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19 – 22 March, 2012
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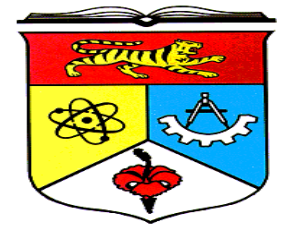


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Blood Pressure Control and Its Associated Factors among Older Persons with Hypertension in Primary Care Clinics

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Background

- Hypertension is an important public health challenge worldwide and locally.
- It is one of the most important risk factors for cardiovascular diseases such as stroke, coronary heart disease and heart failure.
- It is a major health care burden in primary care clinic. Good blood pressure control is important to delay the associated complications.

1. A Verma et al. *Med Clin North Am*, 2009; 93 (3), 647–64.
2. J Lindhorst et al. *Cardiovascular Journal of Africa*. 2007;18(4), 241–7.
3. K Wachtell et al. *Ther Adv Cardiovasc Dis* . 2008;2(6), 507–13.

Background

- Prevalence of hypertension:

World:2000 (26.4%) → 2025 (29.2%)¹
United States: NHANES 2003-2004 (29.3%)²
Malaysia: NHMS III 2006 (32.2%)³

1. PM Kearney et al. *Lancet* 2005; 365: 217–23.

2. Ong KL et al. *Hypertension* 2007;49(1):69-75.

3. The National Health and Morbidity Survey (NHMS III) 2006

Background

- Hypertension is highly prevalent in the older persons.

Europe and USA (53-72%)¹

Singapore (73.9%)²

Malaysia (74.0%)³

1. Fotoula Babatsikou et al. Health Science Journal, 2010

2. Malhotra R et al. Hypertens Res 2010.

3. Ho BK et al. The National Health and Morbidity Survey (NHMS III) 2006

Background

- On an average the target blood pressure control is achieved only in one third of hypertensive patients.
- NHMS III¹
 - Overall, only 8.2% under control
 - 26.3% for those under treatment
- NHANES²
 - 36.8% control in 2003-2004

1. The National Health and Morbidity Survey (NHMS III) 2006
2. Ong KL et al. *Hypertension* 2007;49(1):69-75.

Objective

- To determine the BP control and its associated factors among older persons with hypertension.

Methods

- This was a cross sectional study in six primary health care clinics in Wilayah Persekutuan, Malaysia.
- Sampling:
 - systematic random sampling of hypertensive patients attending the selected clinics over 3 months in 2010.
- Sampling frame:
 - All hypertensive patients on pharmacotherapy for ≥ 1 year, age 18 years old and above.

Methods

- Blood pressure determination:
 - the average of two blood pressure readings measured twice with an interval of 5 minutes apart.
- Data on treatment profiles:
 - retrieved from the medical records.
- Definition of BP control:
 - $<130/80$ mmHg for diabetic patients and
 - $<140/90$ mmHg for non-diabetic patients.
- Ethical approval:
 - Medical Ethical Committee, Ministry of Health
 - Ethical Committee ,Faculty of Medicine and Health Sciences, Universiti Putra Malaysia.

Results and discussions

- A total of 1,107 patients were selected via systematic random sampling. Data of 441 (39.8%) patients ≥ 60 years old were used in this analysis.
- The mean age was 65.9 SD 5.1 years old (range 60-89).

Table 1. Distribution of sociodemographic data

Sociodemographic	Frequency(n=441)	Percentage(%)
Age		
60-64	220	49.9
65-69	125	28.3
70-74	68	15.4
75-79	19	4.3
≥ 80	9	2.0
Gender		
Male	225	51.0
Female	216	49.0
Race		
Malay	165	37.4
Chinese	200	45.4
Indian	73	16.6
Others	3	0.7
Education level		
Tertiary	34	7.7
Secondary	180	40.8
Primary	176	39.9
No formal education	51	11.6
Staying alone		
Yes	51	11.6
No	390	88.4

Table 2. Distribution of clinical parameters

Clinical parameters	Frequency(n=441)	Percentage(%)
Smoking status		
Yes	34	7.7
No	405	91.8
Missing	2	0.5
Presence of co-morbidity		
Yes	386	87.5
No	55	12.5
Duration of hypertension		
1-5 years	147	33.3
6-10 years	137	31.1
>10 years	157	35.6
Number of antihypertensive agents		
1	127	28.8
2	206	46.7
3	97	22.0
≥4	11	2.5
Total number of medication taken		
<5	244	55.3
≥5	197	44.7

