The Epidemiology of Hypertension in Malaysia: Current Status

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OUTLINE

• Introduction
• Objectives
• Methodology
• Results
• Discussion / Conclusion
INTRODUCTION

• Is an established risk factor of cardiovascular disease

• Leading risk factor for mortality, responsible for 13% of deaths globally

• Causes around half of all deaths from stroke and heart disease
INTRODUCTION

- Globally, the adult prevalence of hypertension
  - 26.4% (95% CI 26.0-26.8%) in 2000
  - ↑ to 29.2% (95% CI 28.8-29.7) in 2025
Objective(s)

Describe the Epidemiology of hypertension in Malaysia in terms of prevalence and socio-demographic distribution
Methods

• Cross-sectional nationwide study in 2011
• Two stage stratified sampling
• 18,231 adults aged $\geq 18$ years
• Prevalence estimates and 95% Confidence Intervals (CI) were calculated by a method appropriate to the complex sampling design
Methods – Definitions

• Hypertension was classified as known or previously undiagnosed.

• Known hypertension - previously being told by a health care provider to have hypertension or high blood pressure (BP)

• Previously undiagnosed (newly diagnosed) hypertension - not previously being told by a health care provider to have hypertension, but currently measuring an average systolic BP of ≥140 mmHg and/or diastolic BP of ≥ 90 mmHg
Blood Pressure Measurement

- Omron-HEM 907 device
- Sitting position, arm at heart level
- 2 BP readings, 5 minute interval
- Average of two BP readings taken
Results

• The individual response rate was 99.3%

≥ 18 years old

• The overall prevalence of hypertension - 32.7%
  (95% CI 31.6 - 33.7)

• Known hypertension - 12.8 % (95% CI 12.2-13.5)

• Previously undiagnosed hypertension 19.8%
  (95% CI 19.0-20.7)
Results

• The prevalence of overall hypertension was significantly higher among the elderly, Other Bumiputras, no formal education, retirees, lower social income and rural residents compared to the other groups.

• Males and females had a similar overall prevalence of about one third.
Prevalence of Hypertension, ≥ 18 years, 2011, Malaysia

- Total HPT: 32.7%
- Normotensive: 67.3%
- Known HPT: 12.8%
- Newly diagnosed HPT: 19.8%
Results

Hypertension, Known and Undiagnosed, ≥ 18 years, 2011

- Known HPT: 39%
- Undiagnosed HPT: 61%
Prevalence of Hypertension by Sex, ≥ 18 Years, 2011

<table>
<thead>
<tr>
<th>Category</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>All HPT</td>
<td>33.7</td>
<td>31.6</td>
</tr>
<tr>
<td>Known/Aware HPT</td>
<td>11.9</td>
<td>13.8</td>
</tr>
<tr>
<td>Undiagnosed HPT</td>
<td>21.8</td>
<td>17.8</td>
</tr>
</tbody>
</table>
Prevalence of Hypertension by Age Groups, ≥ 18 Years, 2011
Prevalence of Hypertension by Ethnicity, ≥ 18 Years, 2011
Prevalence of Hypertension by Educational Level, ≥ 18 years, 2011

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>All HPT</th>
<th>Known/Aware HPT</th>
<th>Undiagnosed HPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>No formal education</td>
<td>56.3</td>
<td>29.3</td>
<td>27.1</td>
</tr>
<tr>
<td>Primary education</td>
<td>46.4</td>
<td>20.4</td>
<td>26.1</td>
</tr>
<tr>
<td>Secondary education</td>
<td>29.6</td>
<td>10.3</td>
<td>19.3</td>
</tr>
<tr>
<td>Tertiary education</td>
<td>20.7</td>
<td>7.1</td>
<td>13.6</td>
</tr>
</tbody>
</table>

HPT NHMS 2011/DR GK/IPH
Prevalence of Hypertension by Occupation Status, ≥ 18 years, 2011
Prevalence of Hypertension by Monthly Household Income, ≥ 18 years, 2011

%
Prevalence of Hypertension, by Locality, ≥ 18 Years, 2011

<table>
<thead>
<tr>
<th>Category</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>All HPT</td>
<td>30.9</td>
<td>37.4</td>
</tr>
<tr>
<td>Known/Aware HPT</td>
<td>12.2</td>
<td>14.7</td>
</tr>
<tr>
<td>Newly Diagnosed HPT</td>
<td>18.8</td>
<td>22.7</td>
</tr>
</tbody>
</table>
Prevalence of Hypertension by State, ≥ 18 Years, 2011
Prevalence of Hypertension by Marital Status, ≥ 18 years, 2011

