

## ISH/WHL Dietary Salt Session Hypertension Athens Meeting

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A focused session on the current issues regarding dietary salt with effects on blood pressure levels and hypertension-related high blood pressure and hypertension was held during the 2014 joint conference of the European Society of Hypertension (ESH) and the International Society of Hypertension (ISH) in Athens Greece. The program was co-sponsored by ISH and the World Hypertension league and chaired by Professors Ernesto L. Schiffrin (McGill University, Montreal Canada) and Daniel T. Lackland (Medical University of South Carolina, Charleston USA) - shown below.



Session faculty are shown left

The current global perspectives of salt intake and cardiovascular risk were presented by the session faculty including Dr Norm Campbell (Libin Cardiovascular Institute of Alberta, Calgary), Dr Graham MacGregor (Wolfson Institute of Preventive Medicine, London, UK), and Dr Elizabeth Dunford (George Institute for Global Health, Australia). While there is no “debate” over the dangers of dietary salt as a cause of cardiovascular disease and stroke, there is a clear need for:

- health care professionals to take a more active role educating the public and patients of the risks of salt intake,

- high-quality science to provide evidence for design of interventions,
- Implementation of initiatives to reduce salt intake at the population level.

The issues of debate include the specific details of salt intake levels for specific populations. A key point of the session addressed the issue identifying the “controversy” of dietary salt with heart disease and stroke as a result of weak research methodology and/or commercial influence. The session reported that most of the effort to reduce dietary salt is not based on data from multiple randomized trials with hard outcomes but observational and epidemiological data. Further, with the large amount of salt intake throughout the world, there are few studies in populations consuming less than 2300 mg of sodium per day.

In addition, recommendations of salt intake are confused with low-quality studies that include flawed and invalid measures of sodium consumption. Superficially, the use of spot urine analyses represents an inaccurate and inappropriate means of estimating sodium consumption. This methodology with single non-standardized blood pressure measurements can result in significant bias and imprecise risk estimates in population studies. The spot urine analysis was a limitation of the Prospective Urban Rural Epidemiology (PURE) study being cited as showing that most of the world eats much higher levels of sodium than those recommended by most international organizations. However, this is an example of a study that had failed to measure salt in an appropriate and valid manner with an inadequate formula to estimate salt intake.

Further, the extent of commercial interference on study design, implementation, and interpretation must be considered with salt intake and outcomes research. There are concerns that some academics have significant financial interests in the salt and food industries who have published in very prominent journals. However, when international and national organizations have done rigorous reviews of the literature, omitting low-quality data, conclusions clearly support lowering salt intake to prevent stroke and cardiac disease. The WHL has recently put out a call for the setting of research standards related to dietary salt, to try to promote the inclusion of valid measurements in high-quality science with reliable results. In addition, the WHL is putting together a global coalition of national and international organizations to oversee those standards.

The global impact of reduced salt intake is quite significant with a 2-g drop in the amount of salt consumed per day translating to a 20% reduction in cardiovascular events. Based on a 2010 Institute of Medicine (IOM) report, approximately 32% of hypertension cases are caused by high dietary salt—a number that translates into about 300 million people worldwide. Further The Global Burden of Disease Study estimates over three million deaths, 61 million years of disability, and 57 million years of life lost were related to high dietary salt in 2010.

There have been significant global strides in implementing reductions in dietary salt, primarily tackling processed foods and launching public-education initiatives with 60 initiatives implemented during the past four years alone. These efforts have been successful with significant effects. For example, Finland, which has one of the longest-running public salt-reduction initiatives, lowered salt intake by 15% between 1979 and 2007, from 12.8 g to 9.0 g. Likewise, The UK reduced intake by 15% between 2001 and 2011, from 9.5 g to 8.1 g, saving an estimated 8500 lives per year. The Session clearly identified the reduction of salt intake as a major global initiative for the reduction of cardiovascular disease and stroke, and an effort with great potential impact on world health.

**Inaugural Renin-Angiotensin Aldosterone System Meeting:**  
***“Putting the A back into RAAS”***  
 Santorini, Greece, 10-12 June 2014  
 Official Satellite to 2014 ESH/ISH Meeting,  
 Athens, Greece  
 Anastasia Susie Mihailidou and  
 Louise Burrell

This meeting report for our Investigator-Initiated Satellite is provided on behalf of our Organising Committee members: Anthony Ashton, George Bakris, Robert Carey, Mark Cooper, Kate Denton, Carlos Ferrario, Toshiro Fujita, Peter Fuller, John Funder, Stephen Harrap, Frederic Jaisser, Colin Johnston, Martin Reincke, Michael Stowasser, Rob Widdop, Morag Young and our Secretariat, Jennifer Seabrook.



As indicated by the name, the renin-angiotensin-aldosterone system (RAAS) has three important components, renin, angiotensin and aldosterone. The RAAS is an integrated system that not only regulates blood pressure, electrolyte and fluid balance, the classical actions of RAAS, but is also involved in cardiovascular disease, metabolic syndrome and many other conditions. Our focused meeting provided the

ideal interactive forum for the latest research developments by leaders in this field as well as opportunity for young investigators and students to present their research. Clinical and basic research into the regulation of RAAS in the brain, vessels, kidneys, heart and primary aldosteronism were presented. Novel techniques for both advancing research and clinical diagnosis stimulated discussion and facilitated new collaborations. Our report highlights some of these developments which were presented by our invited speakers.



It was truly an international meeting with over 50 delegates travelling from 14 countries - Australia, Austria, Canada, China, Denmark, France, Germany, Greece, Ireland, Italy, Japan, Sweden, United Kingdom and United States - to present their research, exchange ideas and establish new friendships. Securing funding was challenging and we thank our sponsors, European Society of Endocrinology, Daiichi Sankyo, Attoquant Diagnostics, Dia Sorin, Mitsubishi-Tanabe, Servier, seed funding from Dr John Funder and the COST Network for their support, which enabled this meeting to be held.

As an Official Satellite of ESH/ISH Hypertension 2014, the first presentation was appropriately “Hypertension Management in the 21<sup>st</sup> Century: Is there a role for renal denervation?” by Dr George Bakris who provided an overview of hypertension management. Although there are 9 distinct classes of antihypertensive medications, five of which influence the RAAS, control of hypertension continues to be a challenge, with NHANES 2010 reporting that only 53% of patients with hypertension achieve goal BP <140/90 mmHg. Lack of control can be due to patient non-adherence due to either side effects/tolerability of medications or refusal to accept treatment for hypertension, a silent disease. Therefore other options have been investigated such as baroreceptor activation therapy (BAT) and renal denervation. Although early studies suggested that renal denervation would provide benefit to reduce BP, the results of the SYMPPLICITY HTN-3 trial failed to confirm this. Trials of BAT in hypertension and heart failure are ongoing, and early results appear promising.

The increasing aging population globally will place an enormous burden on health services. Understanding the changes in the body’s homeostatic mechanisms with advancing age is paramount for targeted treatment. Exciting data from the laboratories of Dr Kate Denton and Dr Iris Jaffe identify important changes in RAAS with aging. Males have low renal angiotensin type 2 receptor (AT2R) expression throughout life, whereas in females AT2R expression is high during puberty and then declines with advancing age. Impaired vascular function with advancing age may indicate changes in smooth muscle cell (SMC) mineralocorticoid receptors (MR) or “aldosterone receptors.” Mice in which MR was selectively deleted from SMC had decreased blood pressure with advancing age and reduced vascular myogenic tone and agonist-dependent contraction.