# PHARMACIST COUNSELING INTERVENSION BY ORAL CAN INCREASE THE PATIENTS ADHERENCE AND DECREASE SYSTOLIC BLOOD PRESSURE OF AMBULATORY HYPERTENSION PATIENTS AT INTERNAL DISEASE POLYCLINIC PKU BANTUL HOSPITAL, INDONESIA

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## Abstract

***Background.*** *The hypertension prevalence in Indonesia in 2004 is 27,5%. High blood pressure can damage arteries and blood vessels. It can also cause coronary artery disease, kidney failure and stroke. It is expected that the appropriate counseling can improve the patients adherence and blood pressure target.*

***Objective.*** *The purpose of this study is to investigate the influence of pharmacist counseling orally on the adherence and systolic blood pressure of ambulatory hypertension patients at internal disease polyclinic PKU Muhammadiyah Bantul Hospital, Indonesia.*

***Methods.*** *This study were conducted with quasi-experimental design. The ambulatory hypertension patients data were collected prospectively during the period of January until April 2013. Sixty patients were divided into 2 groups, 30 (50%) patients were received counseling (intervension group) and 30 (50%) patients were not received counseling (control group). Exclusion criteria were a deaf and pregnant patients. Data collection were conducted by doing interview and completion of Morisky Modification Adherence Scale (MMAS) questionnaire, while the blood pressure data were taken from their medical record.*

***Outcome Measured.*** *Adherence and systolic blood pressure of ambulatory hypertension patients*

***Results.*** *The results showed that oral counseling intervension could increased the patients adherence in the intervension group (66,7%) in comparison to the control group (20%) (p=0,000). Consequently, pharmacist counseling intervension could decreased the systolic blood pressure in the intervention group (17,27 ±14,60 mmHg; p=0,000). There was no decreasing the systolic blood pressure (1.27±19.89; p=0,730) in the control group. Based on the correlation test between MMAS and systolic blood pressure, there were positive correlation in the patients adherence and systolic blood pressure values (p=0,020; r=0,200).*

***Conclusion.*** *Over all it can be concluded that the pharmacist counseling intervension by oral can increase the patients adherence on antihypertension management. Furthermore, it can decrease the systolic blood pressure (p<0,05)*

***Key words :*** *Hypertension, pharmacist counseling, systolic blood pressure, adherence*

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## INTRODUCTION

Hypertension is as one of the major risk factors for coronary heart disease. Besides causing coronary heart disease, hypertension can cause kidney failure and cerebrovasculer disease. The prevalence of hypertension will increase in line with the life style changes such as smoking, obesity, physical inactivity, and psychosocial stress in many countries. Hypertension has been the public health problem and will be a bigger problem if it is not restrained earlier[1.] The prevalence of hypertension in Indonesia in 2004 is 27,5 %[1]. (Depkes, 2004).

WHO states that non adherence to hypertension therapy is the key factor that inhibit blood pressure control so that it needs intervention to improve the therapeutic adherence. It is estimated that the poor adherence to antihypertensive medication is approximately 30-50 %. The causes of the poor adherence is very complex, including the complexity of medical regiment, cost of medication, age, lowness of social support, and cognitive problem[2]. (Sagate, 2003).

Health people 2010 for hypertension suggest the necessity of a more comprehensive and intensive approach to achieve optimal blood pressure control. The intervention which can be applied by pharmacists to manage hypertension patients is counceling. Counceling can improve the outcome therapy by maximizing the use of appropriate medication[3] (Romtucci, 1997). One of the counseling benefit is improve mediaction adherence, so the mortality rate and detriment (either cost or loss of productivity) can be pressed down[4]. (Palaian *et.al*, 2006).

Self-report scale to evaluate the adherence of antihypertensive therapy was already developed by Morisky *et al* (2008). The study examines the psychometric properties and tests the concurrent and predictive validity of self report medication adherence was test on hypertension patients in 2007 and published in 2008. Self report medication adherence is measured by new 8 item self report Morisky Medication Adherence Scale (MMAS).

Over all, it is necessary to investigate the influence of counceling orally on the adherence and systolic blood pressure of ambulatory hypertension patients at internal disease polyclinic PKU Muhammadiyah Bantul Hospital, Indonesia.

## METHODS

It is a prospective study to determine adherence to anti-hypertensive therapy and decreasing the systolic blood pressure in ambulatory patients at internal disease polyclinic PKU Muhammadiyah Bantul Hospital, Indonesia. The study group included 60 patients. They were devided in to two groups as intervension and control group. The intervension group patients received counseling regarding hypertension and hypertension therapy, while the control group not received counseling. The follow up patients were done from baseline to second follow up. The inclusion criteria were patients 18-65 years old with diagnosed to have hypertension and got antihypertensive medication in their prescription. The exclusion criteria were deaf and pregnant patients.

