

Georgian Trace in the Study of the Early Stages of Hypertension

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ABSTRACT

The modern understanding of hypertension began after Otto Franc proposed the term "essential hypertension". According to Otto Franc, high blood pressure was a compensatory reaction that was necessary to overcome the resistance of narrowed arteries. In the 1950s and 21st century, the view was formed that high blood pressure is a major risk factor for cardiovascular diseases. Today, we recognize that cardiovascular risk associated with blood pressure should be evaluated as a continuous process of influence, rather than a confrontation between "normotensive" and "hypertensive" individuals. In an attempt to establish the chronology of the study of arterial hypertension, especially its early stages, we consider it necessary to note the role of the Georgian cardiologist Mikheil Tsinamdzgvrishvili, who, as early as the 1940s, was conducting the so-called "hypertension" study. A new interpretation of the "O" phase, which referred to the stage of disease development before essential hypertension was diagnosed. It emphasized the importance of early disease detection.

Keywords: Essential hypertension; global cardiovascular risk concept; latent stage classification; Mikheil Tsinamdzgvrishvili.

INTRODUCTION

Arterial hypertension represents one of the most important and widely studied conditions in cardiovascular medicine. Despite being a central determinant of global morbidity and mortality, its conceptualization as a disease entity is relatively recent.

The history of hypertension research also reflects the broader evolution of clinical medicine, where advances in pathophysiology, diagnostic methodology, and epidemiology have reshaped clinical practice.

This paper aims to trace the historical development of the concept of hypertension, from its earliest interpretations to its present-day understanding, while highlighting the important yet underrecognized contributions of Georgian science and Prof. Tsinamdzgvrishvili to the global history of cardiovascular medicine.

REVIEW

"The good physician knows his patients through and through, and his knowledge is bought dearly. Time, sympathy, and understanding must be lavishly dispensed, but the reward is to be found in that personal bond which forms the greatest satisfaction of the practice of medicine. One of the essential qualities of the clinician is interest in humanity, for the secret of the care of the patient is in caring for the patient."¹ These words belong to Francis Weld Peabody, a physician, teacher, and humanist who embodies the tradition of Harvard Medical School and stands as a unifier of medical science and clinical practice. His definition of a good doctor can be fully extended

to those remarkable individuals who have dedicated their expertise to the study of hypertension as a medical condition.

Even though blood circulation has been studied since ancient times,^{2,3} the modern concept of hypertension was established only at the beginning of the 20th century with the invention of the sphygmomanometer and the description of Korotkoff sounds. By the end of the 20th century, blood pressure measurement had become an element of routine patient examination.⁴

In 1911, Otto Frank first proposed the term "essential hypertension." At the time, the term implied that high blood pressure was a compensatory response needed to overcome the resistance of narrowed arterioles. Sir William Osler, 1912, stated in his address to the South Glasgow Medical Society: "We must admit that high blood pressure is a necessary and purely mechanical phenomenon... Let us, as far as possible, get rid of the idea that blood pressure is something to be treated."⁵ President Franklin D. Roosevelt was declared to be in good health by his doctor, despite his blood pressure being approximately 220/120 mmHg. A few years later, Winston Churchill's personal physician noted in his diary that President Roosevelt "seemed to be showing signs of 'hardening of the arteries' and had a few months to live." Subsequent events confirmed his diagnosis. President Roosevelt eventually suffered a fatal hemorrhagic stroke two months later, a case that would later give a strong impetus to the formation of medical opinion on arterial hypertension as a deadly disease.⁶



