



# Management of Hypertension In Ethnic Minority Groups in Hong Kong

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# Background

- Hypertension (HT) is one of the most common chronic conditions encountered in the primary care, affecting around **27%** of the population aged 15 or above locally.
  - [Report on Population Health Survey 2003/04](#). HKSAR, Dept. of Health; 2005
- Improving the quality of chronic disease management is an essential component of health policy in the community.
- Locally, a significant proportion of hypertensive patients are managed in the primary care and followed up at general out-patients clinics (GOPCs) in the Hospital Authority.



# Background

- About 95% of Hong Kong's population is ethnic Chinese; the remaining consists of ethnic minority groups (EMGs) mainly from India, Philippines, Nepal and Pakistan.
- Previous studies have shown that hypertension affects certain ethnic groups differently. However, local data on the chronic disease control among ethnic minority hypertensive patients is still lacking.



# Aims of this study

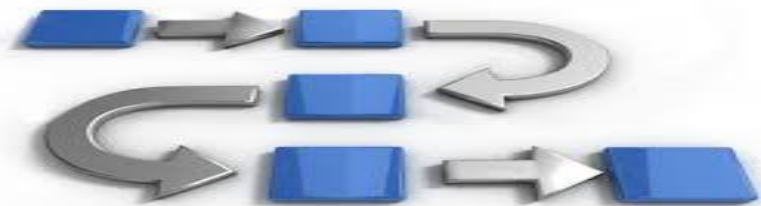
- 1. To identify the demographics of hypertensive patients from ethnic minority groups in a local GOPC;
- 2. To compare the blood pressure (BP), glucose and lipid control of EMG hypertensive patients with Chinese hypertensive patients managed in the primary care;
- 3. To explore possible strategies to improve.





# Methodology

- **Setting:** General Outpatient Clinic (GOPC), Kowloon Central Cluster
- **Design:** Retrospective case series study.
- **Defined ethnic minority groups in this study**
  - According to pilot study carried out on early 2012, the top four ethnic minority groups that had regular follow up for chronic disease management in this clinic were from South Asian groups including **Indian, Nepalese, Filipino and Pakistani**. Very few Caucasians and other Asian ethnicities such as Japanese and Koreans had regular FU here and were therefore excluded from data analysis.



# Subjects



## Inclusion criteria

Hypertension patients coded by ICPC T86 and T87 regularly FU at Yau Ma Tei GOPC, Kowloon Central Cluster between 1 January, 2013 and 31 December, 2013 and had annual blood check up done at least once during this period;

## Exclusion criteria

- Wrongly diagnosed hypertension cases;
- Hypertension patients who had no annual check up done within this period;
- Hypertension patients who were neither Chinese nor of the above 4 ethnics in origin

# Statistical analysis

- **Outcome assessment:** Blood pressure, co-morbidities, serum fasting blood sugar (FBS), creatinine (Cr), estimated glomerular filtration rate (eGFR, calculated by MDRD method), lipid profile and urine albumin-creatinine ratio (ACR) from CMS.
- **Statistics:** Student's t-test and analysis of variance (ANOVA) for analysing continuous variables and Chi-square test for categorical data. All statistical tests are two-sided, and a p-value of  $<0.05$  was considered significant.



# Results





**TABLE 1. Demographic characteristics of hypertensive patients recruited into study**



- Totally 13558 hypertension cases were found in the HT registry during the study period, 2787 cases (20.6%) were excluded due to the exclusion criteria as above
- Among the 10771 hypertension cases fulfilling the inclusion criteria, 10121 patients (94.0%) were Chinese in origin and **650 (6.0%)** were from EMGs .

Demographic	Chinese (n=10,121)	Ethnic minority groups (n=650)	P value
Gender			
Male	5153(50.9%)	323 (49.7%)	0.55
Female	4968 (49.1%)	327 (50.3%)	
Male-to-female ratio	1.04	0.99	
Age (years)	67.2 ± 11.9	55.7 ± 11.9	<0.001
Body mass index (kg/m <sup>2</sup> )	25.4 ± 4.1	28.7 ± 4.7	<0.001
Smoker n (%)	1417 (14.0%)	115 (17.7%)	0.13


**TABLE 2. Co-morbidities and renal function in Chinese and EMG hypertensive patients matched with age and sex**

Item	Chinese (n=650)	Ethnic minority groups (n=650)	P value
BMI (kg/m <sup>2</sup> )	25.6 ± 4.1	28.7 ± 4.7	<b>&lt;0.001</b>
<b>Concomitant disease</b>			
Diabetes	196 (30.2%)	276 (42.5%)	<b>&lt;0.001</b>
Stroke	35 (5.4%)	30 (4.6%)	0.42
Ischaemic heart disease	34 (5.2%)	25 (3.8%)	0.10
Chronic kidney disease	58 (8.9%)	54 (8.3%)	0.25
<b>Renal function</b>			
Serum creatinine (µmol/L)	78.7 ± 25.2	77.2 ± 32.6	0.48
eGFR (mL/min/1.73m <sup>2</sup> )	89.6 ± 22.8	92.3 ± 23.1	0.11
Urine ACR (mg/mmol)	9.4 ± 31.3	12.1 ± 9.4	0.42

