Ambulatory & Home Blood Pressure Measurement in the Management of Hypertension

Bayside Room B
Sydney Convention and Exhibition Centre Darling Harbour

9:00 am – 5:00 pm,
Sunday 30th September 2012

Satellite of the International Society of Hypertension Meeting, Sydney 2012
The Australian Ambulatory Blood Pressure Monitoring Collaborative under the umbrella of the High Blood Pressure Research Council and the National Heart Foundation of Australia, comprises of a network of researchers and health professionals interested in the technique of ambulatory blood pressure measurement in the treatment of high blood pressure. Our aim is to provide coherent consensus opinions about the use of ambulatory blood pressure in the Australian context and to undertake research on pertinent questions using our combined resources and expertise. Communication of our findings and views are made via the scientific literature and through the medical press. Our members represent major research Universities, Hospital and clinics from every State in Australia.

Our website is www.aabpmc.org

Publications

Ambulatory blood pressure monitoring in Australia: 2011 consensus position statement.
J Hypertens, 30, 253-266.
National Heart Foundation and High Blood Pressure Research Council of Australia Ambulatory Blood Pressure Monitoring Consensus Committee

Ambulatory BP Monitoring
Aust Fam Phys 2011, 40:877-880.
National Heart Foundation and High Blood Pressure Research Council of Australia Ambulatory Blood Pressure Monitoring Consensus Committee

Definition of ambulatory blood pressure targets for diagnosis and treatment of hypertension in relation to clinic blood pressure: prospective cohort study.

Reply to: "Clinical thresholds for ambulatory blood pressure measurement reinvented?"
Ambulatory & Home Blood Pressure Measurement in the Management of Hypertension

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Local Organizing Committee

Geoffrey Head and Anastasia Mihailidou (Convenors), Barry McGrath, Mark Nelson, Markus Schlaich, Jinty Wilson, Arduino Mangoni, James Sharman

International Advisory Committee

Lawrie Beilin, Eoin O’Brien, Alberto Zanchetti, William White, George Stergiou, Gianfranco Parati, Takayoshi Ohkubo, Martin Myers, Yutaka Imai, Kazuomi Kario, Luis Ruilope

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The Satellite is held at the Sydney Convention and Exhibition Centre, Darling Harbour.

Bayside Room B level 1
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- Silver Service 13 31 00 www.silverservice.com.au
- St George Cabs 13 21 66 www.stgeorgecabs.com.au
MORNING PROGRAM

9:00 am  Welcome:  Geoff Head and Susie Mihailidou

9:05 - 10:05 am  Session 1:  Chair: Geoffrey Head
Recent Developments in Blood Pressure Monitoring

9:05  Yutaka Imai (P3)  Advantage of Home Blood Pressure Measurements to Ambulatory Blood Pressure Monitoring

9:25  Jan Staessen (P5)  Blood Pressure Variability in Risk Stratification: Hip or Hype?

9:45  Martin Myers (P7)  Automated Office Blood Pressure Measurement – Eliminating White Coat Hypertension

10:05 - 10:35am  Session 2:  Debate Chair: Mark Nelson
ABPM rather than Home BP is the first choice for out-of-office BP monitoring

  Affirmative: Alberto Zanchetti (P9)  Negative: George Stergiou (P11)

10:35 - 10:55 am  Morning Tea

10:55-12:15  Session 3:  Chair: Barry McGrath
Ambulatory Blood Pressure in Clinical Practice

10:55  Bryan Williams (P13)  Ambulatory Blood Pressure Monitoring for Diagnosis of Hypertension: NICE Guidance UK.

11:15  Gianfranco Parati (P15)  European Society of Hypertension ABPM Perspective

11:35  Julian Segura (P17)  Usefulness of Ambulatory Blood Pressure Monitoring in Daily Clinical Practice and Randomized Trials: Data from the Spanish ABPM Registry

11:55  Susie Mihailidou (P19)  Challenges Implementing ABPM into Clinical Practice: The Australian Perspective

12:15 – 12:55 pm  Lunch
**AFTERNOON PROGRAM**

**12:55 – 13:55pm**  
**Session 4:**  
**Chair: Markus Schlaich**  
*Is Blood Pressure Variability a New Risk Factor?*

12:55  
Peter Rothwell (P21)  
Hypertension and Risk of Stroke: Is Mean BP all Important or does Maximum BP Matter too?

13:15  
Giuseppe Mancia (P23)  
24-hour BP Variability

13:35  
Takayoshi Ohkubo (P25)  
Home Blood Pressure Variability: What do we Know?

**13:55 - 15:15pm**  
**Session 5:**  
**Chair: Arduino Mangoni**  
*Ambulatory Monitoring of BP In White-Coat, Masked And Resistant Hypertension*

13:55  
Barry McGrath (P27)  
White Coat Hypertension

14:15  
Josep Redon (P29)  
Resistant Hypertension

14:35  
Eamon Dolan (P31)  
Masked Hypertension

14:55  
Kazuomi Kario (P33)  
Impact of Perfect 24-hour Blood Pressure Control in Hypertension

**15:15 - 15:35pm**  
**Afternoon Tea**

**15:35 - 16:55pm**  
**Session 6:**  
**Chair: Susie Mihailidou**  
*Special Applications for ABPM*

15:35  
George Stergiou (P35)  
Automated BP measurement in Atrial Fibrillation

15:55  
Geoffrey Head (P37)  
Cardiovascular Risk and the Morning Surge in Blood Pressure

16:15  
Robert Fagard (P39)  
Nocturnal Hypertension: Prognostic Significance and Management

16:35  
Mark Brown (P41)  
Is There a Role for ABPM in Pregnancy?

**Closing Comments**  
**Susie Mihailidou and Geoffrey Head**
Abstract

Home (H) blood pressure (BP) measurements (M) and ambulatory (A) BPM are now widely used in clinical practice. HBP and ABP are characterized by increased measurement frequency and increased information of BP in relation to time. As general characteristics, HBPM is superior in feasibility, availability, tolerability, standardizability, reproducibility, track ability, repeatability, and economical view point to ABPM. HBPM is less labour intensive for both practitioners and patients than ABPM. BP indices obtained from ABPM including nocturnal BP level and BP variability are now available from HBPM. HBPM adapts for diagnosis of hypertension equally to or better than ABPM, eg. white coat hypertension, masked hypertension, resistant hypertension, etc. Evidence for cardiovascular outcome based on HBP has been accumulated enough as that based on ABP. HBPM adapts for treatment of hypertension better than ABPM. Recently, target HBP levels for antihypertensive treatment have been established by J-HOME study, a large scale RCT. HBPM can detect a minimal BP change during treatment without a placebo effect, and provides information about the duration of action of a drug. HBPM ameliorates drug adherence, resulting in amelioration of BP control and of achievement of target BP level, whereas ABPM has no such competence. HBP is the most stable and reliable phenotype for clinical study, epidemiology, genetic study as well as for physiological and pathophysiological study. In conclusion, HBP is superior to ABP and HBPM has greater practical use for monitoring hypertension than ABPM.

