HYPERTENSION NEWS

May 2024

Hypertension in pregnancy

The long term effects and the need to improve post-natal care

IN THIS ISSUE:

International Society of Hypertension

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INTRODUCTION FROM THE PRESIDENT

BRYAN WILLIAMS
President, International Society of Hypertension

A professional society is only as strong as its members. This is particularly important for the ISH because of our global reach and the importance of a global perspective on strategies to detect, treat and control blood pressure. It has long been clear to me that the membership of the ISH has been unevenly distributed. This is far from optimal, indeed, unacceptable, as we want the ISH to represent and learn from the rich diversity of all parts of the world. Some of the barriers to ISH membership have undoubtedly been financial and it is wrong that those unable to pay, for whatever reason, have been invisible in our structure. Not anymore. I wanted that to change and for the ISH to grow to become the biggest and most representative hypertension society in the world. Without that, it is not truly international and it is not a representative Society.

To achieve this we have had to make some significant changes. First, I had to appoint a Chair of our membership committee to develop the necessary changes. I was delighted to appoint one of our ISH members, Débora Colombari from Brazil, to the Chair, and it has been an inspired choice. She has done a magnificent job, along with colleagues on her membership committee, in refashioning our membership structure and she provides details about the changes in this issue of Hypertension News. Second, we have appointed a new company, Canica from Argentina, to work with the ISH to develop a new, modern and secure membership portal as part of an enhanced online presence for ISH. This is still in its early stages of development but has huge potential and will grow into a state of the art platform where our members will be able to get all the information they need about hypertension, including our new ISH Academy which will provide educational and training on hypertension. Third, we needed to remove obstacles to ISH membership and we have created a number of new categories. The headline is that many of these categories are now free to join. This addresses a key principle, notably that finance should not be a barrier to ISH membership.

There is now no reason why anybody with an interest in hypertension shouldn't join and benefit from being a member of the ISH. This includes patients or members of the public with hypertension, or with an interest in hypertension, who can now join our ISH family for free, wherever they are in the world. Of course, we retain a full professional membership category for health care professionals and researchers, which comes with additional benefits such as the opportunity to play a role in the future leadership and governance of the ISH. We have also reduced the fees for those eligible for full membership and those in Research4Life designated countries can join as full members for free. Full membership is also free for bone fide trainees, wherever they are in the world. This is a major change, designed to expand and better democratise the ISH and make it truly representative across the world. Check it out and join now, it is proving to be very popular. We also want all medical and scientific societies and associations, including patient associations and industry partners, with an interest in hypertension, to make their members, aware of the opportunity to join the ISH, for free.

I am hoping that our expanding membership will also take note of the wonderful opportunity to visit Cartagena in Colombia in September this year, and join our ISH scientific congress. The scientific programme is looking really strong and the venue is spectacular. I know there are many congresses around the world that colleagues may have the opportunity to attend but opportunities like this do not come around very often and this really is a special opportunity to visit a beautiful and vibrant city and experience a completely different culture, whilst enjoying the company of friends and colleagues from around the world. We hope

to see a lot of our younger members of ISH as well, enjoying the congress and everything else this vibrant city and region has to offer. Don't waste this chance and don't miss it. Whilst talking about the ISH congress, I really want to pay tribute to the extraordinary dedication and hard work the local team is undertaking to make this congress a reality, but a special mention and thanks goes the Dagnovar Aristizabal and Cesar Romero who have worked tirelessly on all aspects of this congress, especially over the past year. I am also encouraged by the enthusiasm of our sponsors for this event and we really appreciate their support.

One of the highlights of the ISH biennial scientific meeting is the ISH awards and lectures session, during which we celebrate the outstanding scientific achievements of inspiring leaders in hypertension and the rising stars who we hope will sustain the ISH and its ethos for years to come. The opportunity to nominate colleagues for these awards is now open to Members and I encourage you to visit our website, look at the award categories available and make a nomination.

There are eight awards in total. With the exception of two awards, award nominations can only be accepted for ISH Members. The deadline to send in nominations is 31st May 2024.