**TABLE 3. Blood pressure and lipid control in Chinese and EMG hypertensive patients matched with age and sex**

Item	Chinese (n=650)	Ethnic minority groups (n=650)	P value
<b>Blood pressure control</b>			
Average Systolic BP (mmhg)	131.8 ± 14.9	136.9 ± 16.4	<0.001
Average Diastolic BP (mmhg)	74.6 ± 11.1	79.7 ± 11.2	<0.001
Cases with adequate BP control (BP<140/90mmhg) n (%)	520 (80%)	442 (68%)	<0.001
<b>Fasting blood sugar (mmol/L)</b>			
	5.9 ± 1.5	6.6 ± 2.3	<0.001
<b>Lipid control (mmol/L)</b>			
Total cholesterol	5.05 ± 0.94	4.96 ± 1.04	0.48
HDL	1.41 ± 0.39	1.30 ± 0.38	<0.001
LDL	3.01 ± 0.82	2.98 ± 0.83	0.11
Triglyceride	1.51 ± 0.94	1.67 ± 1.04	<0.001

**Table 4. Demographic characteristics of hypertensive patients in the EMGs**



	Nepalese (n=275)	Indian (n=143)	Filipino (n=125)	Pakistani (n=69)	P value
<b>Gender</b>					
Male	166	77	27	51	<b>&lt;0.001</b>
Female	109	66	98	18	
M/F ratio	1.52	1.17	0.28	2.83	
<b>Age (years)</b>	53.0 ± 11.8	60.6 ± 12.7	57.1 ± 9.9	53.2 ± 12.1	<b>&lt;0.001</b>
<b>BMI (kg/m<sup>2</sup>)</b>	28.8 ± 3.5	29.7 ± 6.6	27.9 ± 4.7	29.1 ± 5.0	0.57
<b>Smoker n (%)</b>	63(22.9%)	25(17.5%)	9(7.2%)	18(26.1%)	<b>&lt;0.001</b>



**Table 5. Chronic disease control in EMG hypertensive patients**



	Nepalese (n=275)	Indian (n=143)	Filipino (n=125)	Pakistani (n=69)
Fasting blood sugar (mmol/L)	6.35 ± 2.20	6.95 ± 2.44	6.41 ± 2.23	<b>7.09 ± 2.80</b>
BP control				
Systolic BP (mmhg)	138 ± 16	136 ± 19	135 ± 15	137 ± 15
Diastolic BP (mmHg)	<b>82 ± 11</b>	77 ± 12	78 ± 9	78 ± 10
Lipid profile (mmol/L)				
Total cholesterol	4.90 ± 1.00	4.73 ± 0.98	5.03 ± 1.14	4.71 ± 1.04
HDL	1.29 ± 0.37	1.30 ± 0.38	1.25 ± 0.34	<b>1.10 ± 0.28</b>
LDL	2.87 ± 0.82	2.79 ± 0.83	3.06 ± 0.81	2.88 ± 0.83
Triglyceride	1.67 ± 1.13	1.53 ± 0.85	1.75 ± 1.09	<b>1.86 ± 0.92</b>

# Discussion (1)

- First clinical analysis of hypertensive patients from EMGs locally.
- It described the demographic characteristics of hypertensive patients from both Chinese and EMGs managed in the primary care and revealed their ethnic discrepancies in terms of blood pressure control, glycaemic control and lipid control.
- It is important to note that the basic demographic features of Chinese hypertensive patients and those from the EMGs were quite different. Compared with Chinese HT patients, EMG HT patients in HK were **much younger but more obese**.
  - These findings are in line with reports from HK census 2010 which showed that for all ethnic minorities in HK, 61.3% of them aged 25-44 and the median age for all ethnic minorities was much lower than that of the whole population in HK.



# Discussion (2)



- Possible reasons for the discrepancy between EMGs and Chinese with regards to chronic disease control were **multi-factorial**.
  - **Genetic factors** may play a determinant role. Hypertensive patients from the South Asian groups were proved to be more likely to have insulin resistance and with higher prevalence of diabetes and metabolic syndrome;
  - Patients from EMGs are often at **socio economic disadvantage**, might have inequalities in accessing medical care.
  - **Communication problem**: first language is not English and therefore they may not understand the medical advice properly.
  - **Cultures, religious beliefs and lifestyles influence** on behavior and affect health care delivery and management.
- Therefore, coordinated and integrated efforts are needed to overcome these limitations in the EMGs hypertensive patients as soon as possible.



# Limitations of this study



- First, only hypertensive patients FU at one single clinic and had annual check up done were recruited. Those who were FU here but never attended the annual assessment (n=2787 , 20.6 %) were excluded. Therefore, **selection bias** might exist.
- Secondly, all variables were measured at least once during the 1-year study period, therefore **variability of measurement** may exist.





# Conclusion

- **EMG is an integral part of Hong Kong population. This study has provided important background information on the demographic characteristics of hypertensive patients from the EMGs as compared with Chinese hypertensive patients.**
- **Compared with Chinese hypertensive patients, EMG hypertensive patients were much younger but more obese. They required comprehensive management of hypertension, particularly the blood pressure control and lipid control.**
- **Culturally tailored healthcare interventions are therefore required to promote patient education and clinical effectiveness among this group of patients and improve their health status in the long run.**



# Our next step?

- **Qualitative study to understand the barriers for HT control among EMGs patients living in HK.**
- **Concerted effort should be made to raise the awareness of HT and to deliver target prevention messages to high-risk groups in collaboration with their community.**
- **In the meanwhile, our services should take aspects of ethnicity and culture into consideration and implement culturally specific interventions to improve the HT control in EMGs in HK.**



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# Thank you!



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## Discussion (2)



- Blood pressure control: both average systolic BP and diastolic BP much higher in EMGs than their Chinese counterpart.
- Lipid control: **HDL-c lower** and **triglyceride much higher** in EMGs than Chinese counterpart.
- Among the 4 top ethnic minority groups of HT patients managed in this clinic, Nepalese hypertensive patients were found to have a particularly poorer diastolic BP control and Pakistani patients higher FBS and TG level but lower HDL-C.