Biography

Professor Yutaka Imai, MD, PhD, FJSH, FAHA, is Emeritus Professor of Clinical Pharmacology and Medicine, and is Chairman and Professor of Planning for Drug Development and Clinical Evaluation, Tohoku University Graduate School. He was Director of the Center of Excellence, Tohoku University Sendai, Japan. He received his M.D.(1971) and Ph.D.(1998) from Tohoku University. He undertook post-doctoral training in the Department of Medicine, Melbourne University (Chairied by Professor Colin Johnston). In 2009, Professor Imai was awarded the Prevention Prize from the Japan Heart Foundation and in 2010, the Japanese Society of Hypertension award, for his long-time contribution to cardiovascular disease prevention, specifically the 25 year Ohasama Study, a cardiovascular disease prevention strategy based on home and ambulatory blood pressure, as well as HOMED-BP study, a large scale intervention trial (RCT) for hypertension over a span of 10 years on the basis of home blood pressure measurements and information technology. Professor Imai has held an important role in Japanese Society of Hypertension as a Councillor of that Society and has been a member of the editorial boards of the Journal of Hypertension, Clinical Experimental Hypertension, Hypertension Research, and Blood Pressure Monitoring. He has published more than 500 peer reviewed English language papers.
Professor Jan Staessen

Blood pressure variability in risk stratification: hip or hype?

Abstract

The prognostic significance of blood pressure variability (BPV) remains controversial. Some studies reported association of BPV with end-organ damage, cardiovascular events, or mortality, whereas others failed to do so or found BPV to be inferior to mean blood pressure. Recent publications suggested that clinicians might reduce stroke risk more effectively by targeting BPV along with blood pressure level, using specific classes of antihypertensive drugs. These recommendations originated mainly from clinical trials, which included high-risk groups, such as elderly or hypertensive patients or participants with a previous ischaemic stroke or transient ischaemic attack or diabetes. Other methodological issues that might have introduced bias are: non-randomisation, possible lack of power, short follow-up time, categorisation of continuous BPV measures for risk prediction, the use of BPV measures that are dependent on the level of blood pressure, limited adjustment, or failure to account for reverse causality. We assessed the prognostic significance of BPV in the Flemish Study on Genes, Environment and Health Outcomes (FLEMENGHO), the International Database on Ambulatory blood pressure in relation to Cardiovascular Outcomes (IDACO), and the placebo-controlled SYSTolic hypertension in EURope trial (SYST-EUR). In all analysis, BPV did not contribute to risk stratification over and beyond mean systolic blood pressure and other risk factors.

Biography

Jan A. Staessen, MD, PhD, is Professor of Medicine at the University of Leuven and Head of Clinic at the University Hospitals Leuven. Dr. Staessen leads the Division of Hypertension and Cardiovascular Rehabilitation, Department of Cardiovascular Sciences, University of Leuven, Belgium. Dr Staessen is Professor of Genetic Epidemiology at the Department of Epidemiology, Maastricht University, Maastricht, the Netherlands. He was the principal investigator of influential clinical trials, such as Systolic Hypertension in Europe Trial (Syst-Eur), the Ambulatory blood Pressure monitoring and Treatment of Hypertension trial (APTH) and the Treatment of hypertension based on Home or Office blood Pressure trial (THOP). He was the scientific coordinator of the Ouabain and Adducin for Specific Intervention on Sodium in HyperTension trial (OASIS-HT). Dr Staessen is a member of the International Society of Hypertension, the European Society of Hypertension, the European Society of Cardiology, the American Society of Hypertension, and the American Heart Association. He is past chairperson of the European Hypertension Society Working Group on Blood Pressure Monitoring and is an International Fellow of the Council for High Blood Pressure Research of the American Heart Association. Dr Staessen’s current research interests focus on the genetics, epidemiology, and treatment of cardiovascular disease, in particular hypertension. Dr Staessen set up two international research consortia: IDACO (International Database on Ambulatory blood pressure monitoring in relation to Cardiovascular Outcome) and IDHOCO (International Database of HOme blood pressure in relation to Cardiovascular Outcome). In 2011, Dr Staessen received a European Research Council Advanced Researcher grant for population-based research on left ventricular diastolic dysfunction (EPLORE). Dr. Staessen published over 725 papers in peer-reviewed journals. Currently, his citation index (excluding own citations) is over 15,200 and his H-index is 76. Dr Staessen serves on the editorial board of several top-ranking medical journals. He is an Associate Editor of Hypertension, Hypertension Research, and Blood Pressure Monitoring. He is advisor to The Lancet.
Automated Office Blood Pressure Measurement –
eliminating white coat hypertension

Abstract

Conventional measurement of blood pressure (BP) in routine clinical practice has come under close scrutiny in recent years. Manual office BP readings tend to be relatively inaccurate and associated with office-induced hypertension, also known as a ‘white-coat’ response. Recent guidelines have recommended 24 hour ambulatory BP monitoring (ABPM) and home BP for diagnosing and managing hypertension. However, a third option is now available, automated office BP measurement, which should make it possible to maintain the important role played by office BP. Automated Office BP (AOBP) involves using a fully automated sphygmonanometer to record multiple BP readings with the patient resting quietly while alone. When these 3 principles (in italics) are followed, AOBP virtually eliminates the white coat response associated with routine manual BP measurement and gives BP readings which are more highly correlated with the awake ambulatory BP and with target organ damage. The cut-point for defining hypertension using AOBP (≥135/85 mmHg) is similar to the cut-points used for ABPM and home BP. AOBP can be obtained in about 5 minutes and readings are relatively consistent from visit to visit and similar within and outside of the treatment setting. AOBP should now be considered for the diagnosis and management of hypertension in routine clinical practice.

Biography

Professor Myers received his medical degree from the University of Toronto and completed postgraduate training in Internal Medicine and Cardiology in Toronto. He developed an interest in hypertension during a research fellowship in Clinical Pharmacology at the Hammersmith Hospital in London, UK. Dr. Myers is a member of the Division of Cardiology at Sunnybrook Health Sciences Centre and a Professor of Medicine at the University of Toronto. Dr. Myers has been active in hypertension at both the national and international level. He initiated the creation of the Canadian Hypertension Society in 1977 and has been a member of the ISH since 1978. He is an active participant in the ESH Working Group on BP Monitoring. Research interests have encompassed a wide range of topics in both hypertension and cardiology, including studies examining the cardiovascular effects of caffeine and smoking. He was among the first to describe the dose-response characteristics of antihypertensive drugs. He introduced 24-hour ambulatory BP monitoring into Canada in 1985 and in 1991 proposed the concept of white coat effect to describe office-induced hypertension in treated patients. In the last decade, his main research interest has been the development of automated office BP a replacement for manual BP measurement in clinical practice.
Professor Alberto Zanchetti

Affirmative: ABPM rather than Home BP is the first choice for out-of-office BP monitoring

Biography

Professor Zanchetti is Scientific Director of the Istituto Auxologico Italiano, Milan, and Emeritus Professor of Internal Medicine at the University of Milan.