Finally, in the past few weeks we completed our process for the election of the President-elect of the ISH. Soon we will also be opening the nomination process for new members of the ISH Council. Only members of the current ISH Council are eligible to be elected President of the ISH. Professor George Stergiou from Athens in Greece was duly elected as the next President of the ISH and will succeed me as President when my term as President comes to an end at the end of the ISH congress in Cartagena in September. George is our current ISH Secretary and I have worked closely with him over the past two years in particular. I congratulate George, the ISH will be in very capable and experienced hands and I know he shares my passion to continue the progress we have made in positioning the ISH as a more representative global society for those with an interest in hypertension.

Bryan Williams - president@ish-world.com

International Society of Hypertension

2024 CALL FOR AWARD NOMINATIONS

Award Nomination Deadline: 31st May 2024

Nominations should be sent to:

Professor George Stergiou
Chair, ISH Awards Committee
c/o THE ISH SECRETARIAT
Email: secretariat@ish-world.com

The International Society of Hypertension (ISH) is pleased to call for nominations for the following awards. These will be presented on the occasion of the 30th Scientific Meeting of the ISH, which will be held in Cartagena, Colombia from 19th to 22nd September 2024 (www.ish2024.org).

We would like to call for nominations for the following awards:

- ISH Franz Volhard Award and Lectureship for Outstanding Research
- ISH Robert Tigerstedt Lifetime Achievement Award
- ISH Developing World Award
- ISH Paul Korner Award
  supported by the High Blood Pressure Research Foundation of Australia
- ISH Distinguished Fellow Award
- ISH Honorary Fellow Award
- ISH Outstanding Woman in Hypertension Research Awards

Changes to ISH membership make it accessible to all

DÉBORA COLOMBARI
Chair ISH Membership Committee

I am pleased to announce several changes to the ISH membership structure to make ISH membership more accessible around the world and improve member experience overall.

Changes include a new and simplified set of membership categories, and reduced and free memberships for some parts of the world, as well as the launch of a new and refreshed membership portal.

New Membership Categories

There are now three ISH membership categories: (1) Member, (2) Associate Member and (3) Trainee. ISH Fellowship designations will remain, but for membership administration purposes Fellows will form part of category 1 – Member.

(1) MEMBER

Individuals who have conducted original research in the field of hypertension or related topics and / or those who have made demonstrable contributions to hypertension through clinical involvement and who are interested in promoting the aims of the Society are eligible to join the ISH as a Member.

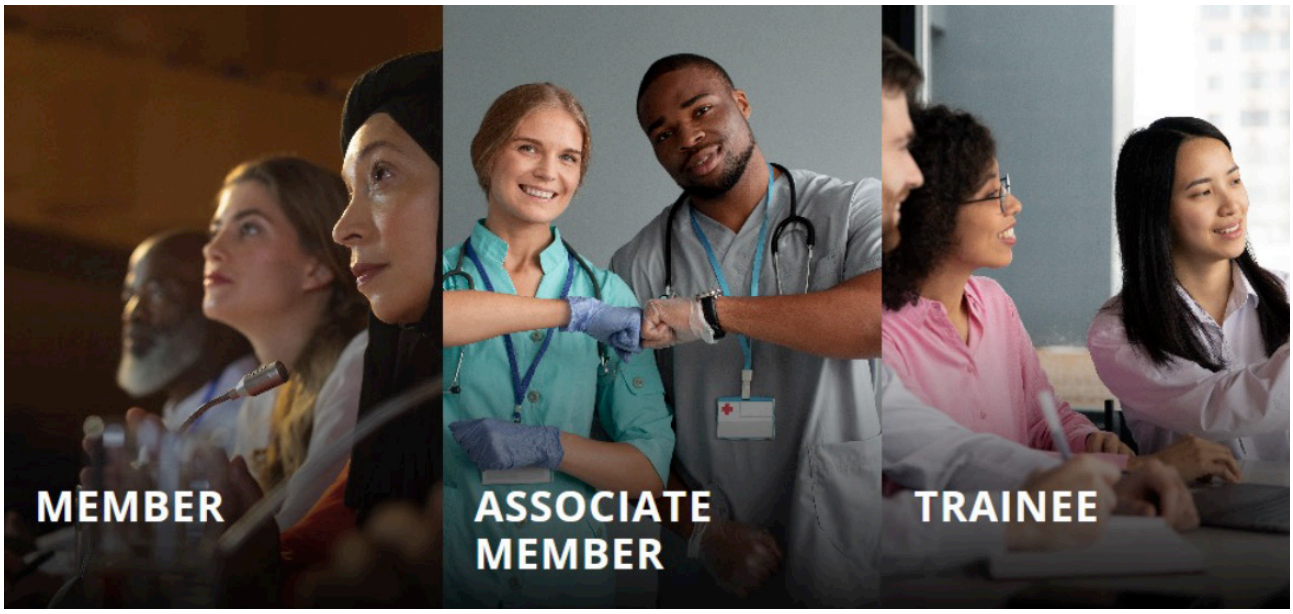
Paid Members will receive enhanced benefits to Associate Members including:

