

May Measurement Month 2018: an analysis of blood pressure screening results in Georgia

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KEYWORDS

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May Measurement Month (MMM) is aimed at raising public awareness about arterial hypertension—the main risk factor for cardiovascular diseases in the population. Screening was carried out at 200 sites on a national scale. More than 500 volunteers, including doctors (80%) and medical students (20%) participated in the screening. To familiarize them with the research tools and standard blood pressure (BP) measurement method, their training was conducted by the Georgian Society of Hypertension in Tbilisi and other large cities. Social and mass media, medical societies, and other stakeholders were actively involved in the recruitment process. A total of 10 756 people were screened. The mean age of participants was 53.1 years (SD 16.1). Males—67.9%, females—32.1%. One hundred percent were White. After multiple imputation, the number of hypertensive patients was 6.037 (56.1%) and out of them 4950 were aware and 4701 (77.9%) were on medication, 1336 (22.1%) were not taking a medication. Of those taking antihypertensive medication, 38.2% had controlled BP. In spite of non-randomized selection and certain restrictions with respect to extrapolation of the results, MMM comprehensively reflects an urgent problem and major gaps in the health system. Based on the above, its importance is extremely valuable for identifying public health policy priorities.

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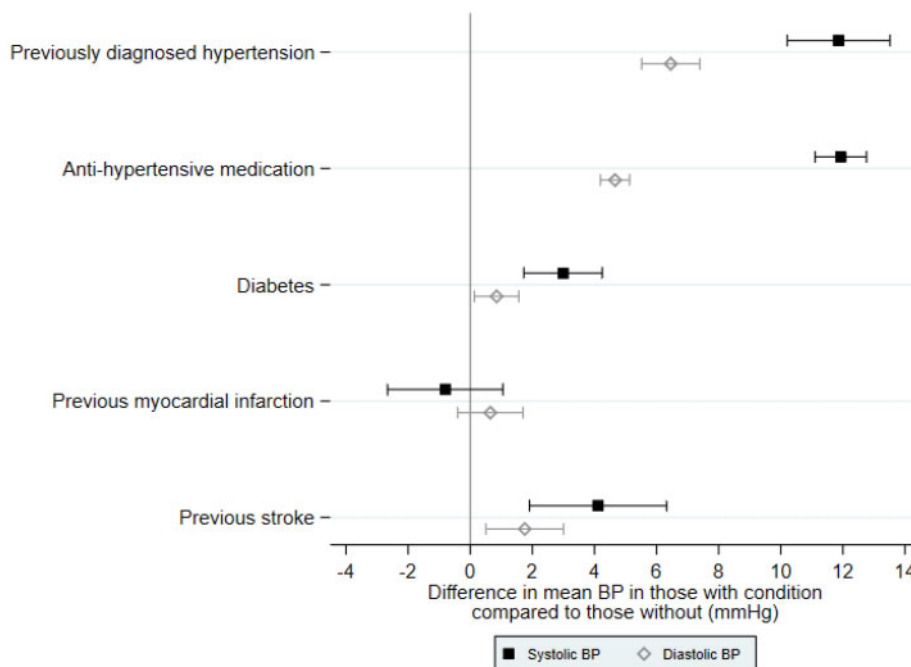


Figure 1 Difference in mean blood pressure for those with condition compared to those without from linear regression model adjusted for age, sex, and antihypertensive medication (antihypertensive medication adjusted for age and sex alone)³.

Introduction

Arterial hypertension (AH) is a major public health problem in the Georgian population and stroke and ischaemic heart disease are the main endpoints. According to the Washington University for Health Metrics and Evaluation (IHME), in Georgia, the estimated prevalence (incidence, prevalence, and mortality rates are calculated per 100 000 population) rate of AH in 2017 was 558.7.¹ In the 2017 May Measurement Month (MMM) survey, the prevalence of AH in particular population groups was 60% (Supplementary material).² According to the IHME, estimated incidence rates of stroke and ischaemic heart diseases in 2013-17 show a downward tendency (in 2017, incidence of stroke was 264.0 and ischaemic heart diseases—284.1); in the same time period, the estimated prevalence rate increased (in 2017, prevalence of stroke was 2369.7 and ischaemic heart diseases prevalence—3639.0).

In 2017, mortality rates from stroke was 276.7 and ischaemic heart diseases was 406.6 (IHME estimate). Based on the above, successful control of AH in the population should be reflected in the reduction of cerebral and coronary incidents. As regards MMM, this is the most potent tool of raising population awareness and, correspondingly, one of the means of the efficient control of AH.