He is Past-President of the European Society of Hypertension. He is Distinguished Member of the International Society of Hypertension, of which he has been President, Vice-President and Secretary. He is also Past-President of the European Society for Clinical Investigation. He was Chairman (1984-88) of the Working Group on Hypertension and the Heart of the European Society of Cardiology. He is Honorary Member of the Council for Clinical Cardiology of the American Heart Association, from which he has received the 1977 Award for International Achievement. He is Honorary Member of the International Society of Hypertension, the European Society of Hypertension and the Latin-American Society of Hypertension. He is also Honorary Member of a number of National Societies on Hypertension, including the Australian High Blood Pressure Research Council, the Spanish Society of Hypertension, the Swedish Society of Hypertension, the German Society of Hypertension, the German Society of Internal Medicine. He is Honorary Professor of the Catholic University of Chile, and has been WHO consultant for Cardiovascular Diseases for more than 20 years. He is member of several international medical societies, and of the Editorial Boards of several scientific journals. He has organized the 1972, 1974 and 1981 meetings of the International Society of Hypertension in Milan and from the First to the Ninth European Meeting on Hypertension of the European Society of Hypertension in Milan between 1983 and 1999. His research interests are pathophysiology, clinical pharmacology and therapy of arterial hypertension and other cardiovascular and renal diseases; he is also an expert in the neural control of circulation and the kidney. He has long experience in running randomized clinical trials, having been Coordinator or member of the Steering Committee of HOT, SCOPE, EWPHE, SystEur, ELSA, PHYLLIS, CONVINCE, VALUE, FEVER, and member of the DSMB of IPSSH and SENIORS. In 1986 he has been awarded the Franz Volhard Lecture Award of the International Society of Hypertension, in 1987 he has given the International Lecture of the British Cardiac Society, in 1991 he has been awarded the Henri Denolin Lecture of the European Society of Cardiology, and in 1997 the Riva-Rocci award of the Italian Society of Hypertension. He has been in the Guidelines Committee of the World Health Organization and the International Society of Hypertension since its inception. He has also coordinated the Writing Committee of the 2003 European Society of Hypertension-European Society of Cardiology guidelines for the management of Hypertension and has been a member of the Task Force responsible for the 2007 guidelines, and is a member of the Task Force presently preparing the 2013 edition of ESH-ESC guidelines. Since 1995 he is Editor-in-Chief of the Journal of Hypertension. From 2006 to 2011 he has been general Coordinator of the Network of Excellence “InGenious HyperCare” financed by the European Commission for investigating the genetic basis of arterial hypertension and its complications (FP6). At present he is member of the Steering Committee of the European Commission project (FP7) EU-MASCARA on biomarkers of cardiovascular diseases.
Professor George S. Stergiou

Negative: ABPM rather than Home BP is the first choice for out-of-office BP monitoring

Biography

George Stergiou is Associate Professor of Medicine & Hypertension in the University of Athens in Greece. Trained in hypertension at the University Department of Medicine & Therapeutics and Glasgow Blood Pressure Clinic, Western Infirmary, Glasgow, UK. Co-chairman of Hypertension Center, Athens University (European Society of Hypertension Excellence Center). Elected Fellow Royal College of Physicians (FRCP), Glasgow, UK. European Society of Hypertension (ESH) ‘Peter Sleight’ Award 2010, for outstanding contribution in research, education, and leadership in hypertension. Secretary of ESH Working Group on Blood Pressure Monitoring. Writing committee member of ESH Guidelines for Ambulatory, Home and Office Blood Pressure Measurement, Pediatric Hypertension, Set-up of ESH Blood Pressure Clinic, ESH International Protocol for device validation. Member of executive committee of International Pediatric Hypertension Association. Member of the European Commission Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR on Sphygmomanometers). Member of the editorial board of 11 PubMed journals. Reviewer for 40 PubMed journals and for the Br Med J Publishing Group and McMaster University’s Health Information Research (MORE: McMaster Online Rating of Evidence). Abstract reviewer at 16 meetings of International and European Society of Hypertension. Invited speaker (42 lectures) at meetings of European, International, Canadian, Japanese, Danish and Spanish Society of Hypertension. Past president of Hellenic Society for the Study of Hypertension, and chairman of writing committee of the Society’s Guidelines. Research work focused on blood pressure monitoring, pediatric hypertension and antihypertensive drug action. Published more than 150 PubMed articles and presented more than 200 papers in international meetings. More than 3,000 citations, including citations in guidelines of the American, European, International, British, Canadian and Japanese Hypertension Societies.
Professor Bryan Williams

Ambulatory Blood Pressure Monitoring for diagnosis of hypertension: NICE Guidance UK.

Abstract

Hypertension has been diagnosed on the basis of a series of seated clinic blood pressure (BP) readings for over a century. It has been well recognised that some patients diagnosed as hypertensive in this way may have a normal blood pressure when away from the doctor’s office, so-called “white coat hypertension”. In its latest revision of hypertension guidelines for the UK (CG 127 2011), the National Institute for Health and Clinical Excellence (NICE) posed the question as to whether current practice for the diagnosis of hypertension is best practice, or whether wider use of ambulatory BP monitoring (ABPM) or home BP monitoring (HBPM) would provide a more sensitive and specific means of establishing the diagnosis. The NICE process involves a series of systematic reviews and cost effectiveness analyses, followed by stakeholder consultation of pending recommendations prior to making definitive recommendations. These reviews determined that; (i) ABPM was the best predictor of clinical outcomes when compared to clinic BP (CBP) or HBPM; (ii) that ABPM was also the most sensitive and specific means of determining the diagnosis of hypertension versus CBP, with HBPM of intermediate value. It was noted that one of the problems in assessing the utility of HBPM in this context was the limited availability of data. Furthermore, formal cost effectiveness analysis confirmed that ABPM was cost effective and potentially cost saving when used for the diagnosis of hypertension in the UK health system. On this basis, NICE recommended that when a diagnosis of hypertension is suspected (usually on the basis of an elevated screening CBP) ABPM should be offered to confirm the diagnosis. The guideline development group also reviewed which ABPM values should be used to establish the diagnosis, e.g. 24hr, daytime or night-time averages? The evidence review revealed uncertainty as to whether any one of the values was superior to another and concluded that a daytime average of at least 14 readings should be used to establish the diagnosis of hypertension. This also had the pragmatic advantage of patients not needing to wear the monitor through the night and also comparability with HBPM day time averages when ABPM was declined or not suitable for the patient. The guideline also noted that automated BP measurements can be unreliable in patients with atrial fibrillation and therefore CBP via manual auscultation should be used in such patients. Finally, the BP threshold for the diagnosis of hypertension using an ABPM daytime average had to be defined. Based on reviews of comparisons of clinical outcomes and direct equivalence measurements, a daytime ABPM average or a HBPM series average of ≥135/85mmHg was considered equivalent to a CBP threshold of ≥140/90mmHg. Further data reviews suggested that based on use of ABPM for diagnosis of hypertension, as many as 25% of patients previously labelled as hypertensive according to CBP measurements, would have a normal BP according to ABPM. The prognosis for those with WCH remains uncertain but there is insufficient evidence to justifiably recommending their treatment. These recommendations are a bold step and clearly represent an implementation challenge. Furthermore there is a need for more research into the added value of ABPM and HBPM for diagnosis of hypertension and monitoring of treatment efficacy – these recommendations will help facilitate that.