The data were collected from January to April 2013. Data collection was conducted by doing interview and completion of Morisky Medication Adherence Scale (MMAS) questionnaire, while the blood pressure data were taken from their medical record. Validation questionnaire was carried out via conducting pilot study. The pilot study was conducted with 30 patients. The reliability analysis of the questionnaire was performed by calculating cronbach alpha value. The Cronbach alpha value was obtained 0,64 which indicated that the questionnaire was reliable to be used for this study.

The collected data were analyzed and result were expressed as mean ± standard deviation. P value of < 0,05 was considered statistically significant.

## RESULTS

**Table I. Characteristic of hypertension patients**

| Characteristic Patients | Intervension Group | | Control Group | |
|---|---|---|---|---|
| | (n=30) | % | (n=30) | % |
| **Sex** | | | | |
| Male | 20 | 66,7 | 9 | 30,0 |
| Female | 10 | 33,3 | 21 | 70,0 |
| **Age (year)** | | | | |
| 40-49 | 4 | 13,3 | 5 | 16,7 |
| 50-59 | 18 | 60,0 | 16 | 53,3 |
| 60-65 | 8 | 26,7 | 9 | 30 |
| **Stage of hypertension** | | | | |
| Stage 1 | 8 | 26,7 | 15 | 50,0 |
| Stage 2 | 22 | 73,3 | 15 | 50,0 |
| **Habit** | | | | |
| Smoking | 4 | 13,3 | 3 | 10,0 |
| Not smoking | 26 | 86,7 | 27 | 90,0 |
| Education | | | | |
| **<9 year** | 16 | 53,3 | 20 | 66,7 |
| 9-12 year | 4 | 13,3 | 6 | 20,0 |
| >12year | 10 | 33,3 | 4 | 13,3 |
| **Jobs** | | | | |
| Official government | 12 | 40,0 | 7 | 23,3 |
| Self employed worker | 12 | 40,0 | 16 | 53,3 |
| Labourer | 4 | 13,7 | 5 | 16,7 |
| Jobless | 2 | 6,7 | 2 | 6,7 |
| **Payment** | | | | |
| Self payment | 7 | 23,3 | 12 | 40,0 |
| Health Insurance | 14 | 46,7 | 9 | 30,0 |
| Jamkesmas | 19 | 30,0 | 8 | 26,7 |
| Other Insurance | 0 | 0 | 1 | 3,3 |
| **Hypertension History** | | | | |
| Yes | 11 | 36,7 | 9 | 30,0 |
| No | 19 | 67,3 | 21 | 70,0 |

Sixty patients were included in the pre and post study. At the pre-study, clinical and sociodemographic data of patients were collected. The characteristic data of the subject can be seen on the table I. Based on the characteristic patients, the subject were dominated by male patients (66.7%) for intervension group and female patients (70.0%)

for control group. As for age, both of the intervension and control group were dominated by patients with the ages of 50 to 59 years. As for stages of hypertension, both groups were dominated by patients with hypertension stage two. As for payment, the treatment group was dominated by health insurance (46.7%), where as the control group was dominated by self-payment (40%). In this study also evaluated the characteristic of smoking behaviour, the history of hypertension, education, and jobs. The subject study, either the intervension group or the control one, both were dominated by those who didn't have the history of hypertension, smoking behaviour, self employed workers and education under 9 years.

The result on table II was the adherence of treatment group is higher than the control group (66.7% > 20.0%). The statistical result between MMAS category at the intervension and control group showed difference of the increasing adherence scores 2.67 ± 0.48 and 1.93 ± 0.69 respectively with the significancy 0.000 ($p<0.05$)

The average systolic blood pressure of the intervension and control group pre and post study were 161.60 ± 11.78 mmHg to 144.33 ± 19.42 mmHg and 148.53 ± 20.83 mmHg to 147.27 ± 20.79 mmHg respectively. The average of the decreasing systolic blood pressure of the intervension group were greater than the control group (17.27 ± 14.60 mmHg > 1.27 ± 19.89 mmHg).

The paired samples t test result on systolic blood pressure of the intervension group was highly significant with p value 0,000 ($p<0,050$), meanwhile on the control group was not significant with p value 0.730 ($p>0.05$).

The correlation test result indicates that there was significant correlation between MMAS category and systolic blood pressure decreased of hypertension patients in this study ($p = 0.020$; $r = 0.424$)

## DISCUSSION

The medication adherence plays important role in achieving target therapy, especially for chronical disease, such as hypertension. The poor adherence to antihypertensive medication is as one of the cause of poor blood pressure control. One of the ways to evaluate the adherence of hypertension patients in consuming medication is by using Morisky Medication Adherence Scale (MMAS) questionnaire.