Discussions

- Blood pressure control

Study setting	Control rate
Public primary care clinics (Present study)	43.3%
Elderly care home, North Malaysia ¹	34.0%
NHMS III, Malaysia ²	22.6%
Community survey, Singapore ³	35.5%

1. Ong HT et al. Med J Malaysia 2010.

2. Ho BK et al. The National Health and Morbidity Survey (NHMS III) 2006

3. Malhotra R et al. Hypertens Res 2010

Figure 1. Distribution of education level among patients with controlled and uncontrolled blood pressure

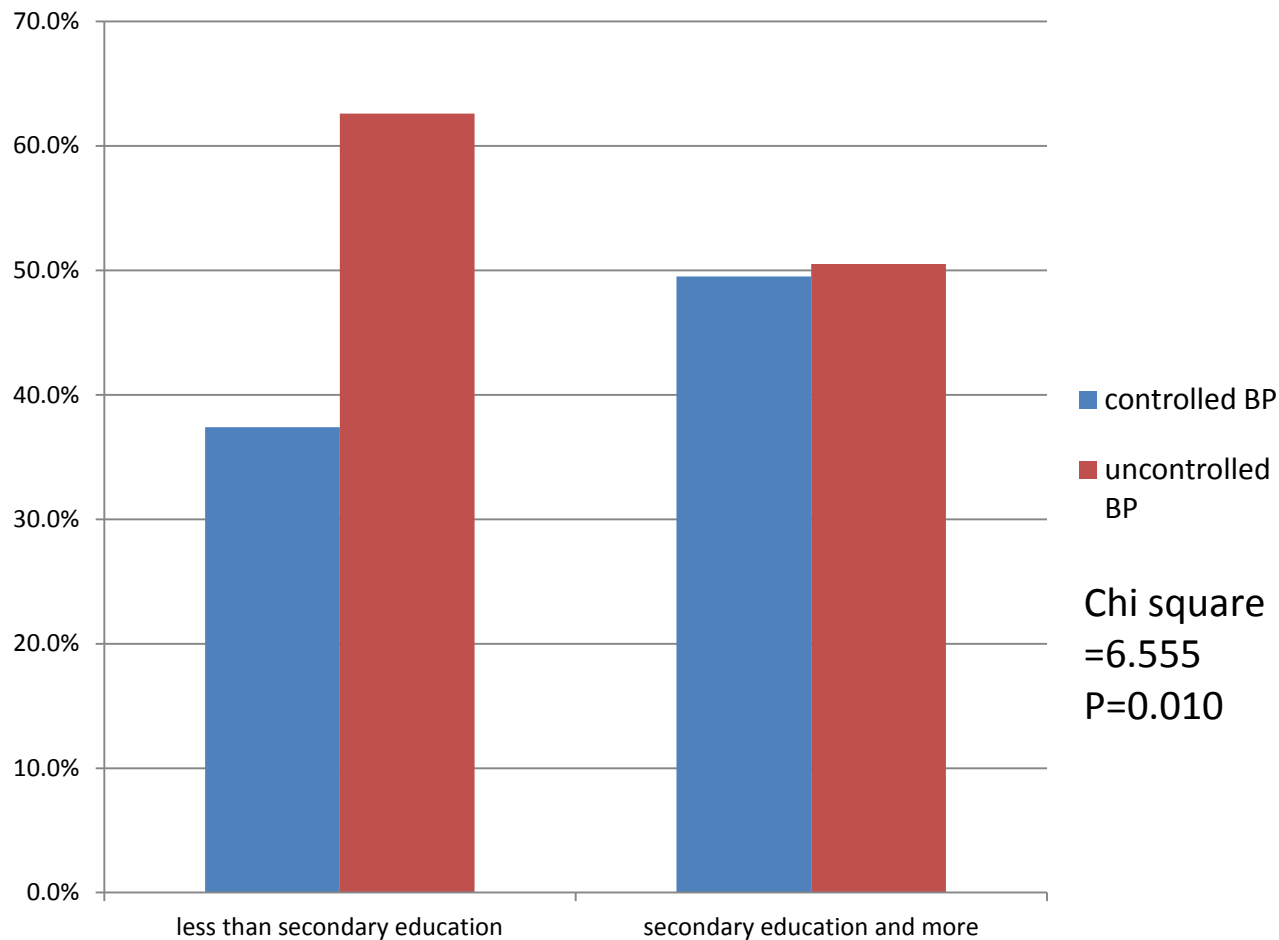


Figure 2. Distribution of co morbidities among patients with controlled and uncontrolled blood pressure