- Lovibond et al Lancet 2011

Biography

Professor Bryan Williams, MD, was recently appointed Chair of Medicine and Director of the Biomedical Research Centre, at University College London. He was previously Professor of Medicine at the University of Leicester School of Medicine. He is a National Institute for Health Research (NIHR) Senior Investigator and National Co-Chairman of the Cardiovascular Research Network in the NHS. He graduated from the University of London in 1983 and completed his clinical and research training in London and Leicester, and at the University of Colorado Health Sciences. His research and clinical practice is in the field of hypertension. He is a Past President of the British Hypertension Society (2001–2003) and was the Chairman of the National Institute for Health and Clinical Excellence (NICE) Hypertension Guidelines Development Group (update published in 2011). He was the lead author of British Guidelines for the Management of Hypertension in 2004 and was the expert advisor to the NICE Hypertension Guideline Development Group in 2006. He is a member of the Writing Committee for the Joint British Guidelines on Cardiovascular Disease Prevention III and national and international hypertension societies and is a Fellow of the AHA and ESC and the Royal College of Physicians, London.
European Society of Hypertension ABPM Perspective

Abstract

Ambulatory Blood Pressure Monitoring (ABPM) is a topic of considerable scientific interest with over 10,000 papers listed on PubMed in 2012. This technique was originally developed to determine the efficacy of BP-lowering drugs, and has been available for about 40 years. The evidence that ABPM gives important clinical information over and above clinic BP has been growing steadily over the past 25 years. The main advantages of ABPM, which emphasize the importance of this technique in clinical practice, include the following: 1. Possibility to obtain more measurements than with conventional BP measurement, thus being able to reflect usual BP more accurately than the latter approach; 2. Ability to provide a profile of BP away from the medical environment, thereby allowing identification of individuals with a white-coat response or masked hypertension, and description of patterns of BP behaviour that may be relevant to clinical practice, such as nocturnal hypertension or increased BP variability; 3. Assessment of the efficacy of antihypertensive medication throughout the day and night, thus accounting for the BP fluctuations triggered by environmental stimuli rather than relying on a casual BP measured with an inaccurate technique under artificial circumstances; 4. Ability to provide a much stronger prediction of cardiovascular morbidity and mortality than conventional measurement, with growing evidence that nocturnal BP measured by ABPM may be the most sensitive predictor of cardiovascular outcome; 5. Ability not only to improve the diagnosis and management of hypertension, but also to ensure that effective control of hypertension is implemented at community level.

Biography

Professor Gianfranco Parati is a full Professor of Cardiovascular Medicine, Department of Clinical Medicine and Prevention, University of Milano-Bicocca; Head, Dept. Cardiology, S.Luca Hospital, IRCCS Istituto Auxologico Italiano, Milano, Italy. He received his MD degree from the University of Milan, Italy, and was Resident in Cardiology and in Internal Medicine at the Milan University Hospital, where he was awarded the Certificate of Specialist in Cardiology and Specialist in Internal Medicine. Prof. Parati has been the coordinator of the Laboratory for Cardiovascular Research, Istituto Auxologico Italiano, Milan, Italy, since 1991. His research interests include ambulatory blood pressure monitoring and analysis of cardiovascular variability; neural control of circulation; pathophysiology and treatment of hypertension; congestive heart failure, sleep and the cardiovascular system; obstructive sleep apnea; cardiovascular effects of hypoxia, effects of high altitude exposure and cardiovascular pharmacology. Prof. Parati is a member of the ISH, ESH, ESC, Italian Society of Cardiology and an International Fellow of the High BP Council of the American Heart Association. He is Chairman of the Working Group on BP Monitoring of the Italian Society of Hypertension; Chairman of the Working Group on Heart Failure of the Italian Society of Cardiology, Officer in Charge of all Working Groups of the European Society of Hypertension, Ex-officio Member of the Nucleus of the Working Group on Hypertension and the Heart, of the European Society of Cardiology. He has published over 500 papers and serves on the review and editorial boards of several international journals. He is Executive Editor of the Journal of Hypertension, Associate Editor of Hypertension Research and Member of the Editorial Boards of Hypertension, Clinical Science, J.Human Hypertension and other Journals.
Usefulness of ambulatory blood pressure monitoring in daily clinical practice and randomized trials: data from the Spanish ABPM Registry

Abstract

Recent studies have shown that out-of-office blood pressure (BP) assessed by 24-hour ambulatory BP monitoring (ABPM) predicts cardiovascular morbidity and mortality better than blood pressure measured in the clinical office. Marked discrepancies have been documented between office and ambulatory measurements of blood pressure. Data from the Spanish ABPM Registry show that a third of hypertensive patients considered uncontrolled by office-based measures are normotensive according to 24-hour ambulatory BP values, and these patients could be over-treated. Moreover, a lack of benefit of antihypertensive therapy in some trials might be due to some patients having normal 24-hour BP at trial entry. Ambulatory monitoring of blood pressure may allow for better assessment of hypertensive patient management and their eligibility for clinical trials than office-based BP.

Biography

Dr. Julian Segura received his MD degree from the University of Alcalá (Madrid) and completed his residency and fellowship in Nephrology at the Hospital “12 de Octubre” in Madrid, Spain. Since 1998, he has worked at the Hypertension Unit, Hospital “12 de Octubre” together with Prof. Luis M. Ruilope. His principal area of interest is hypertension, the kidney, and cardiovascular risk factors. He has published several papers related to the development and prevalence of renal damage in hypertensive patients, the relationship between hypertensive renal damage and cardiovascular risk, and the relevance of metabolic syndrome in hypertensive patients. He is a member of the Scientific Committee of the Spanish Ambulatory Blood Pressure Monitoring Registry. He is a member of the Spanish Society of Hypertension, the European Society of Hypertension (ESH), the Spanish Society of Nephrology and the International Society of Nephrology. In 2001, he received the diploma of Clinical Hypertension Specialist supported by the ESH. Since 2005, he has been the executive editor of the Journal of the Spanish Society of Hypertension. Since 2008, he has been a member of the editorial board of the Journal of Hypertension.
Challenges implementing ABPM into Clinical Practice: The Australian Perspective

Abstract
Cardiovascular disease (CVD) continues to dominate global health profiles and contribute to disease burden. Hypertension is a major risk factor for CVD worldwide and a significant cost to health-care expenditure. Every year in Australia, 3% of the adult population develop hypertensive disease that has been documented [Australian National Health Survey, 2004-2005], although the true number may be greater. Therefore, screening and measurement of blood pressure is critical, especially away from the clinic or office. The recently released Australian Consensus Position Statement [1] was developed to provide guidance to primary care providers and professionals using ABPM, however, there are several challenges before we have routine use of ABPM in Australia. The first of these challenges include implementing a training program to ensure standardised procedures are used but which is tailored to accommodate the busy schedule of the primary care physicians and professionals intending to use ABPM. Other challenges include the issues similar to administering standard care, the extensive distances between healthcare providers and residence in country locations, measuring blood pressure of our indigenous people and elderly residing in nursing homes. Finally, there is no reimbursement for the cost involved in fitting a monitor in Australia. This is similar to Ireland but not other European locations which have partial recovery. In America, Medicare reimburses ABPM testing for suspected white-coat hypertension, with private insurance carriers reimbursing for additional indications. Possible solutions to some of these challenges are to develop e-learning modules and explore potential for development of ABP monitors which may transmit data wirelessly, similar to other telemedicine.