- Leadership opportunities within ISH/eligibility to be elected for Council.
- ISH meeting registration discount. ISH2024 – Cartagena, Colombia, 19-22 September 2024.
- Reduced cost Journal of Hypertension subscription (USD 135 for 2024).
- Free online subscription to Journal of Hypertension (on request) for those coming from Research4Life countries.
- Voting rights around ISH governance.
- As well as a host of information that you can view in the ISH Members' Area.

Designations as an ISH Fellow (ISHF), Distinguished, Emeritus or Honorary Fellow

The awarded and special designations of ISH Fellow (ISHF), Distinguished, Emeritus and Honorary Fellow are invaluable to the Society to recognise excellence within our community and will continue to apply to those members who have been awarded these designations.

For renewal payment purposes and in relation to membership benefits, ISHFs, Distinguished, Emeritus and Honorary Fellows will be classified as Members. ISHFs will pay a membership fee (see Member fees below). However, membership as a Distinguished, Emeritus and Honorary Fellow continues to be offered at no cost.



(2) ASSOCIATE MEMBER

The category of Associate Member is open to anyone with an interest in hypertension and / or the work of the ISH including nurses, pharmacists, dietitians, community healthcare workers, members of the public, patients, carers and journalists.

Membership comes at no cost for Associate Members.

For current ISH Members who wish to retain their affiliation to the ISH but do not wish to pay an annual fee as a Member, there is an option in the ISH Members' Area to change their status to Associate Member – a non-fee-paying category. However, please note that the above-mentioned additional benefits including voting rights do not apply to Associate Members.

(3) TRAINEE

The Trainee category is designed for postdoctoral fellows, residents and graduate students (Masters or PhD). This is a special opportunity for any new researcher or clinical scientist undertaking a higher degree to enhance their CV.

Débora Colombari – debora@ish-world.com

Membership comes at no cost for Trainees, but a Trainee must confirm annually that they are still in training.

Reduced fees and free memberships

Reduced membership fees are available for those from Research4Life countries.

Free annual memberships are offered to trainees and Members from certain parts of the world including Ecuador, Sudan and Ukraine in 2024.

Member fees USD 50 per annum, or the reduced rate of USD 20 for those based in a Research4Life designated country.

A refreshed membership portal

ISH members now have access to a new membership portal, offering access to training, resources, and other member benefits. The Members' Area is home to the portal where those in the ISH community can manage their membership. Current members should login with the same username and password used to access the old version of the ISH Members' Area.

Please address any questions to membership@ish-world.com.

Click here for further information on membership.

ISH 2024

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RECENT STUDIES IN HYPERTENSION

The POP-HT trial

PAUL LEESON AND JAMIE KITT

Division of Cardiovascular Medicine, University of Oxford
John Radcliffe Hospital. Oxford, UK

The Physician Optimised Postpartum Hypertension Trial was presented as a Late Breaking Clinical Trial at the American Heart Association Meeting in Philadelphia in November 2023. The primary blood pressure outcome was reported simultaneously in JAMA[1] alongside the secondary imaging results in Circulation.[2]

The study tested the novel hypothesis that blood pressure control in the immediate post-partum period, while the cardiovascular system recovers from a hypertensive pregnancy, could have long term benefits for cardiovascular health. The study showed controlling blood pressure for, on average, around 40 days post-partum is associated with a 5 to 7 mmHg lower blood pressure nine months later. The intervention also significantly reduced the number of hospital readmissions and associated with significant improvements in cardiovascular structure and function.