Sig – All

<table>
<thead>
<tr>
<th>Status</th>
<th>All HPT</th>
<th>Known/Aware HPT</th>
<th>Undiagnosed HPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>16.2</td>
<td>3.3</td>
<td>13.0</td>
</tr>
<tr>
<td>Married</td>
<td>37.0</td>
<td>15.1</td>
<td>21.9</td>
</tr>
<tr>
<td>Widow/widower/divorcee</td>
<td>62.9</td>
<td>33.4</td>
<td>29.5</td>
</tr>
</tbody>
</table>
Treatment and Types of Advice Given By HCP to Known Hypertensives, ≥ 18 years 2011

- Treatment: 76.3% Yes, 23.7% No
- Dietary Advice: 81.7% Yes, 18.3% No
- Weight loss advice: 65.6% Yes, 34.4% No
- Exercise advice: 74.2% Yes, 25.8% No
Usual Place for Seeking HPT Treatment, ≥ 18 years, 2011

- Government Clinics: 48.64%
- Government Hospitals: 22.57%
- Private Clinics: 23.43%
- Private Hospitals: 3.18%
- Pharmacies: 1.79%
- TCM: 0.39%

HPT NHMS 2011/DR GK/IPH
Prevalence of Hypertension, ≥ 30 years, 1996-2006
Prevalence of Hypertension by Sex, ≥ 18 Years, 2006 & 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Male %</th>
<th>Female %</th>
<th>Sig/Not Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>33.3</td>
<td>31.0</td>
<td>Sig</td>
</tr>
<tr>
<td>2011</td>
<td>33.7</td>
<td>31.6</td>
<td>Not Sig</td>
</tr>
</tbody>
</table>
Prevalence of Hypertension by Educational Level, ≥ 18 years, 2006 & 2011

%  2006  2011

- No formal education: 58.6% (Sig) 56.3% (Sig)
- Primary education: 40.9% 46.4%
- Secondary education: 25.7% 29.6%
- Tertiary education: 19.4% 20.7%
- Unclassified education: 29.6% 22.2%
Prevalence of Hypertension by Monthly Household Income Level, ≥ 18 years, 2006 & 2011
Prevalence of Hypertension by Locality, ≥ 18 Years, 2006 & 2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Urban</th>
<th>Rural</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>29.3</td>
<td>36.9</td>
<td>7.6%</td>
</tr>
<tr>
<td>2011</td>
<td>30.9</td>
<td>37.4</td>
<td>6.7%</td>
</tr>
</tbody>
</table>
Burden of Hypertension in Malaysia: Trends & Projections by 2020 (≥ 18 years)

![Graph showing estimated population and prevalence of hypertension from 2006 to 2020.]

Source: Division of Disease Control, MOH

- Estimated population, 2006
- Estimated population, 2011
- Prevalence projection, 2006
- Prevalence projection, 2011
Admissions to MOH Hospitals due to Circulatory Diseases: Projections by 2020

\[ y = 130995e^{0.0208x} \]

\[ R^2 = 0.7959 \]

Source: Division of Disease Control, MOH
Deaths in MOH Hospitals due to Circulatory Diseases: Projections by 2020

\[ y = 605.97x + 8657.9 \]

\[ R^2 = 0.9027 \]

Source: Division of Disease Control, MOH
Summary of Key Findings

1 in 3 adult Malaysian population is hypertensive

1 in 8 is a known hypertensive

1 in 5 is an undiagnosed hypertensive
Summary of Key Findings

- **All HPT**: 32.7%
- **39.2% Known HPT**
- **76.3% Treated HPT**
- **34.8% controlled HPT**
Summary of Key Findings

• Currently, 6,267,376 million individuals ≥ 18 years with hypertension in Malaysia

• Projected prevalence of hypertension in 2020 - 35.8%, with an estimated 7.6 million Malaysians age 18 years and above
Conclusion & Recommendations

• HPT is still an important public health problem in Malaysia and needs to be addressed seriously

• Cannot be tackled in isolation, but together with other NCD risk factors
Thank you