression model showed no problems with autocorrelation (the value was 2.05), indicating an adjustment for autocorrelation was not required.

The results reveal that Petch Sang Kart was prescribed more than Proctosedyl during the study period. The trend of traditional medicine

Table 1
Segmented Regression Analysis of the average number of medicines per visit per month, ratio of medicine, and the average cost of hemorrhoid treatment per visit per month.

Medicine	b (slope)	95% CI	p-value
Traditional medicine (Petch Sang Kart; PSK)			
Constant	41.76	25.43 to 58.09	<0.01
Time points in months (1-29)	-0.32	-2.54 to 1.89	0.76
Implication of policy (0=before, 1=after)	4.92	-14.79 to 24.64	0.61
Time points in months after policy implementation	1.12	-1.46 to 3.70	0.38
R^2= 0.19			
Modern medicine (Proctosedyl)			
Constant	16.77	12.66 to 20.88	<0.01
Time points in months (1-29)	-0.85	-1.41 to -0.29	<0.01
Implication of policy (0=before, 1=after)	3.91	-1.06 to 8.87	0.12
Time points in months after policy implementation	0.97	0.32 to 1.62	<0.01
R^2=0.29			
Ratio of medicine (PSK/Proctosedyl)			
Constant	2.12	0.26 to 3.97	0.02
Time points in months (1-29)	0.29	0.04 to 0.54	0.02
Implication of policy (0=before, 1=after)	-1.16	-3.40 to 1.08	0.29
Time points in months after policy implementation	-0.27	-0.56 to 0.02	0.66
R^2= 0.21			
Cost of treatment			
Constant	145.95	122.71 to 169.21	<0.01
Time points in months (1-29)	-6.22	-9.37 to -3.06	<0.01
Implication of policy (0=before, 1=after)	15.66	-12.41 to 43.73	0.26
Time points in months after policy implementation	5.75	2.08 to 9.42	<0.01
R^2=0.52			

use was not different between the pre-policy and post-policy periods, while the level and trend of Proctosedyl use declined. Regarding the doctors' prescription, they prescribed 30 suppositories of Petch Sang Kart or 10 suppositories of Proctosedyl. Many factors were related to the prescription pattern, such as the number of doctors, treatment experience, and medical practice. The doctor was the most important factor influencing the prescription pattern. Some patients were prescribed Petch Sang Kart longer than the regular prescription due to the long distance between patient's house and the hospital. However, we found that there was only one doctor prescribing medicine in this manner at Mae On Hospital. Therefore, the main confounding was eliminated. Since the doctors tried to replace some modern medicine with traditional medicine, the ratio of medicine increased from the staring point through the end of the observation period (p=0.02). The cost of hemorrhoid treatment decreased from the staring point through the end of the observation period (p<0.01).

The average number of modern medicines, and the cost of hemorrhoid treatment has decreased. While the ratio of traditional/modern medicine has increased. This study demonstrates that modern medicine for treating hemorrhoids has had reduced use with an effect on the cost of treatment.

On initiation of the traditional medicine project at Mae On Hospital, traditional medicine for hemorrhoids was not known to the patients. However, most of the patients were satisfied with the traditional medicine after taking it because it

is from the local wisdom. Traditional medicine is now requested to reduce the symptoms from hemorrhoids.

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