In the late 20th and 21st centuries, the view that cardiovascular diseases are often both a cause and a consequence of arterial hypertension is gaining increasing attention.⁷⁻¹³ A crucial step in understanding the nature of hypertension was taken by Thomas D. Giles, at all,¹⁴ who proposed a definition of arterial hypertension - "Hypertension is a progressive cardiovascular syndrome that arises from complex, interrelated etiological factors. Early markers of this syndrome often exist before an increase in blood pressure is detected; therefore, hypertension cannot be classified only by discrete levels of blood pressure. Progression is closely related to functional and structural disorders of the heart and blood vessels, which damage the heart, brain, vascular system, and other organs and lead to premature morbidity and death." At the same time, a clear view is emerging that arterial hypertension, as a risk factor, often coexists with other risk factors. The concept of global cardiovascular risk was created, and hypertension was divided into stages. It is crucial to present it as a biomarker of systemic hypertension and to assess hypertension as a progressive process that begins before blood pressure increases in the brachial artery. A new treatment strategy has been developed, with the ultimate goal of not only reducing blood pressure but also maximizing the reduction of cardiovascular morbidity and risk.

The quintessence of recent thinking on hypertension was represented by the Evidence-Based Guideline for the Management of High Blood Pressure in Adults, Report From the Panel Members Appointed to the Eighth Joint National Committee (JNC 8)¹⁵ and the 2024 ESC Guidelines for the management of elevated blood pressure and hypertension.¹⁶ Both of these guidance documents were based on evidence that blood pressure-related cardiovascular risk should be assessed as a continuum of influence, rather than as a "normotensive" versus "hypertension" contrast.

As we attempt to establish the chronology of the study of arterial hypertension, and especially its early stages, we consider it necessary to introduce some of the results of Georgian cardiologist Mikheil Tsinamdzgvrishvili's research on this problem, which dates back to the 1940s¹⁷ and which, unfortunately, at that time, were not accessible to a broad audience and are practically unknown. In particular, in a monograph dedicated to the research plan of the newly established (1946) Clinical and Experimental Institute of Cardiology in Tbilisi, he wrote, "Since the direct factor in the emergence and development of arterial hypertension is the increase in the tone (hypertonus) of the smallest arteries (arterioles), the study of the pathomechanisms of arterial

hypertension should be conducted precisely through the study of peripheral circulation and peripheral vascular reactions, namely, by identifying the factors that underlie hypertension, and the results obtained should be used as tests for the purpose of identifying the beginning and latent forms of hypertension." A little later, in 1952, while discussing the classification of hypertension, the author develops the idea of the relevance of studying the "latent stage" of hypertension.¹⁸ As a result of the study of 25,000 patients, 1,031 individuals were identified who could be attributed to the former so-called "latent" category. Mikheil Tsinamdzgvrishvili introduced the following indicative indicators for the identification of so-called hidden (prehypertensive) conditions:

1. The presence or absence of complaints was determined by means of special questionnaires, as well as a family history of hypertension.
2. As a result of blood pressure measurement (including repeated ones), several options can be distinguished:
 - a. As a result of the first measurement, a short-term increase in blood pressure, which may be associated with the procedure itself, is observed as a result of high excitability. Blood pressure soon returns to normal.
 - b. As a result of repeated examinations, blood pressure may be at the upper limit of normal and may be characterized by strong fluctuations within 20 mm Hg;
 - c. Increased mean pressure despite normal maximum (systolic) and normal minimum (diastolic) pressure.
 - d. Increased venous pressure, especially when maximum pressure is at a normal level and there are no symptoms of heart failure.
 - e. Increased diastolic pressure with normal maximal pressure and no symptoms of heart failure.
 - f. Local increase in blood pressure, for example, in the retina and/or temporal artery.
3. Transient cerebral events in young people, psychoneurological symptoms, with normal blood pressure;
4. Conventional diagnostic methods fail to detect GSD disease or organ damage.

CONCLUSIONS

The data obtained in recent years, particularly the presentation of hypertension as a progressive process that begins before blood pressure indicators reach the so-called "threshold value", aligns with the views on hypertension from previous years. Mikheil Tsinamdzgvrishvili occupies a pivotal place in the history of the study of arterial hypertension, and his studies and discoveries were essential for both medical

practice and the healthcare system as a whole. It is also important to note that the prevalence of arterial hypertension in Georgia remains high, representing a serious public health problem.¹⁹

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