

# Hypertension; east and west

## Abstract

Hypertension is the number one public health burden accounting for most cardiovascular morbidity and mortality worldwide. While the more developed western countries have shown some success in combating hypertension, the same cannot be said for developing and newly developed countries in the East. The prevalence of hypertension is increasing in the East and coupled with low awareness, and poor blood pressure control on treatment, it will continue to pose substantial health demand in the East. Lessons needs to be learned from the West to combat this public health scourge.

**Keywords:** hypertension, awareness, treatment, control, east, west

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Abdul Rashid Abdul Rahman,<sup>1</sup> Aneesa Abdul Rashid<sup>2</sup>

<sup>1</sup>Consultant Cardiovascular Physician/Medical Director and Visiting Professor, An Nur Specialist Hospital, Malaysia

<sup>2</sup>Family Medicine Specialist, Medical Lecturer, Universiti Putra Malaysia, Malaysia

**Correspondence:** Abdul Rashid Abdul Rahman, Consultant Cardiovascular Physician/Medical Director and Visiting Professor, An Nur Specialist Hospital, Bandar Baru Bangi, Malaysia, Email [abdulrashid43000@gmail.com](mailto:abdulrashid43000@gmail.com)

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## Introduction

### The burden of hypertension in the east and west

Hypertension is the most prevalent risk factor for mortality worldwide.<sup>1</sup> Cardiovascular (CV) disease, in particular myocardial infarction and cerebrovascular diseases consistently contribute to most morbid and mortal events in most parts of the world. Many of these cardiovascular events are premature in nature, especially in the developing world.<sup>2</sup> These premature deaths of individuals who should be productive to society will in turn confer additional burden to many parts of the developing world which are facing socioeconomic challenges. A cohort study conducted in the Asia Pacific Region over the last two decades has thrown light into the burden of hypertension in particular on cardiovascular diseases in the region.<sup>3</sup> It has been estimated that in the Asia Pacific Region 66% of all CV events are attributable to hypertension per se.<sup>4</sup> Specifically, hypertension contributes to 40-50% of all hemorrhagic strokes, 30-40% of all ischemic strokes and 20-25% of all ischemic heart diseases in the region. These estimates were remarkably shown to be consistent with a recent Indonesian survey that demonstrated 20-25% of all coronary heart diseases and 35-42% of all strokes were attributable to hypertension.<sup>5</sup> It is also worth remembering that effective control of hypertension has been shown to be highly cost effective in the West.<sup>6</sup> and more recently in the East.<sup>7</sup> What lessons can we learn thus far and what can be done to mitigate this worrying state of affair? This article will focus on hypertension because it is set to remain for decades to come as the main public health scourge in combatting premature morbidity and mortality especially in the East, the most populous part of the world.

### Prevalence and awareness of hypertension

Most surveys over the last decade put the prevalence of hypertension at between 19-30% in the West.<sup>8</sup> and 25-48% in the East.<sup>9-19</sup> Most published national surveys over the last decade has been from outside the West. Although one can be critical about findings from such surveys, in particular the different methodologies adopted, the general pattern observed cannot be ignored; hypertension is more prevalent in the East than in the West. There may be several possible reasons, but salt intake, population in epidemiological transition, and adoption of more unhealthy lifestyles may be the main contributing factors. Public health education or the lack of it may also contribute. What is also of concern is that secular trends showed an increase in

prevalence in the East while the reverse is true for the West. Already, the World Health Organisation have predicted that close to 1.6 billion individuals worldwide will have elevated blood pressure by 2025 and the burden will continue to be in the East as what it is now. More is therefore needed to be invested in public surveillance and screening, particularly opportunistic screening at any chance encounter in Asia. The public must also be encouraged to check their blood pressures yearly especially if they have a strong family history of hypertension or pre mature CV diseases. Others to be encouraged are those with concomitant cardiovascular risk especially obesity, smoking, high salt intake, diabetes mellitus, hyperlipidemia and those with previous cardiovascular events some of which may be subclinical or not previously diagnosed. Studies within the Asia Pacific region have shown that countries which have shown a reduction in the prevalence of hypertension has corresponding reduction in CV mortality (South Korea, Singapore, Australia and New Zealand) while the reverse is true (Philippines, Pakistan, Myanmar, China).<sup>20</sup>

Awareness of hypertension also differed between East and West and within the Eastern population. In the West, at least two in three knew that their blood pressure are elevated (England 66%, Canada and the USA 83),<sup>8</sup> while in the East, awareness is at best 64% (Korea).<sup>11</sup> and at worst Indonesia (37%).<sup>19</sup> Bangladesh meanwhile defies the trend for Asian developing countries with a credible 50% awareness rate.<sup>18</sup> It has to be remembered that poor awareness has been shown to correspond to suboptimal control rates particularly in low income Asian countries.<sup>21</sup> It is therefore imperative that more proactive actions need to be taken in Asia to detect and educate the public on the dangers of undiagnosed hypertension.

