The story of the Ohasama Study

The standard in Japan has set the precedent for the global standard. Globally-accepted study outcome.

Adopted by health organizations including the WHO and academic societies, the reference value of “135/85 mmHg” continues to gain acceptance internationally.

Now well-known outside of Japan as well, the findings of the Ohasama Study, which have been continuously disseminated from the small town in the Tohoaka District, are highly regarded by medical and health experts worldwide. The world’s first large-scale general population study centering on home blood pressure monitoring influenced guidelines in the US and Europe. The guidelines of the Joint National Committee (JNC) of the USA in 1997, the WHO/ISH hypertension guidelines in 1999, the ESH/ESC guidelines in 2003 and 2007, and the Japanese Society of Hypertension (JSH) in 2004 and 2005 adopted 135/85 mmHg as the reference value in defining hypertension based on home blood pressure monitoring and ambulatory blood pressure monitoring in the Ohasama Study.

Ohasama has become a common global term in the medical world. Messages from key opinion leaders (1)

These days, clinical and epidemiological studies using home blood pressure monitoring, which was pioneered by the Ohasama Study, are conducted at the forefront of medicine around the world. The major examples include the Didima Study in Greece, the PAMELA Study in Italy, Finn-Home Study in Finland, and the Belgian Population Study. Regardless of nationality, all people in the world share a desire to be healthy. We have received enthusiastic messages of support for the “Ohasama Study” from the world’s key opinion leaders who have conducted various studies using home blood pressure monitoring.

Teruo Omori, MD, PhD, President Emeritus of the National Cerebral and Cardiovascular Center Director of Hisayama Health & C Center

Scientific achievements of the Ohasama Study

As blood pressure readings markedly vary depending on measurement, psychological, and physical conditions, it is difficult to determine which measurements should be adopted as criteria. The issue that had already been raised at WHO conferences regarding blood pressure hold in Geneva in the 1970s, which the author often attended, still remains unsolved. By whom and under what conditions should blood pressure be measured? According to studies on blood pressure measurement performed on a large number of subjects using a mercury manometer in various regions of the world, the final digit of the measured values was zero in most cases, e.g., 140/90 mmHg. For this reason, the necessity of the development and promotion of an automated sphygmomanometer, which provides objective measurements, was pointed out at the conferences. Attention should be paid to these points when discussing the prevalence of hypertension and percentage of normal blood pressure.

Japan has been the world’s leader in the development and promotion of instruments for the measurement of blood pressure. I have had a deep respect for Professor Yutaka Imai, a leading expert in the field, and been interested in his group’s Ohasama Study. Research involving community residents and medical institutions requires more effort and adequate preparations, compared to clinical studies, since their understanding and cooperation based on mutual trust - the foundation of preventive medicine and medical care, are essential. Professor Imai and his research group deserve to be praised for their research achievements over a long period of time. Finally, the Division of Blood Pressure at Home (chairperson: Professor Yutaka Imai) of the Japanese Society of Hypertension has published the “Guidelines for Self-monitoring of Blood Pressure at Home” (second edition: September 2011).

“Scientific achievements of the Ohasama Study”

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The largest and most influential population study

In 1986, Professor Yutaka Imai had the vision to start the Ohasama Study, which to date remains the largest and most influential population study on self-measured blood pressure at home. A team of Japanese investigators led by Professor Imai’s study were the first to demonstrate that blood pressure self-monitoring offers several well-recognized advantages of the more complex approach of ambulatory monitoring and that home blood pressure is a more accurate predictor of outcome than office blood pressure. In a large number of publications in top-ranking journals, the Ohasama investigators proposed and refined diagnostic thresholds for home blood pressure and carefully defined the modalities for its use in clinical practice. The work of Professor Imai and his team inspired many subsequent studies on the classification of high blood pressure into white-coat, masked, and sustained hypertension and on blood pressure variability as a potential cardiovascular risk factor. The Ohasama results importantly informed current guidelines on blood pressure measurement and led to the first trial ever, also coordinated by Professor Imai, of antihypertensive drugs guided by home blood pressure. Ohasama will continue to generate exciting results in the foreseeable future and has already entered textbooks as a landmark study.

“The largest and most influential population study”
The establishment of the Ohasama Study in 1986 by Professor Yutaka Imai was a brilliant and far sighted initiative that has influenced the way hypertension is evaluated and managed worldwide and continues to improve our knowledge of this most important preventable risk factor. The Ohasama Study goes beyond what any other has helped demonstrate the importance of measuring blood pressure not only in the clinic but also using ambulatory and home blood pressure recorders. These are now established in the clinical armamentarium of physicians treating hypertension and have become a gold standard in clinical research on hypertension. Important information derived from the study has defined the distribution of a whole range of blood pressure parameters in a rural community in Japan and the results have held up when tested in other populations around the world. Reference values for these blood pressure measurements were established as well as their predictive capacity for mortality and for the major consequences of elevated blood pressure. As early as 1997, major findings from the study were incorporated in the influential Report of the Joint National Committee from the United States. From 1999, they were included in the World Health Organization-International Society of Hypertension guidelines on the management of hypertension and have been a component of virtually every important guideline ever since.

Besides the contribution from this study of bringing home and ambulatory blood pressure measurements into the mainstream of clinical medicine, there have been other important contributions from this study. For example, the significance of variations in blood pressure and the relative importance of nighttime and daytime blood pressure. For this and so much more, we are grateful to Yutaka Imai and his colleagues, the sponsors, and the citizens of Ohasama and look forward to many more important findings and landmark papers from the collaboration.

"Congratulations on the Ohasama Study History Book."