What was the inspiration behind the study?

We had previously undertaken observational studies suggesting there was a strong link between blood pressure levels measured at six weeks postpartum and patterns of blood pressure and cardiac structure five to ten years later.[3, 4] This could have been because women predisposed to high blood pressure just tend to have high blood pressure at any point in life. However, we also noticed that the pattern of cardiac changes we saw five to ten years later were out of proportion to the levels of blood pressure at that time point.[3]

We know blood pressure can be difficult to control for several weeks after pregnancy and it is during this time, also known as the puerperium, that the heart has to recover from the hypertensive pregnancy. The heart extensively remodels in response to the demands of pregnancy and this remodelling needs to reverse after pregnancy. Based on these observations, we came up with the completely novel hypothesis that poor blood pressure control during the puerperium could be leading to a persistence of damage to the cardiovascular system. This could be affecting the longer term cardiovascular health of women who have a hypertensive pregnancy.

The only way to properly test this hypothesis, to convince people that we might be on to something, was to undertake a randomised controlled trial to modify blood pressure levels during the weeks after pregnancy. First, we teamed up with leading experts in the field of blood pressure self-management, both in adult life and during pregnancy, and undertook a feasibility study to make sure it was going to be possible to deliver a blood pressure intervention during the peuperium.[5] This was known as the SNAP-HT study and enabled the development and testing of a bespoke app so that women could upload their blood pressure readings and receive instructions about how to change their medication.

The study showed women were very happy to self-manage their blood pressure during this period but, although a small scale study, we picked up some additional, very exciting signals in the results. When we checked the blood pressures of the women in the months and years after pregnancy, those who had received the self-monitoring continued to have significantly lower blood pressure, even though most of them had stopped taking medication several weeks, months or years before. Four years later, the group who had personalised blood pressure control for the four to six weeks after pregnancy continued to have lower blood pressure.[5]

How did you design the POP-HT study and what were the key outcomes?

The initial results from SNAP-HT prompted us to plan a full scale study designed purposefully to test whether an intervention in the 4 to 6 weeks after pregnancy would lower blood pressure long term.[6] In POP-HT, for the intervention arm, the study clinicians, who were obstetricians and cardiologists, remotely managed blood pressure. Their advice was based on the blood pressure data being supplied by the mother though their app.

Participants were randomly allocated, while still in hospital after their hypertensive pregnancy either to self-manage their blood pressure using this app or enter the control arm. In the control aum the mothers received standard NHS-led care. This typically involves a review by a primary care practitioner or midwife at day seven to 10 and a review by their primary care practitioner at 6-8 weeks. Although the clinicians providing advice and the mothers knew which group they were in, to ensure the results were not biased, all the outcome data such as the blood pressure readings were collected and analysed automatically Furthermore, all the imaging data was analysed separately without any information on whether the participant had received the intervention.

In total, we recruited over 200 women into the study, which we knew would be an appropriate size of study to pick up differences in blood pressure of around 5mmHg between each group, six to nine months after pregnancy. Indeed, at the end of the study, what we saw was that those who receive remote self-management during the first few weeks after pregnancy have a ~7 mmHg lower systolic and ~6 mmHg lower diastolic blood pressure in both ambulatory and clinic readings six to nine months after pregnancy. What is more, they have less heart wall thickening, smaller cardiac chamber sizes and better heart function.

What comes next?

The results suggest we need to completely rethink the biological significance of the post-partum period and how we deliver post-partum care in women who have had a hypertensive pregnancy. If we get this right, we could change the cardiovascular health trajectory of a huge cohort of women. However, POP-HT was a single centre study using one type of intervention. Therefore, we urgently need to work out the optimal way to deliver an intervention to all women, across all types of healthcare and ensure similar effects are seen in different countries. There are also opportunities to dig deeper into the mechanisms behind this phenomenon and understand whether different types of interventions and medications may have similar benefits.