### Treatment and control of hypertension

Treatment rates of hypertension showed great disparity between the East and West and with the different socioeconomic status within Asian countries. In most Western countries, treatment rates are between 50 to 80% with England having the lowest and Canada the highest.<sup>8</sup> In the Asia Pacific region, the more affluent countries have a treatment rate of more than 50%. South Korea has a treatment rate of 55%,<sup>11</sup> Malaysia 79%,<sup>13</sup> and Singapore 84%.<sup>15</sup> higher even than Canada.<sup>8</sup> This can partially be explained by the fact that Singapore is a small developed city - state and accessibility to health care services should not pose any problem. Of the more economically challenged countries in Asia, Indonesia achieved a treatment rate of 25%.<sup>5</sup>, followed by India (37%).<sup>10</sup> and Bangladesh (41%).<sup>18</sup> China,

the world's most populous country and the second biggest economy, only achieved a treatment rate of 22%.<sup>9</sup> This may be reflective of inaccessibility to health care facilities in a vast country.

Of all the data obtained from hypertension surveys, the one which is arguably the most reliable and most clinically relevant is that of control rates on treatment. These are data obtained from patients who are known to have been diagnosed as having hypertension and are on treatment at the time of the survey. Control rates in the West<sup>8</sup> is between 51% (England) to 80% (Canada) with USA at 71%. In the East, no country has managed to achieve a control rate of 50%. The best being South Korea (38%),<sup>11</sup> followed by Malaysia (35%),<sup>13</sup> Bangladesh (31%),<sup>18</sup> Singapore (27%),<sup>15</sup> and Indonesia (25%).<sup>19</sup> Unlike some well-known risk factors for CVD, there is no controversy with regards to the CV benefits of pharmacological treatment of hypertension. The latest meta-analysis involving 44,899 patients randomized in 19 trials showed that a tighter control of blood pressure produced a significant reduction for CVA (22%), retinopathy progression (19%), CVD (14%), myocardial infarction (13%) and albuminuria (10%).<sup>22</sup> This is further reaffirmed in a trial involving high risk hypertensives on treatment where a tighter control (achieved BP 122/64mmHg as compared to 135/74mmHg) produced a significant 43% in CV death, 30% reduction in heart failure, a 25% reduction in CV events and to top it all an impressive 27% reduction in all cause mortality.<sup>23</sup> Achieving BP control has been estimated to prevent up to 800,000 CV events yearly in China alone.<sup>7</sup> The need to achieve BP control especially among treated hypertensives cannot be over emphasized and the fact that we are struggling to achieve it in the East needs serious attention.

In an effort to contribute to achieve this noble goal, a survey involving qualitative and quantitative approaches was performed in seven Asian countries covering economically challenged and economically affluent nations.<sup>24</sup> Among the salient findings are that there exists a divergence of perception between patients and doctors on various aspects of hypertension. Although patients in Asia have a good understanding of the causes and consequences of hypertension, there is a lack of urgency to control blood pressure. Doctors and patients have different expectations of each other and a divergent view on what constitutes successful hypertension management. The survey also identified a fundamental gap between the beliefs of doctors and patients as to who should be most responsible for the patients' hypertension management. The study also highlighted that doctors in Asia put too much emphasis on patient's medication compliance rather than focusing on treatment inertia on their part as the reason for poor BP control. Blaming patient's poor medication compliance was also demonstrated in a study from the West.<sup>25</sup> This overemphasis on patients perceived non-compliance may not necessarily reflect the real situation. It is however important for doctors to identify patient factors especially psychosocial factors which may contribute to poor compliance and take necessary steps to improve it.<sup>26</sup>

### Hypertension; what can the east do to improve it

As hypertension continues to be a major public health burden especially in the East, more needs to be done. The scourge of hypertension is not confined to the developing countries in the East but also developed Eastern nations like Taiwan, Singapore and Korea. Western nations especially North America and Western Europe have recorded some success in curbing the burden of hypertension. Cardiovascular diseases are no longer the main cause of morbidity and mortality in these countries while it is and is predicted to remain so in the East. The higher prevalence of hypertension in the East needs more aggressive public health initiative particularly on adoption of healthy lifestyle. The poor awareness in the East requires more

effort on public health education and improved surveillance program especially among those at high risk. It is hoped that this will empower populations in the East to be proactive in screening for their own CV risk factors. Doctors in the East need to be more aggressive in assessing individuals with elevated BP whether they need pharmacotherapy over and above lifestyle modifications. This should improve the treatment rates which is unsatisfactory in most Eastern nations. Once pharmacotherapy has been initiated, doctors in the East should be more aggressive in achieving target BP. This unfortunately is where the East differs substantially from the West. Reasons for these must be looked into and if needed customized recommendations be made to guide doctors in the East. Therapeutic inertia and an over reliance on monotherapy may play a big part and needs to be addressed.<sup>27</sup> With a plethora of generic anti-hypertensives in the world nowadays, cost should not be a major issue.

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### Conflicts of interest

There were no financial interest or conflict of interest.