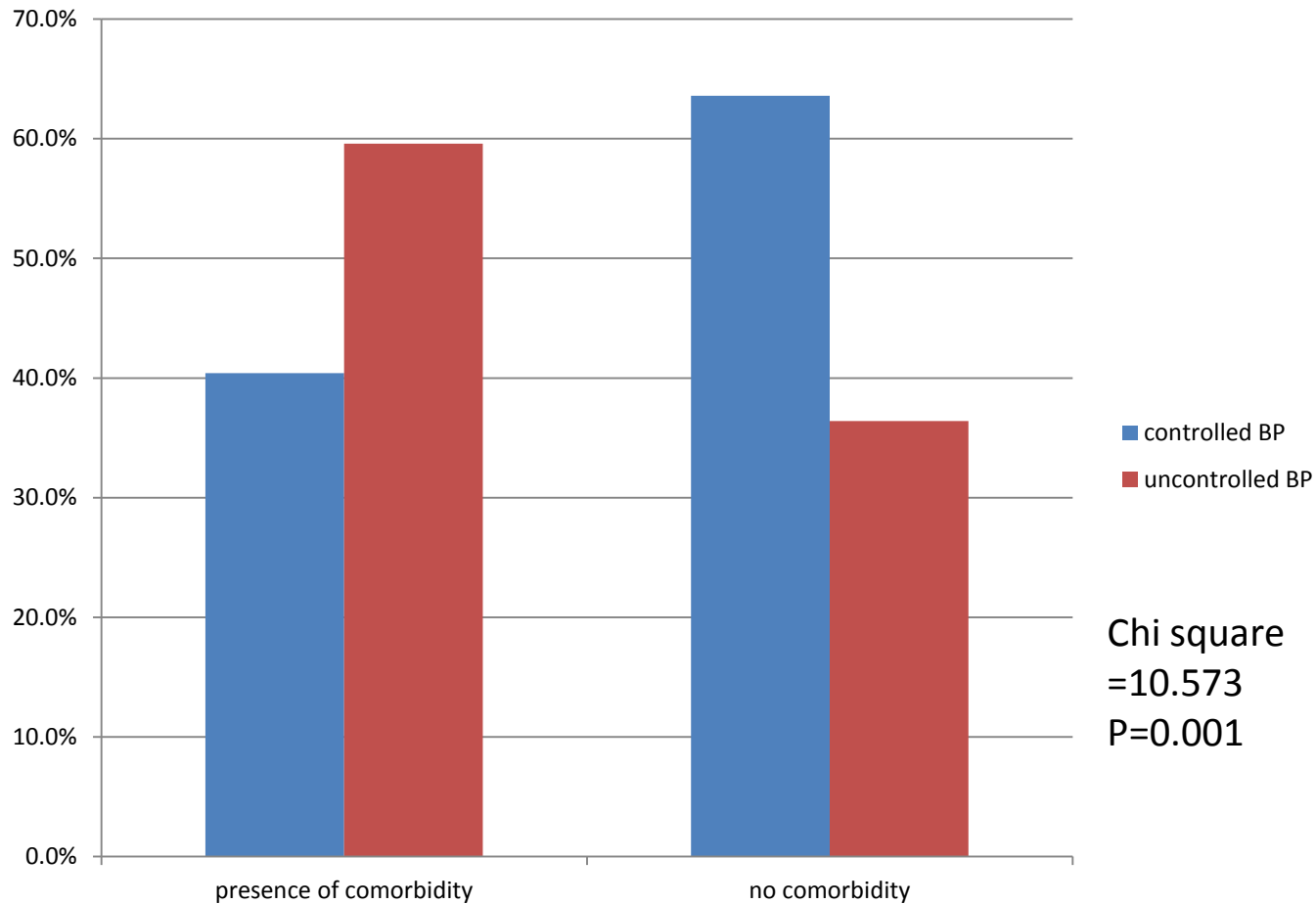


Figure 3. Total number of anti hypertensive agents prescribed in patients with controlled and uncontrolled blood pressure