Biography
Dr Anastasia Susie Mihailidou, BSc., PhD, FAHA, is a Senior Hospital Scientist and Head of the Cardiovascular & Hormonal Research Laboratory in the Department of Cardiology at Royal North Shore Hospital and Clinical Senior Lecturer for Sydney Medical School, Sydney University. Anastasia completed a Bachelor of Science (majoring in Biochemistry & Pharmacology) and Doctorate (PhD) was in Pharmacology from the University of Sydney. She directs and coordinates the Ambulatory Blood Pressure Monitoring Service for the North Shore Ryde Health Service. As a Clinical Scientist, her time is divided between the clinical service, conducting research, and teaching for the Sydney Medical School. Her research is a combination of basic science, translational and clinical studies, focusing on blood pressure regulation and regulation of aldosterone/mineralocorticoid receptors in the heart. She was one of the Founding Members for the National Heart Foundation & HBPRCA Ambulatory Blood Pressure Monitoring Working Group and last year, Chair of the Foundation for High Blood Pressure Research Evaluation Committee for Postgraduate Fellowships, Australia.
Hypertension and risk of stroke: is mean BP all important or does maximum BP matter too?

Abstract
How hypertension causes stroke is poorly understood. Yet, one hypothesis has come to dominate research and practice in hypertension – that each of us has an underlying “usual” BP, which is the main determinant of BP-related vascular risk and of benefit from BP lowering drugs. All major guidelines recommend that diagnosis and treatment be based on estimates of this “true” BP. However, recent reports have shown that patients with only episodic hypertension also have a high risk of stroke, that maximum BP may be a better predictor of stroke than mean BP, that residual visit-to-visit variability in BP on treatment therefore has a poor prognosis despite good control of mean BP, and that benefits of some BP-lowering drugs are due partly to reduced variability in BP. Compared to other drugs, variability and peaks in SBP are reduced by calcium channel blockers (CCBs) and non-loop diuretics and increased by ACE-inhibitors, angiotensin-receptor blockers and beta-blockers. These findings may explain why beta-blockers are less effective, and CCBs and diuretics are more effective, in preventing stroke than can be accounted for by effects on mean BP. Increased mean BP is undoubtedly still a very important risk factor for stroke and other vascular events, but there is increasing evidence that maximum BP (and hence variability and instability in BP) is also important in progression of end-organ damage and particularly in triggering stroke.

Biography
Professor Rothwell, MD, PhD, FRCP, FMedSci, is a neurologist with an interest in stroke. With MRC Senior Clinical Fellowship funding he set up the Stroke Prevention Research Unit in Oxford in 2000, which now employs over 30 researchers and support staff. He was made Professor of Clinical Neurology at the University of Oxford in 2004, a fellow of the Academy of Medical Sciences in 2008, and a Wellcome Trust Senior Investigator in 2011. He has published over 250 scientific papers and several books. His recent papers have concentrated on prevention of major stroke after a TIA or minor stroke, blood pressure and risks of stroke and dementia, and the effects of aspirin on risk of cancer and other non-vascular disorders.
Abstract
Blood pressure (BP) has long been known to be characterized by a marked variability throughout the day and night. This presentation will 1) describe the patterns of BP variability throughout the day and night; 2) summarize the factors and mechanisms involved in their production and 3) list the possible means by which these variations can be quantified and thus compared in different clinical conditions. It will then review the changes in BP variability that characterize hypertension, as well as their modifications by treatment. It will finally discuss the evidence from different studies that 24 hour BP variability represents an independent risk factor for cardiovascular morbid and fatal events, in some studies with a greater predictive power than 24 hour mean BP. Focus will finally be reserved to present limitations in our knowledge of this phenomenon as well as on studies to be performed in the future to fill current gaps.

Biography
Giuseppe Mancia is Head of the Division and Department of Internal Medicine at the San Gerardo Hospital, Monza and Chairman of the Department of Clinical Medicine and Prevention at the University of Milan-Bicocca. He is past-President of the International Society of Hypertension (ISH), the European Society of Hypertension (ESH), the European Society of Clinical Investigation and the Italian Society of Hypertension (SIIA). He is past-Chairman of the Working Group on Hypertension and the Heart of the European Society of Cardiology (ESC). He has been ex-officio member of the Executive Council of the American Society of Hypertension (1996-2008) and chairman of the WHO/ISH Liaison Committee on Hypertension and has been Chairman of the Committee for the ESH/ESC Guidelines on Hypertension (2003, 2007, 2009 and 2012). He has been Chairman of the Scientific and Organising Committee of the ESH Meetings in 2001, 2003, 2005, 2007, 2009 and 2011. He is ordinary or honorary member of several scientific Societies and has received as number of research awards, among which the Heymans Award of the International Society of Hypertension, the Folkow Award of the European Society of Hypertension, the International Arrigo Recordati Prize, the Invernizzi Prize of Medicine, the Spinoza Honorary Chair of the University of Cordoba, the Talal Zein and the Harari Memorial lecture and Award. He has received the Degree Honoris Causa in Medicine by the University of Gdansk. He has been invited to give plenary lectures in many international meetings (Brönte Steward Memorial Lecture of the University of Glasgow, the Pickering Lecture of the British Hypertension Society, the Merck-Frost lecture of the Canadian Medical Society, etc) Giuseppe Mancia’s research interests are pathophysiology, clinical pharmacology and therapy of hypertension, congestive heart failure and other cardiovascular diseases. He has published more than 1300 papers in International journals and is the editor of the ESH Manual of Hypertension. His papers have received more than 61.000 citations.
Professor Takayoshi Ohkubo

Home blood pressure variability: what do we know?

Abstract

There is an increasing body of evidence showing that variability derived from home blood pressure (BP) measurement, expressed as the day-by-day home BP variability during a certain period, calculated using either the within individual standard deviation, coefficient of variation, average real variability, or variability independent of the mean, may predict clinical as well as subclinical cardiovascular disease. Home BP variability has advantages over variability derived from office BP and ambulatory BP because it can be assessed easily and is well accepted by patients in the long-term follow-up of treatment. Several types of day-by-day variability in home BP have been proposed: such as the variability of morning BP, evening BP, “morning BP – evening BP”, and “first value – second value (on one occasion)”. Although some studies demonstrated better predictive ability of morning variability, data were still limited. The optimal number of home measurements needed for better assessment of home BP variability, in terms of the predictive power, also remains to be investigated. Several factors responsible for between-subject differences in day-by-day home BP variability have been identified, such as sleep disorders. However, data on therapeutic implications of an increased day-by-day home BP variability, in terms of drug prescription and dosing, are limited and conflicting. To evaluate the utility of home BP variability including the comparison with office and ambulatory BP variability, and its thresholds of normality, the results of more prospective observational and interventional studies must be awaited.