Paul Leeson – paul.leeson@cardiov.ox.ac.uk

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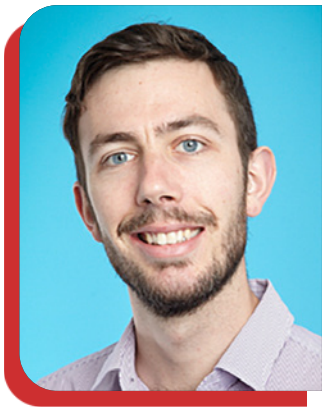
RECENT STUDIES IN HYPERTENSION

Dietary fibre intake and levels in clinical guidelines – why it matters



MATTHEW SNELSON AND FRANCINE MARQUES

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Lifestyle interventions are described as first-line therapy in national, regional, and international hypertension guidelines (e.g., the ISH 2020 guidelines[1]). Within lifestyle factors, diet is recognised as a critical risk factor for hypertension, with some diets able to lower and others to increase blood pressure (BP). Dietary guidelines for hypertension usually refer to sodium, potassium, and overall fruit, vegetable, and grain intake. However, a critical macronutrient missed in most guidelines is fibre. Dietary fibre is negatively associated with cardiovascular disease (CVD) death, with a critical mechanism being a decrease in BP.[2] The global fibre intake averages ~11g/day, which is insufficient.[3] Independently of economic income, this is a common cause of dietary risk factor for death,[3] particularly for low- and middle-income countries.[4] In a recent paper published in Hypertension,[5] we reviewed the evidence that fibre lowers BP, the mechanisms involved, how much fibre should be indicated for hypertensive patients, and how to support patients in achieving this intake. We hope this will drive future discussions to include fibre in hypertension guidelines, as supported by the recent ISH lifestyle management of hypertension position paper.[6] Below, we summarise some of the key take-home messages of our paper (**Figure**).

What is fibre?

Fibre is any carbohydrate neither digested nor absorbed in the small intestine and has some degree of polymerisation (>3 or >10, depending on the jurisdiction). Most fibres can be divided broadly into non-starch polysaccharides in the plant cell wall (e.g., soluble and insoluble fibres) and resistant starches in the starch granule.