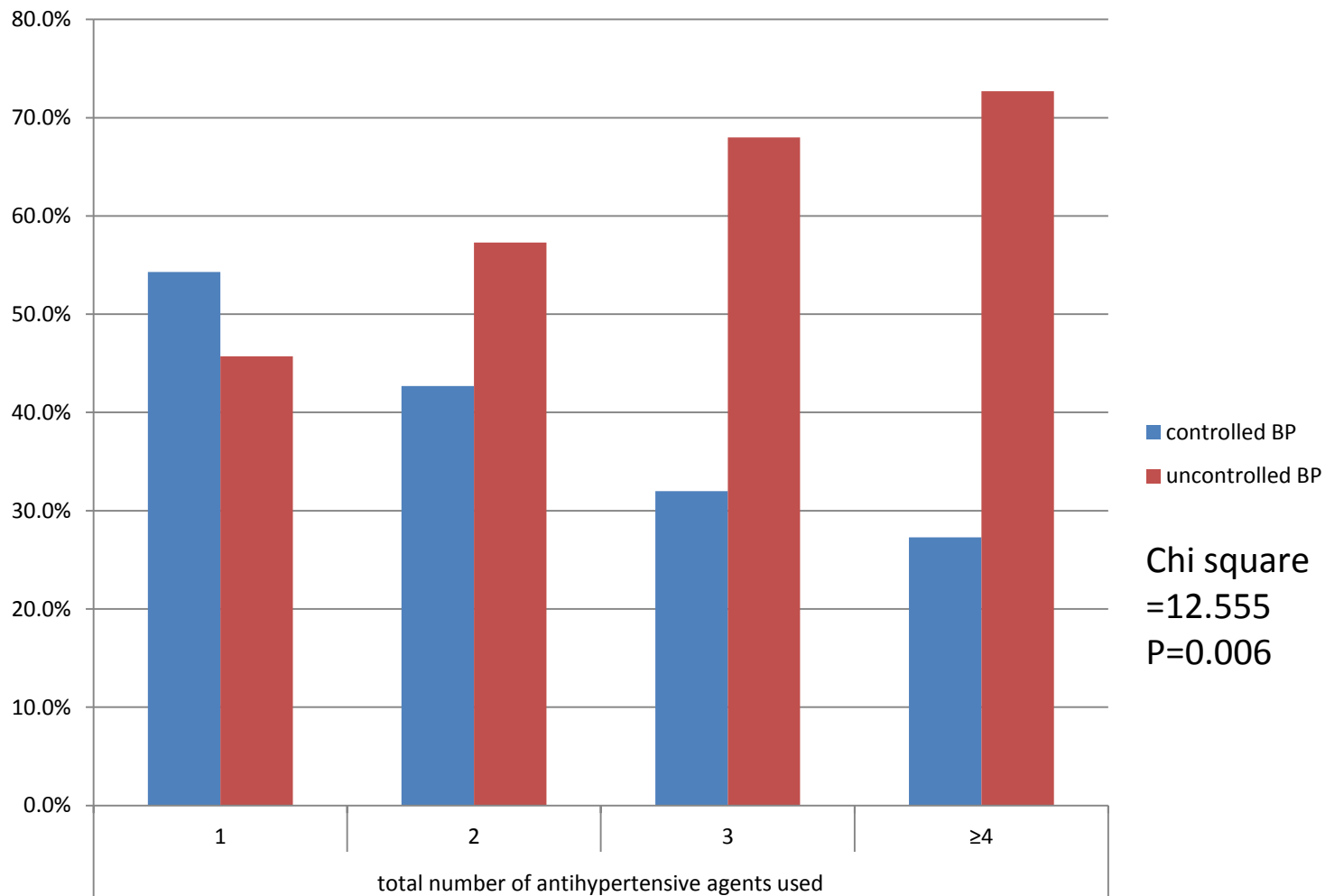


Figure 4. Total number of medication prescribed in patients with controlled and uncontrolled blood pressure