### References

1. Ezzati M, Riboli E. Behavioral and dietary risk factors for non-communicable diseases. *N Engl J Med*. 2013;369(10):954–964.
2. Jiang He, Dongfeng Gu, Jing Chen, et al. Premature deaths attributable to blood pressure in China: a prospective cohort study. *Lancet*. 2009;374(9703):1765–1772.
3. Lawes CM, Rodgers A, Bennett DA, et al. Blood pressure and cardiovascular disease in the Asia Pacific region. *J Hypertens*. 2003;21(4):707–716.
4. Martiniuk Alexandra LC, Lee Crystal MY, Lawes Carlene MM, et al. Hypertension: its prevalence and population-attributable fraction for mortality from cardiovascular disease in the Asia-Pacific region. *J Hypertens*. 2007;25(1):73–79.
5. Hussain MA, Al Mamun A, Peters SA, et al. The Burden of Cardiovascular Disease Attributable to Major Modifiable Risk Factors in Indonesia. *J Epidemiology*. 2016;26(10):515–521.
6. Andrew EM, Michelle CO, Anusorn T, et al. Cost- Effectiveness of Hypertension Therapy According to 2014 Guidelines. *N Engl J Med*. 2015;372(5):447–455.
7. Gu D, He J, Coxson PG, et al. The Cost-Effectiveness of low-cost essential antihypertensives medicines for hypertension control in China: A modelling Study. *PLoS Med*. 2015;12(8):e1001860.
8. Joffres M, Falaschetti E, Gillespie C, et al. Hypertension prevalence, awareness, treatment and control in national survey from England, the USA and Canada and correlation with stroke and ischaemic heart disease mortality: a cross sectional study. *BMJ Open*. 2013;3(8):e003423.
9. Wang J, Zhang L, Wang F, et al. Prevalence, Awareness, Treatment and Control Rates of Hypertension in China: Results from a National Survey. *Am J Hypertens*. 2014;27(11):1355–1361.
10. Sharma AK, Bhardwaj S, Chaturvedi S. Predictors of hypertension in an Urban Indian Population. *Indian Heart J*. 2006;58(1):21–27.
11. Lee HS, Park YM, Kwon HS, et al. Prevalence, Awareness Treatment and control of hypertension among people over 40 years old in a rural area of South Korea: The Chungju Metabolic Disease Cohort (CMC) study. *Clin Exp Hypertens*. 2010;32(3):166–178.
12. Korean National Health and Nutrition Examination Survey (KNHANES); 2008.

13. Institute of Public Health (IPH). The Third National Health and Morbidity Survey 2006 Vol. 2. Ministry of Health Malaysia; 2008. 199-316 p.
14. Sy RG, Morales DD, Dans AL, et al. Prevalence of Atherosclerosis – Related Risk Factors and Diseases in the Philippines. *J Epidemiol.* 2010;22(5):440–447.
15. Wu Y, Tai ES, Heng D, et al. Risk factors associated with hypertension awareness, treatment, and control in a multi-ethnic Asian population. *J Hypertens.* 2009;27(1):190–197.
16. Naing C, Aung K. Prevalence and risk factors of hypertension in myanmar: a systematic review and meta-analysis. *Medicine.* 2014;93(2):e100.
17. Rampal L, Rampal S, Azhar MZ, et al. Prevalence, Awareness, Treatment and Control of Hypertension in Malaysia – A National Study of 16,440 Subjects. *Public Health.* 2008;122(1):11–18.
18. Rahman MM, Gilmour S, Akter S, et al. Prevalence and control of hypertension in Bangladesh: a multilevel analysis of a nationwide population-based survey. *J Hypertens.* 2015;33(3):465–472.
19. Hussain MA, Abdullah al Mamun, Reid C. Prevalence, awareness, treatment and control of hypertension in Indonesian adults >40 years: Findings from the Indonesian Family Lifestyle Survey (IFLS). *Plos One.* 2016:1–16.
20. Suh I. Blood pressure and cardiovascular disease mortality in the Asia Pacific Region. *J Hypertens.* 2016;34:e11.
21. Perkovic V, Huxley R, Wu Y, et al. The burden of blood pressure-related disease: a neglected priority for global health. *Hypertension.* 2007;50(6):991–997.
22. Xie X, Atkins E, Lv J, et al. Effects of intensive blood pressure lowering on cardiovascular and renal outcomes, updated systematic review and meta-analysis. *Lancet.* 2016;387(10017):435–443.
23. Wright JT, Williamson JD, Whelton PK, et al. A randomized trial of intensive versus standard blood- pressure control. *N Engl J Med.* 2015;373(22):2103–2116.
24. Rahman AR, Wang JG, Kwong GM, et al. Perception of hypertension management by patients and doctors in Asia: potential to improve blood pressure control. *Asia Pac Fam Med.* 2011;14(1):2.
25. Wexler R, Elton T, Taylor CA, et al. Physician reported perception in the treatment of high blood pressure does not correspond to practice. *BMC Fam Pract.* 2009;10:23.
26. Hassan NB, Hasanah CI, Foong K, et al. Identification of psychosocial factors of noncompliance in hypertensive patients. *J Hum Hypertens.* 2006;20(1):23–29.
27. Abdul Rahman AR, Reyes EB, Sritara P, et al. Combination therapy in hypertension: an Asia-Pacific consensus viewpoint. *Curr Med Res Opin.* 2015;31(5):865–874.