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Hypertension control. Population surveys vs. clinical studies

Editorial commentary on Manuscript Number: JHH-14-0356. “Blood pressure levels and control in Italy: comprehensive analysis of clinical data from 2000-2005 and 2005-2010 hypertension surveys”.

Authors

José R. Banegas, MD, Fernando Rodríguez-Artalejo, MD

Department of Preventive Medicine and Public Health, School of Medicine,
Universidad Autónoma de Madrid/IdiPAZ – CIBER in Epidemiology and Public
Health (CIBERESP)

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Corresponding author:

José R. Banegas, MD

Department of Preventive Medicine and Public Health, School of Medicine, Universidad Autónoma de Madrid, C/ Arzobispo Morcillo 2, 28029 Madrid, Spain.

E-mail: joseramon.banegas@uam.es Phone: +34 91 497 5425 Fax: +34 91 497 5353

High blood pressure (BP) poses a serious cardiovascular risk to the individual and a big burden to the population, being highly prevalent and accounting for 7.6 million premature deaths and 7% of disability-adjusted life years worldwide.¹⁻³ However, although hypertension is easily detectable and can be controlled with appropriate treatment,⁴ the degree of BP control remains poor in most populations and settings.⁵⁻⁷

Information on the magnitude and management of hypertension is periodically collected, but discrepancies in results among studies, even within the same country, are not uncommon and may be partly due to using different definitions, settings and procedures for BP measurement. To address this issue, several strategies have been used, which include a common protocol of data collection with appropriate BP measurements and age standardization.^{2,6,7} Given that investigations can use different methods, what is then the best possible information on hypertension control? We think that appropriate comparison between studies require at least that: (i) BP measurement is accurate, including minimizing the office or white-coat effect,^{8,9} and (ii) the results of clinic-based studies are considered separately from those of population-based surveys.

In population-based surveys, the study participants should represent the target population from which they are derived (e.g., a whole country or region). In contrast, to know the frequency hypertension control in a medical practice, the participants should be representative of patients seen by physicians in the practice (typically, primary care or specialized care). Clinic-based studies are easier to conduct, but their main weakness is that they identify only known cases, which tend to be sicker and thus more likely to seek medical help and visit the physician. This method is also selective for patients who have previously consulted their physicians. Thus, participation in clinic-based studies is probably associated with health status and service accessibility, which are in turn related

to the likelihood of being diagnosed with hypertension, of receiving drug treatment and achieving BP control.

Population-based studies serve to assess progress in hypertension control, and to infer the effectiveness of interventions to improve control. They are also used to determine the comparative frequency of the condition across sociodemographic and clinical segments of a community, to establish needs for medical, hospital, and nursing care, and to provide clues to the epidemiology of the hypertension or its associated disease. Studies in clinical settings assess the quality of hypertension care (whether stated standards are reached), and allow to understand the processes through which control of hypertension is achieved in the population.

In this issue of the *Journal*, Tocci and colleagues present an updated account of hypertension control in Italy, by using a large sample of clinical and population-based studies carried out in the last decade.¹⁰ The good news is that control of BP among treated hypertensive patients has clearly progressed over time across Italian regions, from 18.4% in 2000-2005 to 39.7% in 2005-2011. The challenge is the still large room for improvement in hypertension control: at present only one in 3 Italian hypertensive patients on drug treatment is adequately controlled.

This study was an extension of two previous reviews that pooled a set of Italian studies on hypertension control.^{11,12} Compared to the most recent of these reviews,¹² about 12 more studies (involving 50,000 more individuals) were added. Average data for each individual study were analyzed by survey time, type of study, and type of setting. Although simply descriptive in nature, the results of this study represent a huge, comprehensive, and contemporary picture of the epidemiological situation of hypertension control in Italy and its recent evolution over time.

Although several population-based local studies were included in the Italian overview, there was no survey representative of the general population of the whole country. This would have allowed to estimate the prevalence of hypertension, to unmask the burden of hypertension unawareness, and to calculate the degree of treatment and control among all the hypertensive patients (not only among those treated) in the entire country. This is important for two reasons. First, because hypertension control figures are lower in the whole population of hypertensive individuals, since some of them may be unaware of their hypertension status. Second, because the total burden of lack of control of hypertension is the sum of unaware individuals, aware patients who were untreated, and treated patients whose BP was uncontrolled.

A significant strength of this Italian analysis is that it included clinical studies from primary care practice, hospital divisions or outpatient clinics, as well as hypertension units or excellence centers for hypertension. This variety of practice settings enables a comparison of BP control rates among these diverse clinical communities. Interestingly, a large gradient of more frequent drug treatment and lower control rate from primary care practice to specialized centers was found. Roughly, treatment rate was 55% and control rate 36% in primary care; treatment was 79% and control 24% in hospital divisions and outpatient clinics; whilst treatment was 87% and control 16% in hypertension excellence centers. This apparently paradoxical trend across practices of lower controlled hypertension despite higher treatment suggests a progressive severity in cardiovascular risk and more proper selection of patients with difficult-to-treat hypertension. This adequate referral of high-risk patients to specialized care reflects good clinical practice in Italy; however, if adequate combination therapy,

including an optimal regimen,¹³ is effectively prescribed by doctors and taken by patients should still be ascertained.

As in other countries, most studies in Italy did not collect enough information on sociodemographic, lifestyle and clinical characteristics of uncontrolled patients. The reasons for poor control are heterogeneous and may be easier to examine in more narrowly defined patient samples. Also, though two of the Italian studies collected data on ambulatory BP monitoring (ABPM), no information was reported in the overview. This could have provided more realistic (higher) estimates of hypertension control since ABPM gives an estimate of the true, or mean, BP level;^{14,15} thus, the present review provided a worst-case scenario.

In summary, this updated review on hypertension control in Italy, compiling data on 26 hypertension studies covering more than 200,000 individuals across the entire Italian territory, provides a comprehensive picture of the clinical epidemiology of hypertension control in this country; six in 10 hypertensive patients were on treatment and one in 3 achieved successful control. It also sheds light on the interpretation of different hypertension figures obtained in diverse clinical settings. Clinicians and policy-makers need to locate the reported rates on that variety of practice settings if they are to use the information effectively. Continuous surveillance by future surveys seems necessary. Counting cases of hypertension control may seem to be the most mundane of tasks, but is one of the foundations of clinical and public health science.¹⁶

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