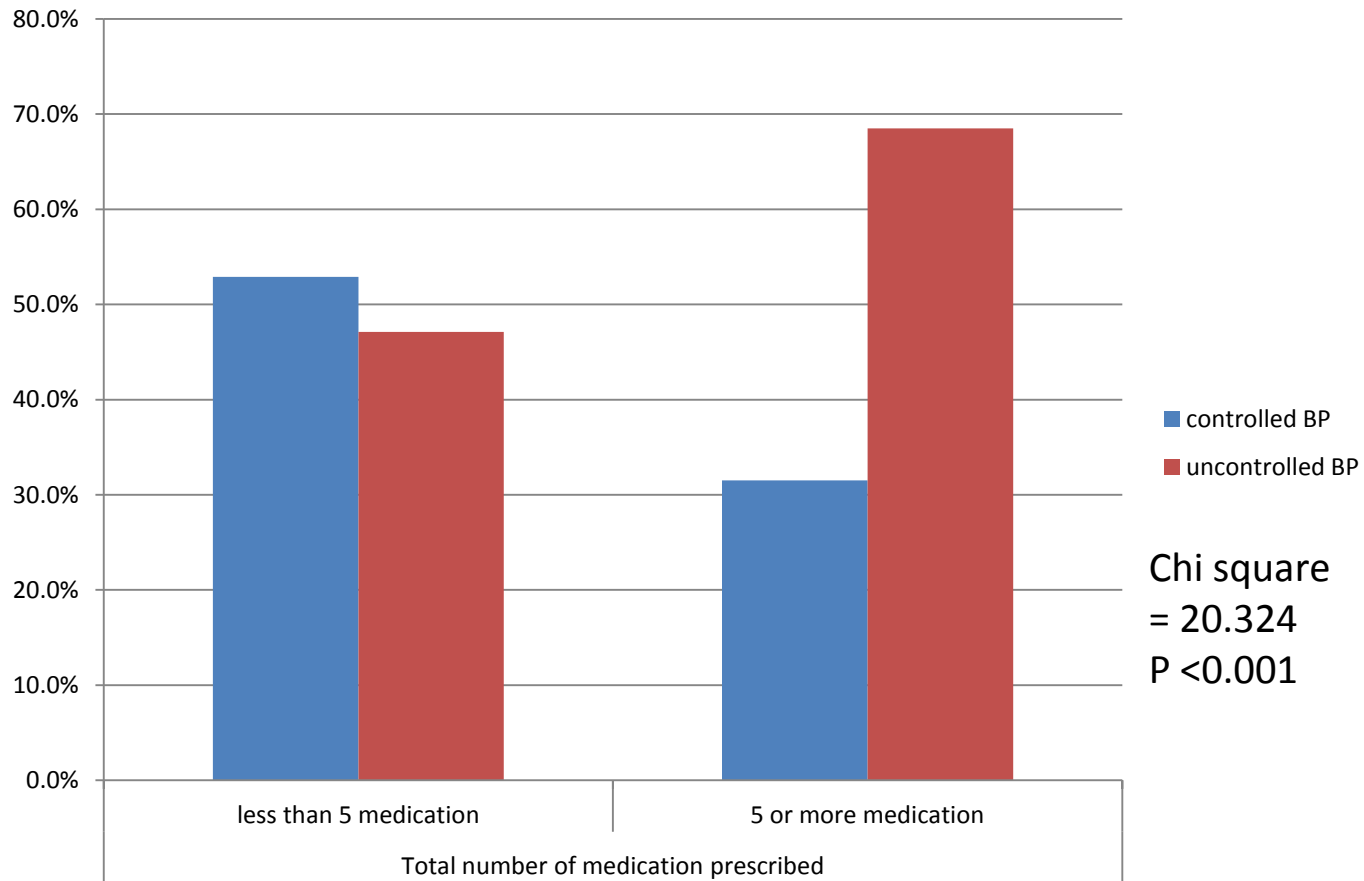


Table 3. Table 4: Multivariate logistic regression from forward likelihood ratio stepwise method of risk factors towards poor blood pressure controlled of older persons with hypertension

Factors	OR	95%CI	p-value
Education level			
Less than secondary education	1.5	1.018, 2.226	0.040
Secondary or higher education		ref	
Total number of medication prescribed			
<5 medications		ref	
≥5 medications	2.3	1.529, 3.382	<0.001

Conclusions

- Older hypertensive patients with lower education level and using 5 or more medications would require more attention on their BP control.

Acknowledgement

- The authors would like to thank the participants who took part in this study and also all the staffs who help to carry out this project.
- This study was funded by Universiti Putra Malaysia (RUGS 04-05-08-0570RU).