

## HOW WELL IS HYPERTENSION CONTROLLED IN EUROPE?

Serap Erdine, Head of Hypertension Unit, Cardiology Department, Cerrahpasa School of Medicine, Istanbul University, Istanbul, Turkey

### Introduction

Despite the increased awareness of the importance of lowering blood pressure to values below 140/90 mm Hg, the outcomes of achieving this target remain disappointing [1–4]. The “rule of halves”, coined in the United States during the 1960’s, seems to still be valid to describe the observation that only half of those with hypertension were aware of it; and of those who were aware, only half were receiving treatment; and of that half receiving treatment, only half had their hypertension controlled [5]. Even in randomised controlled trials, where patient motivation and physician expertise are ensured, it has been difficult to achieve optimal blood pressure despite a significant difference in the observed response rates [6].

### Results of surveys

The National Health and Nutrition Examination Survey 1999–2004 database indicates that the blood pressure control rate in hypertensive subjects in the United States was  $29.2 \pm 2.3\%$  in 1999–2000 and  $36.8 \pm 2.3\%$  in 2003–2004 [7]. In Canada, only 15.8% had blood pressure treated, and controlled. Higher rates of treatment and control were observed among older adults, those with type 2 diabetes, and those with a previous myocardial infarction [8].

The situation is not better in the rest of the world and varies considerably between countries and regions (Figure 1) [3, 4]. Hypertension control rates also vary within countries by age, gender, race/ethnicity, socioeconomic status, education, and quality of health care and are particularly low in some economically developing countries [3, 4].

Several epidemiological surveys in European countries involving random samples either socio-demographically representative of the total adult population or selected during clinical visits also show that although the improvement over the years has been encouraging, patients with well-controlled

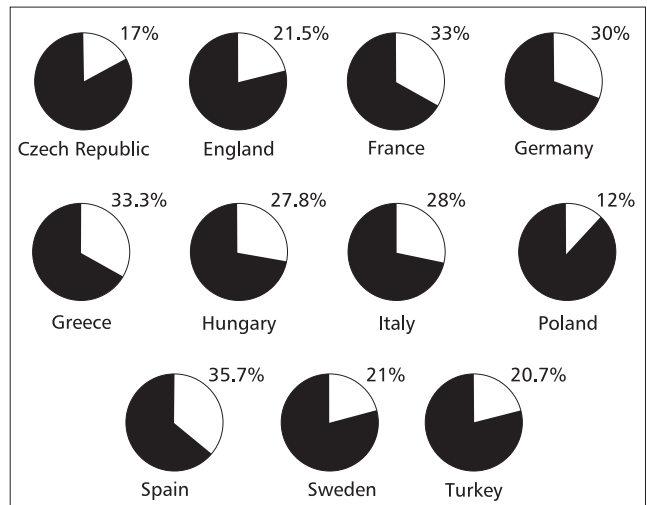


Figure 2. Percentage of patients who reach the blood pressure goal (< 140/90 mm Hg) in Europe [9–16]

blood pressure, attaining target blood pressure goals of < 140/90 mm Hg, represent a small fraction of the hypertensive population (Figure 2) [3, 9–15]. In the adult English population, the rates of awareness and treatment have increased since 1994, and control rates among hypertensive men and women have approximately doubled to 21.5% and 22.8%, respectively [9]. An increase in the control rates of hypertension has been observed in the Czech Republic over a period of 15/16 years, females having their blood pressure better controlled [10]. Arterial hypertension represents a serious medical, social and economic problem in Poland, and the NATPOL PLUS study carried out in the year 2002 has shown that the overall control rate is 12%, and control rate in treated hypertensives is 21% [15]. Data from national surveys on hypertension treatment and control in Europe have demonstrated that age-adjusted control rates in treated hypertensive patients aged 35–64 years were 21% for Sweden, 28% for Italy and 30% for Germany [11]. In a multi-centre, cross-sectional study of the population greater than 60 years of age in Spanish primary care centres among hypertensive subjects, 35.7% had their blood pressure under control [12]. The Hypertension Study in General Practice in Hellas (Hypertenshell), a cross-sectional study for assessing the prevalence, level of awareness, treatment, and control of hypertension in Greece, has demonstrated that 32.8% were treated and controlled (men 33.3%, women 32.3%) [13]. A population-based cross-sectional epidemiology survey carried out in 2003 in Turkey showed that subjects who were aware of their condition and treated had a control ratio of 20.7% [16].

