A number of reports have been submitted from ISH hypertension future leaders who were in attendance at the ISH Biennial Meeting in Seoul in September. These focus on their personal meeting experiences and the standout sessions that they attended.

A contribution from Fadi Charchar (page 26) also reports on this year’s hugely successful Networking and Mentorship Event that took place on the evening of 27th September. We are proud to report that this occasion was attended by over 140 new investigators and senior ISH Faculty members from 34 countries.

Sofie Brouwers

1. University Heart Center, University Hospital Zurich, Zurich, Switzerland
2. Vrije Universiteit Brussel - UZ Brussel, Brussels, Belgium

Plenary session: Managing hypertension in aging societies  Perspective on elderly hypertension in Asia

The lecture of Professor Kokubo at the plenary session on managing hypertension in aging societies provided us with a nice Miso cookbook, together with new insights into hypertension and associated complications in an aging society in Asia and especially Japan.

On one hand, age-standardized stroke mortality decreased worldwide in the past two decades, on the other the absolute number of people with first stroke, stroke survivors, stroke-related deaths and the overall global burden of stroke increased, especially with most of the burden in low-income and middle-income countries. (Lancet 2014;383:245-55)

Overall in Asia, mortality rates of stroke are much higher than in Western countries and among Asian countries, stroke mortality in Japan is the lowest. Compared to Western countries coronary heart disease mortality is much lower in East Asian countries, especially in Japan and South Korea, whereas it is higher in South Asian countries. The higher stroke rates compared to coronary heart disease in Asian countries are most likely due to a higher prevalence of hypertension, attributable to a high salt intake, and a lower level of serum total cholesterol, owing to a lower fat intake. (Circulation 2008;118:2702-9) Moreover, the slope of the association between blood pressure and incident stroke is steeper among Asians than Westerners. (Hypertension 2007;50: 991–7) Excessive drinking and smoking rates are high in Asians and contribute to hypertension and cardiovascular disease. Study results in Asian populations indicated that long-term alcohol consumption is also a risk factor for stroke, although this factor had no effect on the incidence of stroke in Western populations. (BMC Public Health. 2014;14:776)
Over the last century dietary habits have changed substantially around the world, and certainly also in Japan with increased intake of calories, fat, proteins and still a moderate to high salt intake. Salt-sensitive hypertension seems to be more common in Japan, and this seems to be linked to a significantly higher frequency of salt-sensitive alleles in Japanese compared to Caucasians. (Hypertens Res 2003;26:521–5) In contrast to the western diet the consumption of fish and soy products, a major source of isoflavones, is very high in Asia, especially in Japan. These dietary elements have a protective effect on cardiovascular disease. The Suita Study, a Japanese prospective cohort study, showed that moderate miso soup consumption may reduce the risk of cardiovascular events, especially in women. (Circulation 2007;116:2553-62)

More efforts need to be done to undertake large-scale lifestyle modifications in an aging society with an increasing burden of disease. Current evidence supports a risk stratification calculated according to the different risk profiles.

-Sofie Brouwers

Antoine Caillon
Postdoctoral Fellow, Lady Davis Institute, Montreal, Canada - antoine.caillon.etud@gmail.com

A young investigator in Seoul

Every two years it is a great pleasure to participate in the ISH meeting and discuss and share experiences with the international hypertension community. As a young investigator, I was particularly interested in the sessions and meetings that focused on the work and networking of young investigators.

- Antoine Caillon

Ruan Kruger
Chair, ISH New Investigator Committee
North-West University, Potchefstroom, South Africa
Ruan.Kruger@nwu.ac.za

Insights into oxidative stress-related mechanisms, from the Presidential lecture by Prof Rhian Touyz at ISH 2016

The nicotinamide adenine dinucleotide phosphate-oxidase (NADPH) enzymes (or better known as the NOX family) are transmembrane proteins and share the capacity to transport electrons across a plasma membrane to generate superoxide and other down-stream reactive oxygen species (ROs).

Physiological oxidative stress is essential for normal cellular function, however Prof Touyz has shared her insights from her laboratory in Glasgow regarding the particular role of NOX5 in the development of hypertension. NOX5, unlike NOX1/2/3/4, has a distinct connection with calcium as it contains a calmodulin-like domain with binding sites for
calcium. The NOX5 is calcium-sensitive and undergoes conformation enhancing the expression of reactive oxygen species via NOX5.

Rhian Touyz giving her ISH Presidential Lecture

The interesting findings have implicated over-expression and activation of NOX5 in hypertension and atherosclerosis, making NOX5 a therapeutic target for isoform-specific NOX inhibitors to promote potential vasoprotective effects in cardiovascular disease. We are excited to learn more about the progress of these potential therapies at the 2018 meeting in Beijing, China.

-Ruan Kruger

Francine Marques
NHMRC and National Heart Foundation Early Career Fellow Baker IDI Heart & Diabetes Institute, Melbourne, Australia

The bacteria in our gut, called the gut microbiota, have attracted increasing interest in recent literature and the media due to their role in human health. Hypertension researchers are not falling behind, and we had a small showcase at the ISH 2016 meeting in Seoul.

