

From blood pressure to hypertension: the history of research

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Ancient historical records as far back as in 2600 BC report that acupuncture, venesection¹ and bleeding by leeches were the sole means of treating what was called 'hard pulse disease'. The Ashurbanipal Library at Nineveh (669-626 BC) had details on the use of the later two procedures². Remarkable work was done by the Yellow Emperor of China (Chou You-J, 2600 BC), Wang (280 BC), and the Roman Cornelius Celsus³; Galen (131-201 AD)⁴, Erisistrates, and even Hippocrates⁵ all recommended venesection. Sorovas of Ephesus in 120 AD recommended cupping of the spine to draw the animal spirits down and out².

Frank coined the name 'hypertonic essential' in 1925; the name 'hypertensive vascular disease', earlier introduced by Janeway in 1913 best described its varied course. Progress in the study of the disease was rather fast in the earlier decades of this century; many previous beliefs were rejected.

The basis of the measurement of blood pressure established by the pioneer works of Hales in 1733⁶, the description of the pathology of the disease by Thomas Young in 1808⁷, Richard Bright in 1836⁶, Cotugno in 1770, Morgagni in 1761, Gull and Sutton in 1872, Gowers in 1876 and especially the description of the stethoscopic sounds by Nikolai Sergeyevich Korotkoff in 1905⁸ enabled research to grow from anecdotal to objective approaches. Sodium restriction was advocated after the role of sodium was shown in 1904 and the rice diet of Kempner was popularized in the early 1940s. Sodium thiocyanate was the first chemical substance to be used in the treatment of hypertension, by Treupel and Edinger in 1900, and Hines at the Mayo clinic; it was potentially toxic, side effects were many and it became unpopular.

Kraus urged the surgeon Fritz Bruening to perform the first sympathectomy operation for hypertension in 1923²; more extensive operations were developed by Peet in 1947, Smithwick in 1953 and others. Chemical sympathectomy was introduced later: tetraethylammonium chloride, hexamethonium⁹, and others. Zianis in 1948¹⁰, Burt and Graham in 1950, Smirk in 1950, the antimalarial pentaquine, bretylium, and guanethidine all studied by Freis in 1947, 1947 and 1960 respectively. Hydralazine was studied by Reubi in 1949⁹, and it is still used today especially in the treatment of toxemia. The biggest step came with the introduction of the first orally effective diuretic, chlorothiazide, by Freis, Wilson, and Parish in 1957²; the mercurial diuretics which were tested some years before were a failure. The success of chlorothiazide stimulated yet further scientific passions: beta-blockers appeared in the 1960s with the description by Prichard and Gillam in 1964 of their work on propranolol, alpha-methyl-dopa which was described by Oates, Gillespie, Udenfriend and

Sjoerdsma in 1960, and converting enzyme inhibitors appeared in the early 1980s with the contributions of John Alexander of Squibb, and the works by John Laragh and his team on captopril, and later enalapril. The calcium channel blockers were extensively studied, and nifedipine, verapamil and others have been fast at being popular.

The treatment of hypertension in the coming years will most probably still be symptomatic: the pathology of the disease has been extensively studied; its causes still remain mysterious in the gross majority of cases, and even when found, the course of the disease may not be altered to a great extent. New drugs are in the horizons, hopefully promising to decrease blood pressure, have less side effects, be accessible to a great number of patients, with significant effects on improving target organ damage: left ventricular hypertrophy, kidney failure, retinal damage, stroke, arterial degenerative changes, metabolism of lipids and glucose.

We have witnessed spectacular changes during the last decades in high blood pressure, a disease which was known about 2600 years ago. If the main objective of medicine is to keep healthy people healthy, and sick people well, then there is a great deal of admiration for those men and women who have shaped our current medical knowledge and practice.

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