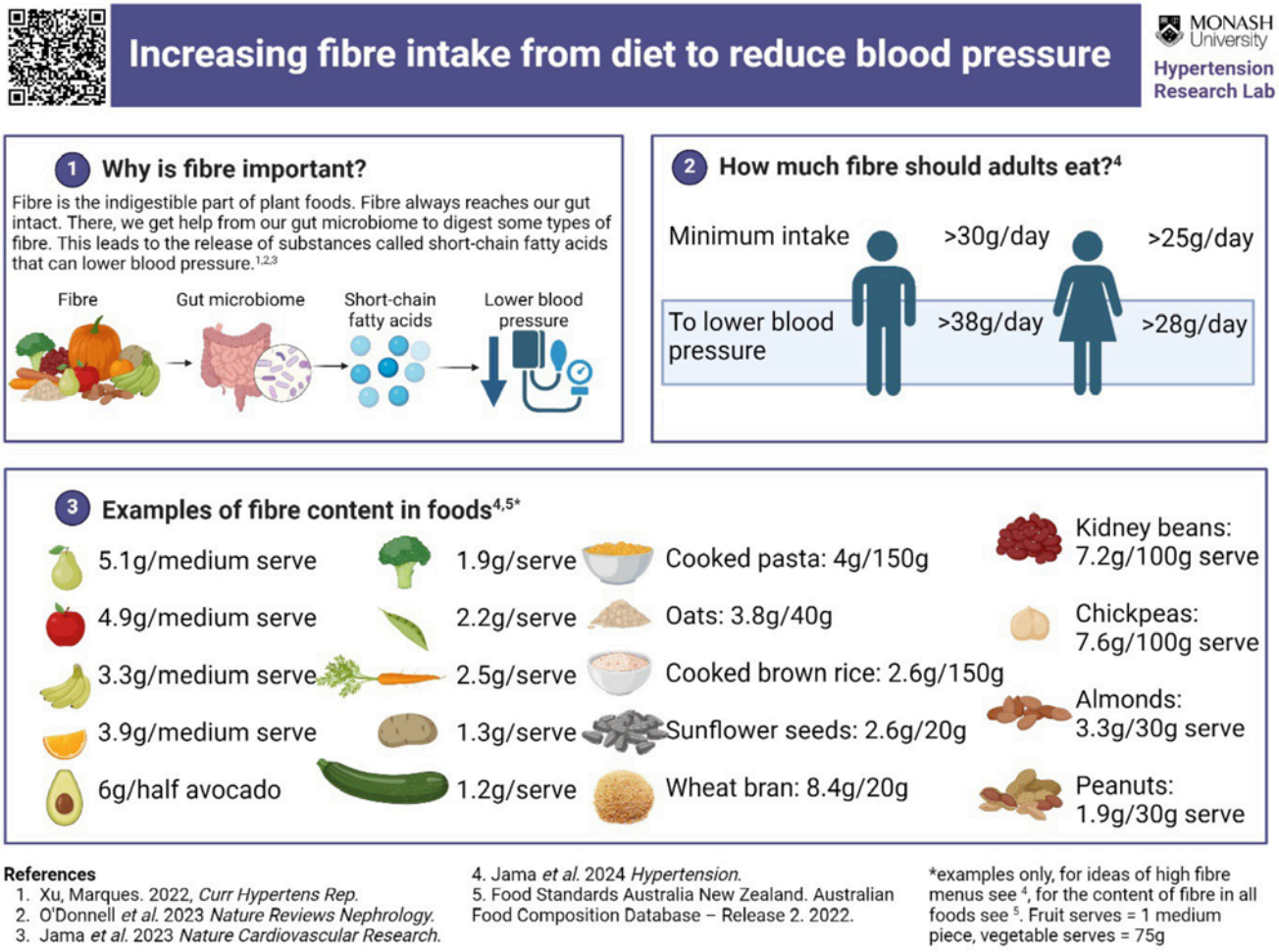
Evidence that fibre lowers BP

The most recent and robust evidence comes from a meta-analysis published in 2022, which classified the evidence as high Grading of Recommendations, Assessment, Development, and Evaluations (GRADE).[7] This included 7,469 prospective participants with CVD (followed for ~8.6 years) and 12 randomised clinical trials with 648 participants with hypertension and/or CVD across Asia, Europe, North America, and Oceania.[7] Assuming linearity between fibre intake and all-cause mortality risk, a 14% risk reduction per every 10g of fibre consumed was estimated in patients with CVD – for high-fibre consumers, this was calculated to prevent 60 deaths per 1,000 people.[7] Every increase of 5g in fibre intake was calculated to reduce systolic BP by –2.8 mmHg (95% CI: –3.8 to –1.8) and diastolic BP by –2.1 mmHg (95% CI: –3.0 to –1.2).[7] This response was larger in hypertensive patients without CVD, independently of BP-lowering medication, with every extra 5g/fibre/day estimated to reduce systolic BP by –4.3 mmHg (95% CI: –5.8 to –2.8) and diastolic BP by –3.1 mmHg (95% CI: –4.4 to –1.7).[7]

How fibre lowers BP?

Not all types of fibre may have the same BP-lowering effect – this may be dictated by their physicochemical characteristics: solubility (i.e., whether they can dissolve in water), viscosity (i.e.,

Figure. Summary and key recommendations of our recent review.[5]



resistance to flow), and fermentability (i.e., ability to be fermented by the gut microbiota).8 Evidence suggests fibre fermentability is essential for its BP-lowering effect. By reaching the large intestine intact, fermentable fibres (e.g., resistant starches) are metabolized by the gut microbiota, producing microbial metabolites known as short-chain fatty acids (SCFAs) as by-products. These lower BP in animal models of hypertension (e.g. [9,10]) and a randomised clinical trial[11] (**Figure**). The exact mechanisms by which SCFAs lower BP are still being studied, with promising results regarding G-protein coupled receptors and the immune system.[12]