Professor Peter Nilsson from Lund University, Sweden, reviewed some of the recent research in this field and briefly mentioned a study by his team and collaborators showing that healthy subjects who have a family history of cardiovascular disease have a distinct gut microbiome to those without a family history. In a similar topic, I presented data from our laboratory at the Baker IDI Heart and Diabetes Institute, Australia, supporting the involvement of the gut microbiota with high dietary fibre intake in the prevention of hypertension, cardiac hypertrophy and heart failure in a model of disease.

The role of the gut microbiota with a high fat diet in experimental metabolic syndrome was also presented by Prof Myung-Shik Lee, from Yonsei University College of Medicine, Korea. His studies pinpointed that the bacteria Akkermansia muciniphila is less prevalent with fat intake, which also impaired Paneth cells in the intestinal epithelium, resulting in loss of epithelial integrity and reduced production of antimicrobial peptides.

In an attempt to address some limitations in the field, Prof Seong-Tschool, from Chonbuk National University Medical School, Korea, proposed a new method to determine gut microbiota using circulating blood and antibodies. We are looking forward to the development of this exciting field and hoping this can be further discussed at the ISH 2018 meeting in Beijing.

-Francine Marques

The 26th Meeting of the International Society of Hypertension (Hypertension Seoul 2016) was the first ISH meeting I attended and one that I enjoyed immensely. The programme was packed with impressive presentations and speakers from around the world. The conference had a great range of both clinical and basic science, with relevant topics interrelated with my own work as a postdoctoral fellow with Professor Louise Burrell at the University of Melbourne, Australia.

One of the highlights for me personally within the programme was the launch of ISH Women in Hypertension Research, where Professor Barbara Casadei gave an inspiring presentation about her ups
and downs as a woman in hypertension research, one that I think many female researchers in the audience could relate to. I look forward to future updates from the Women in Hypertension committee and thank all of them for their efforts in raising awareness of the underrepresentation of women in research.

(From left to right): Rhian Touyz and Barbara Casadei. Image taken during the Women in Hypertension Launch

I was also fortunate enough to be shortlisted to present my work in the ISH New Investigator Award Session as a moderated poster, for which I was awarded the runner-up prize. This was a great opportunity for me and I thank the judges and ISH for considering my work.

Socially, the ISH NIC Networking & Mentorship Event was an absolute highlight. It gave me the opportunity not only to meet potential mentors, but to form networks with other young investigators and peers with similar interests, which is invaluable. The New Investigators Committee did an amazing job in putting the event together. For some, this was followed by the ECCR/HBPRCA dinner, which was also a great event for networking and socialising.

Overall I enjoyed the whole experience and I am sure other young investigators will have the same opportunity in future ISH meetings.

-Brandi Wynne

The Hypertension 2016 meeting proved to be beneficial to those wishing to expand their understanding of hypertension, as well as review some foundational theories. One such session, “Sodium homeostasis and hypertension” had 3 speakers who did just that.

Dr. Richard Wainford of Boston University focused his talk on the canonical physiology of renal sodium handling, along with new insights on factors that impact this regulation. This session started with a thorough review of the Guytonian Pressure-Natriuresis Hypothesis. Following on from this, Dr. Wainford discussed the roles of genetics, inflammation and dietary modifications such as potassium and fructose on renal sodium handling and salt-sensitivity.

The speakers who followed, Dr. Liffert Vogt of the University of Amsterdam and Dr. Jens Titze of Vanderbilt University discussed the extra-renal regulation of sodium. Dr. Vogt’s noteworthy talk focused on the function of glycosaminoglycans, especially regarding their possible role within the vasculature as an ‘intravascular buffering’ compartment. Dr. Titze’s talk summarized his work showing that large amounts of sodium actually accumulate within the interstitium. These speakers discussed the interesting idea that sodium can be compartmentalized at higher concentrations.

Together, this session covered novel renal and extra-renal theories of sodium regulation and served as a reminder of the multifactorial etiology of hypertension.

-Brandi Wynne

“Where’s the salt?”

-Elena Velkoska
The mentorship event was held in the LU restaurant at the Coex, Seoul, Korea as part of the ISH 2016 Biennial Scientific Meeting. The event was very well attended (over 150 participants) by distinguished guests, ISH council members, senior faculty and junior investigators. Participants originated from 34 countries.

The night kicked off in the beautiful venue with drinks, canapés and a sociable atmosphere. We were very lucky to have past, present and future presidents of the ISH (Chalmers 1992-1994; Beilin 2002-2004; Lindholm 2006-2008; Heagerty 2008-2010; Harrap 2010-2012; Schiffrin 2012-2014; Touyz 2014-2016; Poulter 2016-2018). We would like to thank them for their unwavering support of both the New Investigator Committee and Mentorship Scheme. After short and entertaining speeches, the crowd mingled and enjoyed the great spread on the night.

I hope that the event encouraged informal discussions amongst new investigators and faculty across fields and nationalities. We look forward to hearing about developments from the night. Most importantly I hope that some of the attendees have made new friends and collaborators. I would particularly like to thank the NIC members for their amazing work and for making the night an event to remember.

-Fadi Charchar
Follow ISH New Investigator Network activities on social media

www.twitter.com/ISHNIN

www.facebook.com/ISHNIN

You can also find us on YouTube and LinkedIn