Editorial

The Morning Blood Pressure Surge: An Independent Cardiovascular Risk Factor

Most studies of the diurnal variations of cardiovascular disease have shown an increase in acute myocardial infarction, sudden cardiac death, and stroke in the morning hours. It is now apparent that the morning blood pressure surge (MBPS) is an independent risk factor that may contribute to this morning medical phenomenon.

The MBPS has been estimated by several different methods resulting in different calculations of the MBPS values. Simply stated, it is the blood pressure measured upon arising, or shortly thereafter, minus the blood pressure measured at bedtime or during sleep. Ideally, ambulatory blood pressure measurements are used, but self-monitoring can also be employed for the measurement.

The MBPS is present in normotensives and exaggerated in hypertensive subjects, especially the elderly with systolic hypertension. By one measurement technique the blood pressure surge usually increases 10-30 mmHg systolic, but the magnitude of the surge increases with age, alcohol consumption, smoking, cold weather and hypertension(1). In another report using 24-hour ambulatory blood pressure monitoring, patients with exaggerated MBPS (> 45 mmHg systolic) were prone to silent cerebrovascular infarcts, as well as clinical strokes(2).

The exaggerated morning surge has been reported to increase left ventricular mass and cardiac arrhythmias. In addition, the MBPS increases shear stress and pressure in the vascular wall leading to increased oxidative stress, further vascular damage and atherosclerotic plaque rupture(3).

WHL News

Report from the WHL Council Meeting in Beijing

WHL Council Conference was held in association with the 6th Asia Pacific Conference on Hypertension at the Beijing International Convention Centre, Beijing on November 16, 2007. The conference was well attended by at more than 15 countries. After a brief welcome by President Dr. Liu Lisheng and a report by the Secretary General Dr. Arun Chockalingam on the year’s activities, Country presentations were made by the following: Bangladesh (Dr. Khandaker), Canada (Dr. Campbell), China (Dr. Wang), Egypt (Dr. Rizk), Greece (Dr. Zamboulis), Italy (Dr. Rappelli), Nepal (Dr. Pandey), Philippines (Dr. Castelli) and Turkey (Dr. Arici).

The WHL recognized the success of WHD 2007 organized by many countries and issued a Certificate of Appreciation to the following Countries: Argentina, Australia, Bangladesh, Botswana, Cameroon, Canada, Denmark, Egypt, Georgia, Germany, Greece, Iran, Italy, Japan, Nepal, Pakistan, Philippines, Romania, Thailand and Turkey.

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What causes the morning blood pressure surge? Several factors contribute. The major contributor is the increased activity of the sympathetic nervous system, especially the α-adrenergic component. The renin-aldosterone-system is highest in the morning, and endothelial dysfunction causing small vessel constriction also contributes to the surge. Numerous studies suggest that the MBPS is an independent risk factor for cardiovascular disease and should be measured and treated as an important component of the Hypertension Syndrome.

The ideal method of estimating the MBPS is with 24-hour ambulatory blood pressure monitoring and calculating the surge from selected blood pressures in the morning and during sleep, but the simplest and more available approach is by patient self-measurement. The patient measures the blood pressure at bedtime and upon arising in the morning. How much surge is too much that requires treatment is not known and the value may vary with the method of measurement. A surge above 30 mmHg by the self-measurement method probably should receive specific treatment.

The MBPS may be successfully treated with long-acting hypertensive medications whose effects last for more than 24-hours. Another approach is to use an α-adrenergic blocker or other anti-hypertensive drugs at bedtime; however, the patient needs to be warned about postural hypotension.

Here is an example of the treatment of a patient with MBPS: A 72-year-old male regularly visits his physician in the afternoon, usually at 3 p.m. At this time, his blood pressure ranges from 135-145/60-76. At bedtime (10 p.m.) his blood pressure (self-monitored) is 106/62 mmHg. At 7 a.m., upon arising, his blood pressure measures 160/76. This response was similar on three separate days. In view of the morning surge of 54 mmHg he was treated with an α-adrenergic blocker (Doxazosin) at bedtime. The morning blood pressure was reduced to 132/62.

In summary, the MBPS is an independent cardiovascular risk factor that needs to be measured and treated in hypertensive patients.

Patrick J. Mulrow, MD
Professor Emeritus, University of Toledo

References:

The views expressed in this Editorial are not necessarily those of the World Hypertension League Board.

WHL Council Meeting in Beijing continued

After a coffee break a special symposium was held between 10:30 a.m. and 12:30 p.m. The following five presentations were made: Chronic Disease Prevention: from evidence to action (Dr. Chen Chunming, China), Beijing Hypertension Management Project (Dr. Yao Chonghua, China), Hypertension Community Management (Dr. Zengwu Wang), Heart Failure among Egyptians (Dr. Wafaa El Aroussy) and finally the Servier Lecture by Dr. Yangfeng Wu on "What does ADVANCE tell us?" A recognition certificate was given to Dr. Wu as the Servier Lecturer.