The percentage of high adherence on intervension group is greater than the control

**Table II. MMAS scores of patients of the intervension group after done counseling and control group in the post study**

| Group (n=30) | MMAS Scores | | | | | |
|---|---|---|---|---|---|---|
| | High adherence | | Moderate adherence | | Low adherence | |
| | n | % | n | % | n | % |
| Control | 6 | 20,0 | 16 | 53,3 | 8 | 26,7 |
| Intervension | 20 | 66,7 | 10 | 33,3 | 0 | 0 |

**Table III. The reasons of non adherence patients based on MMAS questionnaire**

| No | Reason of unadherence | Group | | Total (%) |
|---|---|---|---|---|
| | | Intervension | Control | |
| 1 | Forgotten | 13 | 10 | 38,3 |
| 2 | Intentionally not to take medication | 2 | 9 | 18,3 |
| 3 | Feeling inconvenience by the obligation to take medication. | 10 | 12 | 36,7 |

group (66.7% > 20.0%) and the significant increase of adherence indicates that counceling by pharmacists can contribute positive impact in increasing the patients adherence on hypertension therapy. Counseling give a good knowledge about hypertension and its medication to patients, so the patient will change their behavioural medication from being not adherence first to being adherence so that desired blood pressure can be achieved. Birader *et al* (2012) states the counceling intervention given by pharmacists can increase the adherence of hypertension patients therapy. Other study performed by Palanisamy and Sumathy (2009)[8] indicates that the rate of adherence from 0% up to 95.4% after being councelled by pharmacists.

The MMAS questionnaire provides information on the behaviour related to the poor adherence which is caused by unintentional factor (ex: careless or forgetfulness to take medication), intentionally (not to take medication as their illness is getting more serious on better), and the lack of knowledge about hypertension and the purpose of its medication. Table III indicates the non adherence of patient to medication because of frequent forgetfulness to take it and their misunderstanding towards hypertension and its medication so they intentionally not to take their medication.

Poor adherence is as challenge for clinicians and pharmacists to determine more effective medication. If pharmacists have ability to identify patients with poor adherence, then accurate and suitable intervention can be done to improve the patients medication adherence. By the existension of counceling by pharmacists hopefully the understanding of patients toward hypertension and its medication will be better.

The systolic blood pressure of the intervension and control group were the same undergo decrease, though, based on the average of systolic blood pressure decrease of the intervension group is greater than the control group (fig. 1). Based on that, it can be concluded that hypertension patients of the intervension group (being councelled by pharmacists) undergo the significant decrease of systolic blood pressure compared with the control group. Ramanath *et al* (2012) indicates that pharmaceutical intervention can improve the blood pressure control of hypertension. In addition the study carried out by Vivian (2002) show that pharmaceutical care can increase the ability to control blood pressure so the normal blood pressure target can be achieved.

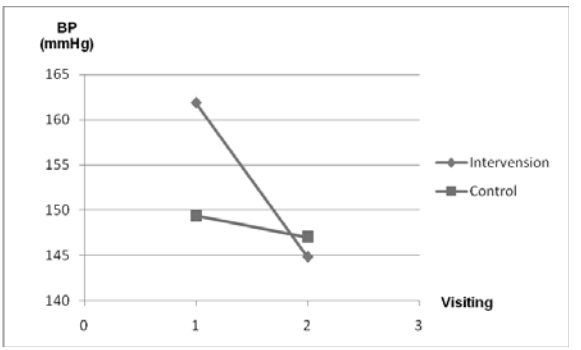


Fig 1. The Average decreased of systolic blood pressure on the intervension and control group

The decrease of blood pressure patients can be influenced by the counceling given by pharmacists to the patients during the study so the patients adherence increase in managing their hypertension, either in the life style modification or accurate use of medication.

The correlation test indicates that their is a significant correlation between the category of MMAS and the decrease of systolic blood pressure of hypertension. The result is in line with the desired outcomes, so there were a significant correlation between the decrease of systolic blood pressure and MMAS category, though correlation coefficient was weak correlation. In this case, it might be reasonable to say that the adherence is not the most dominant to decrease blood pressure. The others factors which influence the decrease of blood pressure, such as the changes of life style and the accuracy of choosing medication. The positive correlation, so it can be conclude that the better

improve of patients adherence will decrease blood pressure better.

## CONCLUSION

The pharmacist counseling is effective in improving medication adherence and its associated effect on decreasing systolic blood pressure in patients receiving antihypertensive therapy. Blood pressure control will reduce the risk of coronary artery disease, kidney failure and stroke.

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