Biography

Associate Professor Ohkubo is at the Department of Health Science, Shiga University of Medical Science and is a Visiting Associate Professor, Department of Planning for Drug Development and Clinical Evaluation, Tohoku University School of Pharmaceutical Sciences. Previously he had been Associate Professor, Department of Planning for Drug Development and Clinical Evaluation, Tohoku University School of Pharmaceutical Sciences (2005-2010) and Assistant Professor, Department of Planning for Drug Development and Clinical Evaluation, Tohoku University School of Pharmaceutical Sciences (2003-2005), Assistant Professor, Division of International Health, Department of Public Health, Tohoku University School of Medicine (2002-2003), Visiting Research Fellow of the Institute for International Health, Sydney, Australia (2000-2001). In 1993 he graduated from Tohoku University School of Medicine. His PhD in 1999 was from the Tohoku University School of Medicine following an MD from Tohoku University School of Medicine. He is a member of the Japan Society of Hypertension, Japan Epidemiological Association, European Society of Hypertension Working Group on Blood Pressure Monitoring and was a Member of the Editorial Board of the Journal of Hypertension 2001-2003. He is currently a member of the editorial board for Clinical and Experimental Hypertension and associate editor of the Journal of Epidemiology from 2008. He has published more than 250 articles or reviews in English with his major research interests including Hypertension and Blood Pressure Monitoring, Epidemiology. He is the Chief Research Coordinator of the Ohasama Study and the J-HOME study. He is a member of the Management Committee, the HOMED-BP Study, Asia Pacific Cohort Studies Collaboration (APCSC), Blood Pressure Lowering Treatment Trialsist’s Collaboration (BPLTTC), International Database of Ambulatory Blood Pressure in relation to Cardiovascular Outcome (IDACO), and the National Integrated Project for Prospective Observation of Non-communicable Disease And its Trends in the Aged (NIPPON DATA).
Abstract

White-coat hypertension, a condition in which a subject meets criteria for hypertension when blood pressure is measured in the clinic, but shows normal values when measured at home or by ambulatory blood pressure monitoring (ABPM), occurs in 10-20% of the population. Once considered an innocent finding, it is now known that white-coat hypertension progresses to established hypertension (approximately 50% risk within 10 years) and also carries a substantially increased risk of developing future diabetes. On the other hand, using clinic blood pressures in risk calculators to assess risk of future cardiovascular disease will overestimate risk for subjects with white-coat hypertension. The daytime average ABPM or automated, non-observed blood pressure, should be used instead.

White-coat hypertension is more common in women. Studies that have looked for evidence of altered mechanical and/or circulating biomarkers have been small, cross-sectional and have shown little consistency. In a recent study glucose tolerance, autonomic function, circulating biomarkers and central pulse wave velocity were examined in 109 untreated subjects- 36 normotensive, 33 white-coat hypertensive and 40 established hypertensive subjects. Two hour glucose post load, adjusted for age and waist circumference, was elevated in the white-coat hypertensive group compared to the normotensive subjects; all other biomarkers were similar in the 3 groups. The same group has been followed up for an average of 4 years to examine predictors for progression to hypertension. The Australian consensus position statement provides a flow-diagram as guideline for management of white-coat hypertension.


Biography

Professor Barry McGrath is an adjunct Professor of Medicine, Monash University and physician. He was a full-time clinical academic at Monash University for 33 years. His research leadership is reflected in publications (author or co-author of 6 books, 11 book chapters, 220 papers in referred journals; student supervision (11 completed PhDs) and post-doctoral supervision (10), grants obtained, invited international and national presentations, journal editorial boards, service on Grants Committees, and awards include those from the National Heart Foundation and High Blood Pressure Research Council of Australia. He has a particular interest in Ambulatory Blood Pressure Monitoring and is a member of the Australian ABPM Collaborative.
Resistant hypertension

Abstract

Hypertensive patients whose clinical blood pressure (BP) remains persistently high despite being prescribed appropriate multiple medications, so-called resistant, account for 10% of hypertensive subjects referred to specialized clinics. These patients whose hypertension is uncontrolled are more likely to have target organ damage and a higher long-term cardiovascular risk than patients whose blood pressure is controlled. Heart failure, stroke, myocardial infarction and renal failure are related to the degree of the BP elevation. For a better risk stratification, BP measurement outside the clinical environment has been recommended in order to exclude the existence of a persistent exaggerated “white-coat” reaction. The recommendation in using out-of-office BP measurements was based on the demonstration that ambulatory BP gave better prognostic information than did office BP counterparts. These studies, however, did not cover the performance of regular ABPM nor the changes to or addition of antihypertensive drugs during the follow-up. The role of ABPM in the diagnosis and follow-up of resistant hypertension is reviewed.

Biography

Professor Redon is Head of the Department of Department of Internal Medicine for the Hospital Clinico of Valencia in Spain. Born in Valencia in 1950. Master’s degree in Medicine completed at the Medical School of the University of Valencia (1968-1974). PhD earned at the University of Valencia. Specialist in Internal Medicine from the Medical Postgraduate Training Program at the Jiménez Diaz Foundation, Madrid, and at the University Hospital La Fe, Valencia. Assistant Professor in the Department of Medicine University of Valencia in 1984. In 1995 appointed Associate Professor at the University in the Area of Medicine, and in 2004 appointed Professor (Catedrático) of Internal Medicine. In 1977 appointed Adjunct at the Department of Internal Medicine, University Hospital La Fe of Valencia. In 1981 became the Head of the Internal Medicine Department for Sagunto Hospital. In 2005, named Head of the Department of Internal Medicine for the Hospital Clínic of Valencia (current). Research Activities relate to my clinical activities in the field of Hypertension including a Fellowship in Hypertension at the Department of Nephrology and Hypertension, Northwestern University (Prof. D Batlle) in Chicago (1991-1992); visits to Department of Epidemiology and Preventative Medicine, Loyola University (Prof. RS Cooper), Maywood, IL (1993-1994); Associate Researcher for the Molecular Medicine Unit in the Biomedical Research Foundation of Valencia (1997-2001); Researcher for the Research Foundation of the Hospital Clínico, Valencia (2001- ); and coordinator of the Node of Thematic Networks of Research of the Institute of Health Carlos III and of the Network of Excellence Research Group, Ingenious Hypercare. Scientific Director of INCLIVA Research Institute, Hospital Clinico Universitario Valencia, University of Valencia. Current President of the ESH and has also held such posts of responsibility and management as President of the Spanish Society of Hypertension (2000-2004) and Officer at Large of the European Society of Hypertension (2005-Present). Fellow of the Council for High Blood Pressure, American Heart Association and an Honorary Member of the Portuguese Society of Hypertension. Editorial Activity: Member of the Editorial Board of indexed journals in the field of Hypertension: Journal of Hypertension, Blood Pressure Monitoring. Reviewer of both Cardiovascular and Internal Medicine journals: Circulation, Hypertension, Journal of Hypertension, American Journal of Hypertension, American Journal of Medicine, American Journal of Kidney Disease, European Heart Journal and Nephrology Dialysis and Transplantation. Author of numerous editorials and review articles by invitation.
Masked hypertension

Abstract

The term masked hypertension phenomenon was first described by the late Professor Thomas Pickering and is defined as a normal office BP but an elevated ABPM. It is now largely accepted that ABPM gives a better classification of risk than clinic BP. Thus the elevated ABPM levels should relate to higher cardiovascular risk and it follows that these people should be regarded as being genuinely hypertensive. The problem for clinical practice is how to identify and manage these subjects, which may affect 10% of the general population. The phenomenon might be suspected in subjects who have had an elevated clinic BP at some time, in young subjects with normal or normal-high clinic BP who have early left ventricular hypertrophy, in subjects with a family history of hypertension in both parents, patients with multiple risks for cardiovascular disease and perhaps diabetic patients. It appears to be more prevalent in subjects of male gender, with younger age higher awake heart rate and obesity or high cholesterol levels and in smokers. The BP increase at night triggered by snoring and obstructive sleep apnoea has been suggested to contribute to masked hypertension, in particular when the latter condition is defined by considering 24-hour or night-time ABPM values as out-of-office BP reference levels. A number of studies have illustrated the higher event rate seen in those with masked hypertension with suggestions that increased blood pressure variability may be at play. In conclusion most of the debate around this topic relates to its reliable identification.