Dr. Chockalingam, acknowledged the contributions of the past president Dr. Claude Lenfant and the Past Secretary General Dr. Patrick Mulrow for their dedicated services to the WHL. He also reported that the World Hypertension Day (WHD) 2007 was a great success and was celebrated in more than 30 WHL member countries. The 2007 WHD theme was "Healthy Diet... Healthy Blood Pressure". The WHD 2008 will
World Hypertension Day 2007

Activity Report from Denmark

“World Hypertension Day” was turned into a “World Hypertension Week” in Denmark! The reason for this was that May 10 is “World Stroke Day” and May 17 was “World Hypertension Day”. As May 17 is an important holiday in Denmark we made May 15 to “World Hypertension Day” (although this was not explained to the Danish community).

On May 10 “The Danish Stroke Association” (“HjerneSagen”) had activities at 40 different places in the country: In shopping centres, libraries, pharmacies. At each place approximately between 50-250 persons had their blood pressure measured and received advices accordingly.

On May 11 and May 14 Falck Health Care provided blood pressure measurements at approximately 25 different business locations/working places, and at approximately 35 so called health centres, a total of more than 600 measurements.

On May 15: “World Hypertension Day” in Denmark! blood pressure measurement and information were offered at approximately 15 different hospitals, at each place between 100 and 275 measurements were provided as well as relevant advices about hypertension and its consequences. At the same day blood pressure measurements were offered at a vast number of pharmacies across the whole country. At all local “heart centres” blood pressure measurement, information and lectures were given, organized by “Danish Heart Foundation”. All the activities were quite well covered by news media, local TV, national and local newspapers, web sites for the Danish Stroke Association, the Danish Heart Foundation, the Danish Society of Hypertension, the Danish Pharmaceutical Organization.

All the activities were planned and executed as a very good collaboration between the Danish Society of Hypertension, the Danish Stroke Association, the Danish Heart Foundation, the Danish Pharmaceutical Organization and Falck Health Care.

To my mind it looks like a success and we all consider to continue with similar or more wide spread activities in year 2008.

Hans Ibsen, MD, Chief Physician for Research Glostrup University Hospital Danish Society of Hypertension
People

Professor Dr. Luis Martins is the new President of the Portuguese Society of Hypertension.
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Electronic Newsletter Delivery
http://www.worldhypertensionleague.org

Calendar

International Conference on Fixed Combination in the Treatment of Hypertension and Dyslipidemia
February 7–10, 2008
Budapest, Hungary
Information: Fixed '08 Secretariat, c/o Paragon Conventions,
18, Avenue Louis-Casai, 5th Floor,
1209 Geneva, Switzerland
E-mail: fixed@paragon-conventions.com

2nd Portuguese Congress on Hypertension
February 21–24, 2008
Vilamoura, Algarve, Portugal
Information: Prof. Dr. Luis Martins,
Portuguese Society of Hypertension,
Av. Visconde Valmor, n° 12, r/c direito A, 1000-291 Lisbon, Portugal
Fax: (+351-21) 7960 098
E-mail: geral@sphta.org

2nd International Conference on Hypertension, Lipids, Diabetes & Stroke Prevention
March 6–8, 2008
Prague, Czech Republic
Information: Kenes International,
1-3 Rue de Chantepoulet, PO Box 1726,
CH-1211 Geneva 1, Switzerland
Fax: (+41-22) 732 2850
E-mail: strokeprevention08@kenes.com

4th International Symposium of Hypertension and 2nd International Workshop of Cardiavascular Risk
May 26–29, 2008
Santa Clara, Cuba
Information:
Prof. Emilio F. González Rodríguez
Chairman HTA 2008 Organizing Committee
UCLV, La Habana, Cuba
Website: http://www.universidad2008.cu
E-mail: hta2008@uclv.edu.cu

22nd Scientific Meeting of the International Society of Hypertension and 18th Meeting of the European Society of Hypertension
June 14–19, 2008
Berlin, Germany
Information: Hypertension 2008
Conference Secretariat c/o K.I.T.
Kurfürstendamm 71,
10709 Berlin, Germany
Website: http://www.hypertension2008.com

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Impressum
The objectives of the WHL are to promote the detection, control and prevention of arterial hypertension in populations.
The World Hypertension League (WHL) is a federation of leagues, societies and other national bodies devoted to this goal. Individual membership is not possible.
The WHL is a division of the International Society of Hypertension (ISH), and is in official relations with the World Health Organization (WHO).
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