

# Evaluation of Patient Counseling on Blood Pressure Control of Out-Patients with Hypertension at Chulalongkorn Hospital

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## Abstract

Patient counseling has a significant effect on compliance with prescription regimens, prevent drug interactions and medication errors. This was a self-controlled experimental study to evaluate the effect of patient counseling on blood pressure control in out-patients with hypertension at Chulalongkorn Hospital. Systolic and diastolic pressure of randomly selected patients were recorded for at least three months before receiving patient counseling. After three months, those patients received counseling on drug, diseases and life-style modification from a pharmacist after a hospital visit and blood pressure was monitored every month for three consecutive months or after each visit. The result showed that 68 patients out of 78 patients could not maintain their blood pressure before receiving counseling. However, after patient counseling, 54 patients had mean arterial pressure within the range specified by the Joint National Committee (JNC VI) after the second doctor visit. Patient counseling was highly significant in blood pressure control using the chi-square test ( $\chi^2 = 51.29$ ).

**Key word :** Patient Counseling, Blood Pressure

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During the last century, hypertension and cardiovascular diseases have burgeoned from relatively minor diseases worldwide to being a leading cause of morbidity and mortality. By the year 2020, it is projected that these chronic diseases will surpass infectious diseases as the world's leading causes of death and disability<sup>(1)</sup>. It is well known that, both systolic and diastolic blood pressure increase with advanced age and more than 50 per cent of hypertensive patients are aged above 65 years<sup>(2)</sup>. The benefits of antihypertensive therapy, in terms of reducing cardiovascular mortality and morbidity, have clearly been established. Antihypertensive therapy has shown that controlled-blood pressure reduces the risk of stroke, coronary heart diseases and vascular death by 38 per cent, 16 per cent and 21 per cent, respectively<sup>(3)</sup>. Population studies suggest that blood pressure is often inadequately controlled in clinical practice. The sixth report of the Joint National Committee (JNC VI) in 1997 recommended the target of systolic and diastolic pressure in healthy adults of below 140/90 mmHg. However, even in developed countries like the United States of America, the proportion of patients in whom blood targets of below 140/90 mmHg after hypertensive treatment were achieved in only 27 per cent<sup>(4)</sup>.

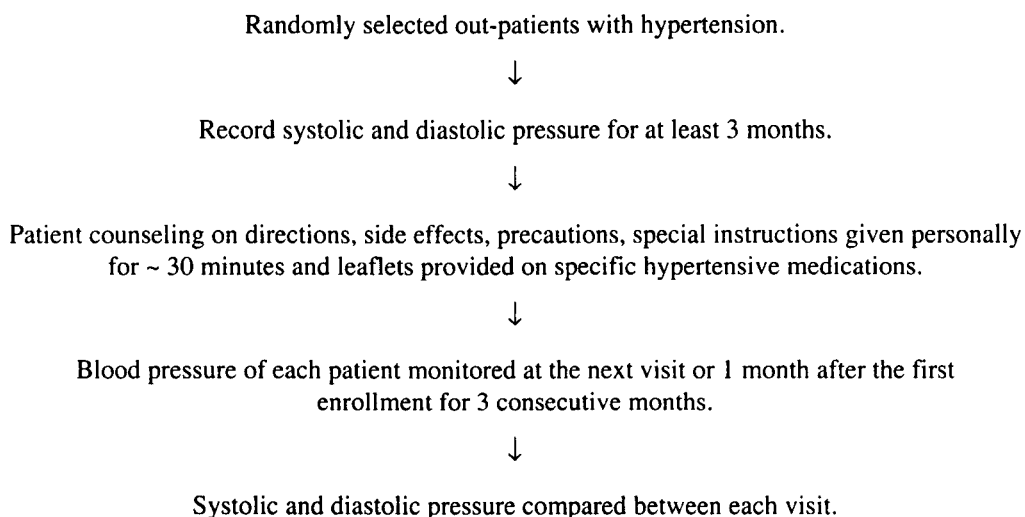
Patient counseling, one component of the overall drug-use process, promotes patient compliance with prescription regimens, prevents severe drug

interactions and, at the same time, reduces medication errors<sup>(5)</sup>. Counseling has become an accepted standard for pharmacy practice. Ward et al showed shown that pharmacists regularly deliver either deficient or suboptimal care regarding drug therapy in long-term treatment and common ailments, resulting in unsuccessful therapy<sup>(6)</sup>. In many countries, including Thailand, legislation and professional declarations of the pharmacist's role in patient counseling has been announced in order to improve the patient's quality of life, economic and overall health-care services.

The objective of this self-controlled experimental study was to evaluate the role of pharmacists in patient counseling on blood pressure control of out-patients with hypertension at Chulalongkorn Hospital. The result of this study could also be applied to other chronic diseases and will emphasize the importance of the relationship between patients and health-care professionals.

## METHOD

Medical records, patient profiles together with questionnaires were used to collect the data including background information, prescribed medications, laboratory results and patient's knowledge together with problems on disease and medications. The procedure in Fig. 1 was performed on each subject.



**Fig. 1.** The procedure for evaluation of patient counseling on blood pressure control of out-patients with hypertension.