Biography

Dr Dolan works as a stroke physician in Dublin Ireland, having previously completed a stroke fellowship in Cambridge, UK. His research interests are mainly related to blood pressure, stroke and outcome. He is an investigator on the Dublin Outcome Study (DOS), North Dublin Population Stroke study (NDPSS), ASCOT ABPM study and IDACO study among others. His collaboration with Professor Eoin O’Brien has grown ever fruitful over the years and has allowed Dr Dolan to develop an international profile in hypertension research through his presentations, publications and membership of groups such as the European working group on blood pressure measurement. He has recently developed a research interest in devices that lower blood pressure. His recent work relates to blood pressure lowering devices and he is on the steering group of the ROX HTN study.
Impact of perfect 24-hr blood pressure control in hypertension

Abstract
A recently introduced western lifestyle has affected the traditional Asian lifestyle by increasing the prevalence of obesity, metabolic syndrome, and diabetes. However, stroke is still more common than coronary artery disease in Japan. The reasons that Asians are stroke-prone may be partly high salt sensitivity and high salt intake. Both of these are associated with a non-dipper/riser pattern of nocturnal blood pressure (BP), which is associated with cardiovascular disease independent of the average of 24-hr BP level. The non-dipper/riser BP pattern is also associated with subclinical cerebrovascular diseases such as silent cerebral infarcts and deep white matter disease, and brain atrophy, which are risks for cognitive and physical dysfunction in the elderly. The morning BP surge is another treatable ambulatory BP variable and is a potential risk for cardiovascular disease independent of the nocturnal BP dipping status. In the J-HOP (Japan Morning Surge Home Blood Pressure) study, as well as morning and evening BPs, we measured sleep BP using home BP monitoring (HBPM), and found that the HBPM-measured sleep BP was comparable to ambulatory BP monitoring (ABPM)-measured sleep BP. The 24-hr perfect BP control including BPs during sleep and morning periods would achieve more effective prevention of cardiovascular disease.

Biography
Professor Kazuomi Kario, FACC, FAHA, is currently Professor and Chairman of the Division of Cardiovascular Medicine, Department of Medicine, and Professor of the Department of Sleep and Circadian Cardiology, Jichi Medical University School of Medicine, Tochigi, Japan. His research interests include sleep and circadian rhythm in cardiology, and the development of new technologies in blood pressure (BP) monitoring. He is conducting the prospective Japan Ambulatory BP (JAMP) registry, the Country-based Ambulatory BP Registry in Asia (CARE Asia), with Professor Wang J at Shanghai University and Park CG at Korea University. To date, he has already published more than 400 academic papers including a Circulation paper on the morning BP surge (Circulation 2003;107:1401-06). He has served as the Editor-in-Chief of Current Hypertension Reviews and the Executive Editor of Hypertension Research, and as an Editorial Board member of Hypertension, J Hypertension, J Clin Hypertens, J Am Soc Hypertens, Am J Hypertens, Blood Pressure Monitoring, etc.
Automated BP measurement in atrial fibrillation

Abstract

The measurement of blood pressure in atrial fibrillation is difficult and uncertain. It is recommended that several measurements should be averaged and the auscultatory method should be used, whereas the oscillometric method is regarded as inaccurate. A review and metaanalysis of 12 validation studies that investigated the accuracy of automated oscillometric devices (5 home, 3 ambulatory, 3 office devices) in 566 patients with sustained atrial fibrillation was recently performed. Despite the limited evidence and the significant heterogeneity of the relevant studies, the analysis suggested acceptable accuracy in measuring systolic blood pressure, but significant overestimation of diastolic blood pressure. There are scant data on 24 hour ambulatory blood pressure monitoring in atrial fibrillation, which show that the technique is feasible and with similar repeatability and errors as in patients with sinus rhythm. Given that atrial fibrillation is common in the elderly, in whom systolic hypertension is more common and important than diastolic, the oscillometric monitors appear to be appropriate for self-home and 24-hour ambulatory monitoring, but not for office or clinic blood pressure measurement. Further research and technological improvement is required regarding the oscillometric measurement of blood pressure in patients with atrial fibrillation.

Biography

George Stergiou is Associate Professor of Medicine & Hypertension in the University of Athens in Greece. Trained in hypertension at the University Department of Medicine & Therapeutics and Glasgow Blood Pressure Clinic, Western Infirmary, Glasgow, UK. Co-chairman of Hypertension Center, Athens University (European Society of Hypertension Excellence Center). Elected Fellow Royal College of Physicians (FRCP), Glasgow, UK. European Society of Hypertension (ESH) ‘Peter Sleight’ Award 2010, for outstanding contribution in research, education, and leadership in hypertension. Secretary of ESH Working Group on Blood Pressure Monitoring. Writing committee member of ESH Guidelines for Ambulatory, Home and Office Blood Pressure Measurement, Pediatric Hypertension, Set-up of ESH Blood Pressure Clinic, ESH International Protocol for device validation. Member of executive committee of International Pediatric Hypertension Association. Member of the European Commission Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR on Sphygmomanometers). Member of the editorial board of 11 PubMed journals. Reviewer for 40 PubMed journals and for the Br Med J Publishing Group and McMaster University's Health Information Research (MORE: McMaster Online Rating of Evidence). Abstract reviewer at 16 meetings of International and European Society of Hypertension. Invited speaker (42 lectures) at meetings of European, International, Canadian, Japanese, Danish and Spanish Society of Hypertension. Past president of Hellenic Society for the Study of Hypertension, and chairman of writing committee of the Society’s Guidelines. Research work focused on blood pressure monitoring, pediatric hypertension and antihypertensive drug action. Published more than 150 PubMed articles and presented more than 200 papers in international meetings. More than 3,000 citations, including citations in guidelines of the American, European, International, British, Canadian and Japanese Hypertension Societies.
Abstract

The morning period has been recognized as the highest risk period of the day for cardiovascular events, particularly stroke. This time is also associated with a rapid surge in blood pressure which has been recognised as a risk factor for predicting stroke independent of the absolute level of blood pressure. However, methods so far have examined the amplitude of the morning to night difference from ambulatory recordings or home recordings and have not taken into consideration the rate of rise in blood pressure which in hypertensives is greater than in normotensives. We have developed a double logistic equation method to fit individual 24 hour patterns of blood pressure to determine the rate of morning rise (RoR) and the amplitude (day night difference). More recently we developed a new measure of the morning surge which is the product (rate x amplitude) and measures the power of the morning surge (BPPower). Untreated hypertensives have a 2.5 fold greater morning BPPower and white coat hypertensive subjects have a 1.8 fold higher BPPower compared to age and gender matched normotensive patients. Calcium channel blockers and diuretics alone or in combination with angiotensin receptor blockers lower morning BPPower but other medications such as angiotensin converting enzyme inhibitors or angiotensin receptor antagonists alone have little effect. Analysis of the ANBP2 outcome study show that while BPPower did not predict 10 year risk of death, subjects with the lowest morning HR power had a 23% lesser risk. Recent analysis of the Ohasama 10 year follow up study of 1500 Japanese patients from Ohasama indicates that after adjustment for age and 24 hour BP, BPPower has a U shaped relationship with cardiovascular risk. Those at lowest and highest levels of BPPower quintiles have a 2.6 and 1.8 fold greater risk of non-fatal stroke (mainly infarct) respectively than patients with average levels (mid quintile). The risk appears to be only for female patients and not males. These findings suggest that the morning BP power is an important new risk factor for predicting cardiovascular disease, particularly stroke in females.