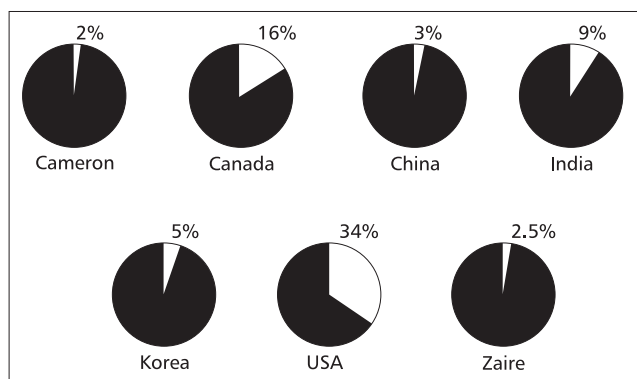


Figure 1. Percentage of patients with controlled blood pressure (< 140/90 mm Hg) in different countries around the world [3–4]

Table 1. Percentage of treated hypertensive patients with satisfactory blood pressure control [17, 18]

	DBP controlled	SBP controlled	SBP and DBP controlled
< 140/90 mm Hg (clinic)	17.5%	12.6%	8.9%
< 120/85 mm Hg (24 hour)	26.5%	16.4%	15.4%

In the treated hypertensive population, the number of patients with inadequate blood pressure control has been found to be high not only when measured in the clinic, but also when assessed by ambulatory blood pressure monitoring or home measurement (Table 1) [17, 18]. Inadequate blood pressure control among patients receiving treatment for hyper-

tension indicates a lack of satisfactory blood pressure control with antihypertensive drug therapy and is not a reflection of the white-coat effect [17, 18].

### Conclusion

The high blood pressure readings commonly found in treated hypertensive individuals reveal that inadequate blood pressure control is a global problem and cannot be solely ascribed to a lack of access to medical care or poor compliance with therapy. Achieving blood pressure control remains a daunting challenge given the positive and continuous relationship between levels of blood pressure, both systolic and diastolic, and the risk of cardiovascular disease [19]. Much remains to be learned to understand the obstacles for adequate blood pressure control in the population and efforts need to be intensified to improve BP control rates.

### References

- Guidelines Committee. 2003 European Society of Hypertension–European Society of Cardiology guidelines for the management of arterial hypertension. *J Hypertens* 2003; 21: 1011–1053.
- Chobanian AV, Bakris GL, Black HR, et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. *JAMA* 2003; 289: 2560–2572.
- Erdine S, Aran SN. Current status of hypertension control around the world. *Clin Exp Hypertens* 2004; 26: 731–738.
- Kearney P, Whelton M, Reynolds K, et al. Worldwide prevalence of hypertension: a systematic review. *J Hypertens* 2004; 22: 11–19.
- Marques-Vidal P, Tuomilehto J. Hypertension awareness, treatment and control in the community: is the ‘rule of halves’ still valid? *J Hum Hypertens* 1997; 11: 213–220.
- Mancia G, Grassi G. Systolic and diastolic blood pressure control in antihypertensive drug trials. *J Hypertens* 2002; 20: 1461–1464.
- Ong KL, Cheung BM, Man YB, et al. Prevalence, awareness, treatment, and control of hypertension among United States adults 1999–2004. *Hypertension* 2007; 49: 69–75.
- Petrella RJ, Merikle EP, Jones J. Prevalence, treatment, and control of hypertension in primary care: gaps, trends, and opportunities. *J Clin Hypertens (Greenwich)* 2007; 9: 28–35.
- Primatesta P, Poulter NR. Improvement in hypertension management in England: results from the Health Survey for England 2003. *J Hypertens* 2006; 24: 1187–1192.
- Cifkova R, Skodova, Lanska V, et al. Trends in blood pressure levels, prevalence, awareness, treatment and control of hypertension in the Czech population from 1985 to 2000/01. *J Hypertens* 2004; 22: 1479–1485.
- Wolf-Maier K, Cooper RS, Kramer H, et al. Hypertension treatment and control in five European countries, Canada and the United States. *Hypertension* 2004; 43: 10–17.
- Redon J, Cea-Calvo L, Lozano JV, et al. Differences in blood pressure control and stroke mortality across Spain: the Prevencion de Riesgo de Ictus (PREV-ICTUS) study. *Hypertension* 2007; 49: 799–805.
- Efstratopoulos AD, Voyaki SM, Baltas AA, et al. Prevalence, awareness, treatment and control of hypertension in Hellas, Greece: the Hypertension Study in General Practice in Hellas (HYPERTENSHELL) national study. *Am J Hypertens*. 2006; 19: 53–60.
- Amar J, Chamontin B, Genes N, et al. Why is hypertension so frequently uncontrolled in secondary prevention? *J Hypertens* 2003; 21: 1199–1205.
- Zdrojewski T, Szpakowski P, Bandosz P, Pajak A, Wiecek A, Krupa-Wojciechowska B, Wyrzykowski B. Arterial hypertension in Poland in 2002. *J Hum Hypertens* 2004; 18: 557–562.
- Altun B, Arici M, Nergizoglu G, et al. Prevalence, Awareness, Treatment and Control of Hypertension in Turkey (PatenT) in 2003. *J Hypertens* 2005; 23: 1817–1823.
- Sega R, Cesana G, Valagussa F, Mancia G, Zanchetti A. Ambulatory blood pressure normality: results from the PAMELA Study. *Ann Exper Clin Med* 1995; 2: 25–26.
- Mancia G, Sega R, Milesi C, Cesana G, Zanchetti A. Blood pressure control in the hypertensive population. *Lancet* 1997; 349: 454–457.
- MacMahon S, Peto R, Cutler J, Collins R, Sorlie P, Neaton J. Blood pressure, stroke, and coronary heart disease. *Lancet* 1990; 335: 765–774.