**Table 1. Category of hypertension by JNC VI, 1997.**

Type of hypertension	Systolic pressure (mmHg)	Diastolic pressure (mmHg)
Optimal	< 120	< 80
Normal	< 130	< 85
High Normal	130-139	85-89
<b>Hypertension</b>		
Stage 1	140-159	90-99
Stage 2	160-179	100-109
Stage 3	> 180	> 110

Blood pressure level of each patient was evaluated according to the guideline of JNC VI (Table 1). Subjects with blood pressure in the hypertension category stage 1 to 3 was considered as successful treatment only when systolic and diastolic blood pressure had decreased at least 10 mmHg compared to the average blood pressure of three-months baseline (before receiving patient counseling). However, subjects with blood pressure of optimal, normal and high normal levels were considered as being successfully treated when either systolic or diastolic blood pressure did not increase more than 10 mmHg compared also to average blood pressure of the three-month baseline.

Besides background information, prescribed medications, laboratory results and patient's knowledge together with problems on disease and medications, the authors also investigated the effect of education, other medical conditions such as diabetes mellitus, hyperlipidemia on blood pressure control. Furthermore, the efficiency of sensory organs such as eyes and ears was also evaluated for the compliance of hypertensive medications. Subjects with visual defects of either one or both sides of their eyes and needed eyeglasses for normal vision were identified. In the case of hearing defects, subjects using hearing aids or who required the regular voice tone to be repeated three times to understand the normal conversation were considered to have hearing deficiency.

## RESULT

Twenty-eight males and fifty females with hypertension were enrolled in the present study. Their ages ranged between 39-81 years old. According to the criteria set by JNC VI, the results of blood pres-

**Table 2. The results of blood pressure control before and after patient counseling.**

Condition	Before counseling		After counseling	
	%		%	
Uncontrolled BP				
BP ↑ > 10 mmHg	68	87.18	24	30.77
Controlled BP				
Constant BP	10	12.82	22	28.21
BP ↓ > 10 mmHg	-	-	32	41.03

sure control before and after patient counseling are shown in Table 2. From the result, it can be concluded that 54 subjects (69.23%) the systolic and diastolic pressure had been successfully controlled within the range after proper counseling. The comparison of blood pressure before and after patient counseling indicated that, from the independence test, patient counseling was highly significant in blood pressure control using the chi-square test ( $\chi^2 = 51.29$ ).

Regarding other factors related to the effectiveness of hypertensive treatment, about 30 per cent and 50 per cent of patients with eyes or ears problems had elevated blood pressure compared to normal people, respectively. Most hypertensive patients in the present study had had an elementary level of education. About 45.5 per cent of the total subjects with an educational level lower than bachelor degree were not been able to keep their blood pressure within the preferred range while 30 per cent of patients with other complications such as hyperlipidemia, diabetes mellitus also failed to control their blood pressure within the normal limit.

## DISCUSSION

Patient counseling on diseases and medications had a significant effect on the outcome of hypertensive treatment. About 69.23 per cent of the total subjects who received patient counseling regarding the proper use of hypertensive medications had constant or lower systolic and diastolic pressure after the second doctor visit, compared to the normal value of 27 per cent success rate of blood pressure control without receiving patient counseling as reported in the literature<sup>(4)</sup>. Other factors which affected blood

pressure control were hearing and visual ability, education level and complications from other medical conditions.

The present study was designed to measure the outcome of patient counseling on the effectiveness of hypertensive treatment over a three month period. However, the result would be more reliable and were able to improve the patients' quality of life if the process had been done on a longer-term basis. Although the present pilot study investigated a small group of patients for a short-term, it could be applied to other chronic diseases, as a basic idea for long-term study.

## SUMMARY

Pharmaceutical care has become a significant factor to improve therapeutic outcome, especially for chronic diseases. Patient counseling is an example of pharmaceutical care which promotes clear understanding for patients on diseases, prescribed medications and life-style modifications. Health care professionals should be able to provide sufficient information to each patient for every medication received and also every stage of disease. This process would not only raise the standard of medical service, but also help macroeconomics due to a decrease in health care expenses.

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## ผลของการให้คำปรึกษาแนะนำโดยเภสัชกรแก่ผู้ป่วยต่อการควบคุมภาวะความดันโลหิตสูง

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งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาผลของการให้ความรู้โดยเภสัชกรในเรื่องการใช้จ่ายตามแพทย์สั่งต่อการควบคุมระดับความดันโลหิตในผู้ป่วยความดันโลหิตสูง ผลวิจัยพบว่าผู้ป่วยจำนวน 68 คนจากจำนวนทั้งสิ้น 78 คนที่ได้รับยารักษาภาวะความดันโลหิตสูงแต่ไม่สามารถควบคุมระดับความดันโลหิตให้อยู่ในเกณฑ์ที่ JNC VI กำหนด เมื่อเภสัชกรให้คำแนะนำเรื่องการใช้จ่ายแก่ผู้ป่วยกลุ่มดังกล่าวพบว่าผู้ป่วยจำนวน 54 คนสามารถควบคุมระดับความดันโลหิตได้ตามเกณฑ์ที่กำหนดโดย JNC VI จากการวิเคราะห์ทางสถิติโดยใช้ Chi square test พบว่าการให้คำแนะนำเรื่องการใช้จ่ายแก่ผู้ป่วยภาวะความดันโลหิตสูงสามารถเพิ่มประสิทธิภาพในการรักษาได้อย่างมีนัยสำคัญ

**คำสำคัญ :** การให้ความรู้, ความดันโลหิต

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