We decided to build on the success of 2017 by joining the MMM18 campaign.

The Georgian Society of Hypertension (GSH) is an associated member of the International Society of Hypertension (ISH). Therefore, it accepted an offer to take part in the campaign. In MMM 2017, 6144 adults were screened and received recommendations for adequate management/control of this clinical state.²

Methods

Dr Dali Trapaidze is the national co-ordinator of the hypertension screening campaign in Georgia. Ethical clearance was received in March 2018 (NCDC Institutional Review Board). Screening was carried out in 200 sites at a national scale. More than 500 volunteers, including doctors (80%) and medical students (20%) participated in the screening. To familiarize them with the research tools and standard blood pressure (BP) measurement method, their training was conducted by GSH working group in Tbilisi and other large cities. Social and mass media, medical societies, and other stakeholders were actively involved in the recruitment process. The MMM18 campaign started on May 9 and lasted for a month. A press conference held by the Ministry of Health on May 7 can also be regarded as the campaign's start-up.

Blood pressure was measured three times, in the sitting position using Omron BP monitors. Hypertension was defined as systolic BP (SBP) ≥ 140 mmHg or diastolic BP (DBP) ≥ 90 mmHg based on the mean of the 2nd and 3rd BP readings or on antihypertensive treatment.³ In cases where the 2nd or 3rd reading was missing, the mean was imputed using multiple imputations based on the global results. Information about anthropometric measurements (height and weight) was self-reported. In 2018, the number of screening sites had increased four-fold compared to the previous year; the cases of workplace screenings also increased; the population became more aware of the campaign actions mostly from the medical personnel. Screening activities at the national level were made possible by the NCDC employees from regional branches; and municipal public health centres were also involved.

Information was collected in paper form at and subsequently data entered in to spread sheets. Data were analysed centrally, using Stata 14.2.³

Results

A total of 10 756 people were screened. The mean age of participants was 53.1 years (SD 16.14). The study consisted of 67.9% males and 32.1% females. Participants were 100% White, with 8.8% reporting diabetes, 3.8% reporting previous myocardial infarction, and 2.6% reporting a previous stroke. After multiple imputations, the number of hypertensive patients was 6.037 (56.1%) and out of them 1336 (22.1%) were not taking medication. The total number of participants taking antihypertensive medications was 4701 individuals, out of whom 2904 (61.8%) had uncontrolled BP. After standardizing for age and sex using the WHO age standard population, the number of hypertensive patients was 4.087 (38.0%). The proportion of AH aware patients was 82.8%.

After adjustment for age and sex (allowing for interaction), significantly higher SBP and DBP became apparent in the people with previously diagnosed hypertension, receiving antihypertensive treatment, as well as among those with a previous stroke and diabetes (*Figure 1*). Also evidence of higher SBP and DBP for smokers (vs. non-smokers), alcohol intake (one or more per week vs. non-drinkers) is present. Strong evidence shows higher SBP/DBP in overweight and obese participants (vs. healthy weight).

Discussion

Inadequate antihypertensive treatment still presents an exceptional problem in the Georgian population. On the other hand, rising awareness of hypertension indicates better AH identification, to which MMM and other similar campaigns should make important contributions. Regrettably, the rate of uncontrolled or poorly treated hypertension is still high (61.8% among those taking antihypertensive medication), and according to the results of the several qualitative surveys, pseudo refractive forms of AH in the population are quite prevalent.⁴ Here, the importance of regular treatment is highlighted. Patients think that taking medications two or three times in a week is acceptable⁴ but leads the doctor to believe that the condition is refractory to treatment.

Qualitative studies carried out by the Georgian Hypertension Society⁵ have shown an increase in the incidence of hypertensive crisis in our country.

The association of hypertension with its endpoints like stroke is significant and it is generally well-known. In our survey, the interaction of AH and its endpoint, stroke, was evidenced once more. It is of great interest that the MMM results generally comply with the results of highly evident

countrywide studies. For example, the Reproductive Age Mortality Surveys⁶ also evidence a high correlation of strokes and hypertension in the mortality causes.

Within the framework of MMM18, educational activities became more active and practicable, especially in the direction of drug therapy. In spite of non-randomized selection and certain restrictions concerning extrapolation of the results, MMM comprehensively reflects the urgency of the problem caused by AH and major gaps in the health system. Based on the above, MMM is extremely valuable for identifying public health policy priorities such as preventing and controlling hypertension.

Supplementary material

Supplementary material is available at *European Heart Journal Supplements* online.

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Conflict of interest: none declared.

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