Biography

Professor Geoffrey Head, BSc, PhD, is a Principal Research Fellow of the NH&MRC, the Head of the Neuropharmacology Laboratory at the BakerIDI Heart and Diabetes Institute and adjunct Professor at Monash University. He received his B.Sc.(Hons) in Pharmacology from University of Melbourne, Australia in 1976 and Ph.D. from Monash University in 1981. Geoff’s research interests include the understanding of mechanisms involved in the control of the heart and circulation by the central nervous system and its role in hypertension, heart failure and obesity. He has published 200 scientific papers during his scientific career and holds a patent for a novel therapy for heart failure. He is editor in chief of “Frontiers in Integrative Physiology”. He was Secretary of the High Blood Pressure Research Council of Australia from 2005-10 and is currently treasurer for the International Society of Hypertension meeting in Sydney 2012.
Professor Robert Fagard

Nocturnal hypertension: prognostic significance and management

Abstract

There is little doubt that ambulatory blood pressure is a more sensitive predictor of cardiovascular events than office blood pressure. In addition, a number of studies addressed the prognostic significance of night-time blood pressure versus daytime blood pressure. In general, studies which accounted for daytime and night-time blood pressure in the same statistical model found that night-time blood pressure is a stronger predictor of cardiovascular events than daytime blood pressure. In addition, the night-to-day blood pressure ratio is a significant predictor of outcome, but adds little prognostic information over and above 24-hour blood pressure. With regard to the dipping pattern, the most consistent finding is that the incidence of cardiovascular events is worse in patients with absence of night-time dipping of blood pressure (‘reverse dippers’) than in patients with lower blood pressure during night-time than during daytime. Population-based studies revealed that a number of individuals with normal daytime blood pressure have an elevated blood pressure during the night and that ‘isolated nocturnal hypertension’ is associated with a higher risk of cardiovascular events than when both daytime and night-time blood pressures are within normal limits. There is some evidence that non-dippers on morning dosing of antihypertensive drugs can be changed to dippers by shifting administration time of drugs to bedtime. In addition, a Cochrane review concluded that evening dosing with antihypertensive drugs in patients with primary hypertension in general, had slightly better blood pressure control than the morning dosing regimen on 24-hour blood pressure, but its effect on death and adverse cardiovascular outcomes is not known.

Biography

Professor Robert Fagard is emeritus professor at KU Leuven University, Leuven, Belgium, and past Chairman of the Hypertension and Cardiovascular Rehabilitation Unit, Department of Cardiovascular Diseases, Faculty of Medicine, at KU Leuven University. He was awarded his medical degree from KU Leuven University. He was research fellow at St. Mary’s Hospital, London, U.K., and the Western Infirmary, Glasgow, U.K., and at the Departments of Physiology-Biophysics and of Medicine at the University of Mississippi, Jackson, U.S.A. with A. Guyton and H. Langford. He has been awarded two PhD degrees, one for his research into medicine and one for his research into physical education and sports medicine. He is a specialist in Internal Medicine, Hypertension and Cardiac Rehabilitation. His main research interests are hypertension and the heart, hypertension in the elderly, blood pressure monitoring, exercise blood pressure, and the physiology and physiopathology of exercise, resulting in some 600 publications in peer-reviewed journals. Apart from membership in a number of scientific societies and working groups, R. Fagard is member of the Executive Committee and past Vice President of the International Society of Hypertension (ISH), chairs the ISH Low and Middle Income Countries Outreach Committee and the African Regional Advisory Group, he is past member of the Council of the European Society of Hypertension and International Fellow of the Council for High Blood Pressure Research of the American Heart Association. He is Fellow of the European Society of Cardiology, past Chairman of the ESC Working Group on Hypertension and the Heart, and member of the ESC Guidelines Committee (co-chair for the Hypertension guidelines) and of the ESC Program Committee. He received the B. Folkow Award and the A. Zanchetti Life Achievement Award from ESH and the Stevo Julius Award from ISH, and serves on several editorial boards.
Professor Mark A. Brown

Is there a role for ABPM in pregnancy?

Abstract

Accurate measurement of blood pressure in pregnancy has remained problematic. Until recently Mercury sphygmomanometry remained the most widely used method and still remains the gold standard. The role of ABPM in pregnancy has been explored over about 15 years. An awake blood pressure above 133/81 at 26 to 30 weeks or above 135/86 after 30 weeks constitutes elevated blood pressure. However, even when a validated ABPM device is used, there is still considerable within patient variability when compared with the gold standard Mercury sphygmomanometry. This is one factor limiting widespread clinical use of ABPM in pregnancy. Studies using ABPM have shown that true white coat hypertension (WCH) in the second half of pregnancy is uncommon, occurring in only 3 to 4% of apparently de novo hypertensive pregnant women. A white coat effect is more common. ABPM- measured blood pressures are higher in the second trimester in healthy primigravidas who develop pre-eclampsia when compared with continuously normotensive pregnant women but the individual predictive ability of this test is very low. Hypertension during sleep occurs in about 80% of pre-eclamptic women and is associated with higher awake blood pressures, lower birth weight babies and a greater frequency of maternal complications. The greatest role for ABPM in clinical practice is in assisting the diagnosis of true WCH in the first half of pregnancy. These women can be managed without antihypertensives for their pregnancy and in general have good pregnancy outcomes, though with a slightly higher incidence of pre-eclampsia. Surveys suggest that at present clinicians are still more likely to use home BP recording than ABPM to exclude WCH in pregnancy. ABPM remains a useful research tool to explore relationships between blood pressure and pregnancy outcomes and has recently been used in studies relating severity of pregnancy hypertension to placental pathology; pregnancy ABPM data are excluded from the Artemis collaboration. The clinical role of ABPM in pregnancy is best restricted to aiding an initial diagnosis of white coat or else essential hypertension in the first half of pregnancy, thereby permitting an appropriate plan for subsequent clinical management and selective use of antihypertensives in such women.

Biography

Professor Brown is a Renal and Obstetric Medicine Physician at St George Hospital and Professor of Renal Medicine at the University of New South Wales, Sydney, Australia. His clinical activities include general nephrology with specific interests in the fields of obstetric medicine, transplantation and hypertension, including hypertension in pregnancy. He has interests in undergraduate and postgraduate medical education. Research activities have centred on blood pressure measurement in pregnancy, studies of renal function and predictors of clinical outcome in the hypertensive and renal disorders of pregnancy. He has published several book chapters and over 200 peer reviewed papers.
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