Ideal fibre levels

There are no unified recommendations for fibre intake to prevent non-communicable diseases (NCDs) across countries. A meta-analysis estimated the general population should consume at least 25-29g of fibre/day as an 'adequate intake' for the prevention of all-cause and CVD death,[2] and thus was recommended in the ISH lifestyle position paper.[6] Based on a random-effects model, 35-39g fibre/day provided further benefits with reduced mortality.[2] Sex differences were not considered, so sex-specific recommendations cannot provided. According to the Australian 'Suggested Dietary Target' calculated to reduce the risk of NCDs such as hypertension[13] and considering the added BP-lowering benefit of each 5-10g of fibre, we recommend 28g fibre/day for women and 38g fibre/day for men diagnosed with hypertension. To facilitate achieving this, we provided tables with the amount of fibre per food item/serve (som shown in the figure) and examples of menus containing adequate fibre intake in the paper.

Key remaining data gaps

Many fundamental questions in this field remain to be answered by future studies, which include:

1. What type of fibre or fibre combinations have the biggest impact on lowering BP?
2. Does everybody benefit from fibre intake equally? Are there differences regarding sex, ethnicity, age, microbiome, etc, in fibre intake responses and their associated mechanisms?
3. What levels of fibre do children and adolescents need to eat to prevent or lower BP?

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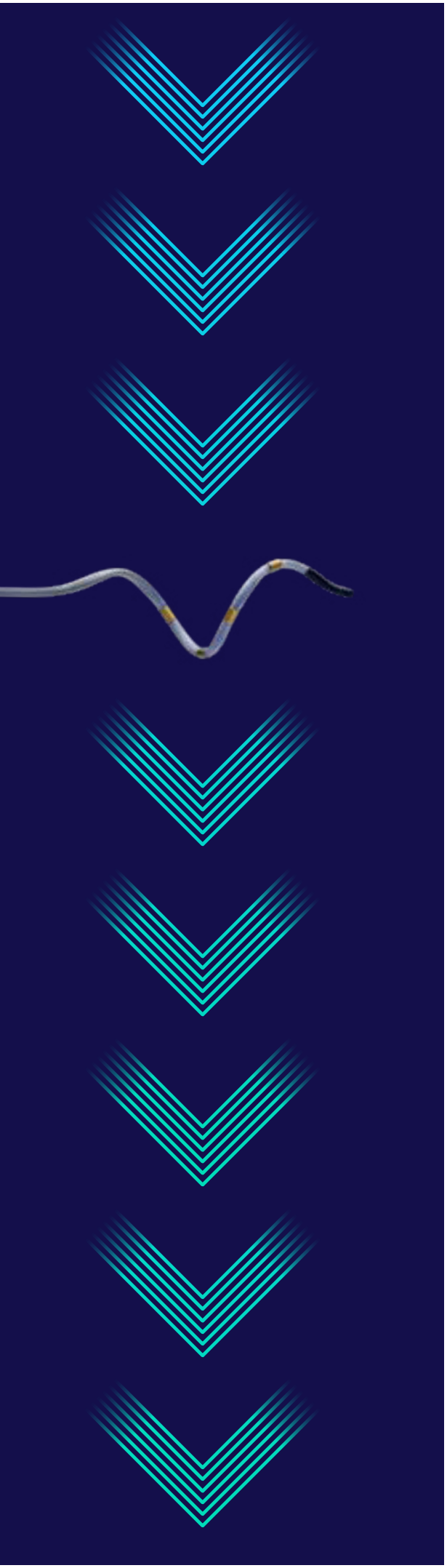

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RECENT STUDIES IN HYPERTENSION

Cuff or central blood pressure as a treatment target for hypertension management?

JAMES SHARMAN

Menzies Institute for Medical Research, University of Tasmania, Hobart, Australia

"Central hypertension" is a condition that has come to light with the advent of non-invasive central BP technology and describes an individual with controlled cuff SBP (e.g. <140 mmHg) but relatively high central SBP (e.g. ≥130 mmHg). In observational studies, this BP phenotype is associated with greater BP-related cardiovascular risk despite having cuff BP below the hypertension threshold.[1] It is not known if controlling central hypertension with optimised antihypertensive therapy will have benefits beyond the control of cuff measured hypertension, and we set out to determine this in our recently published trial.[2]

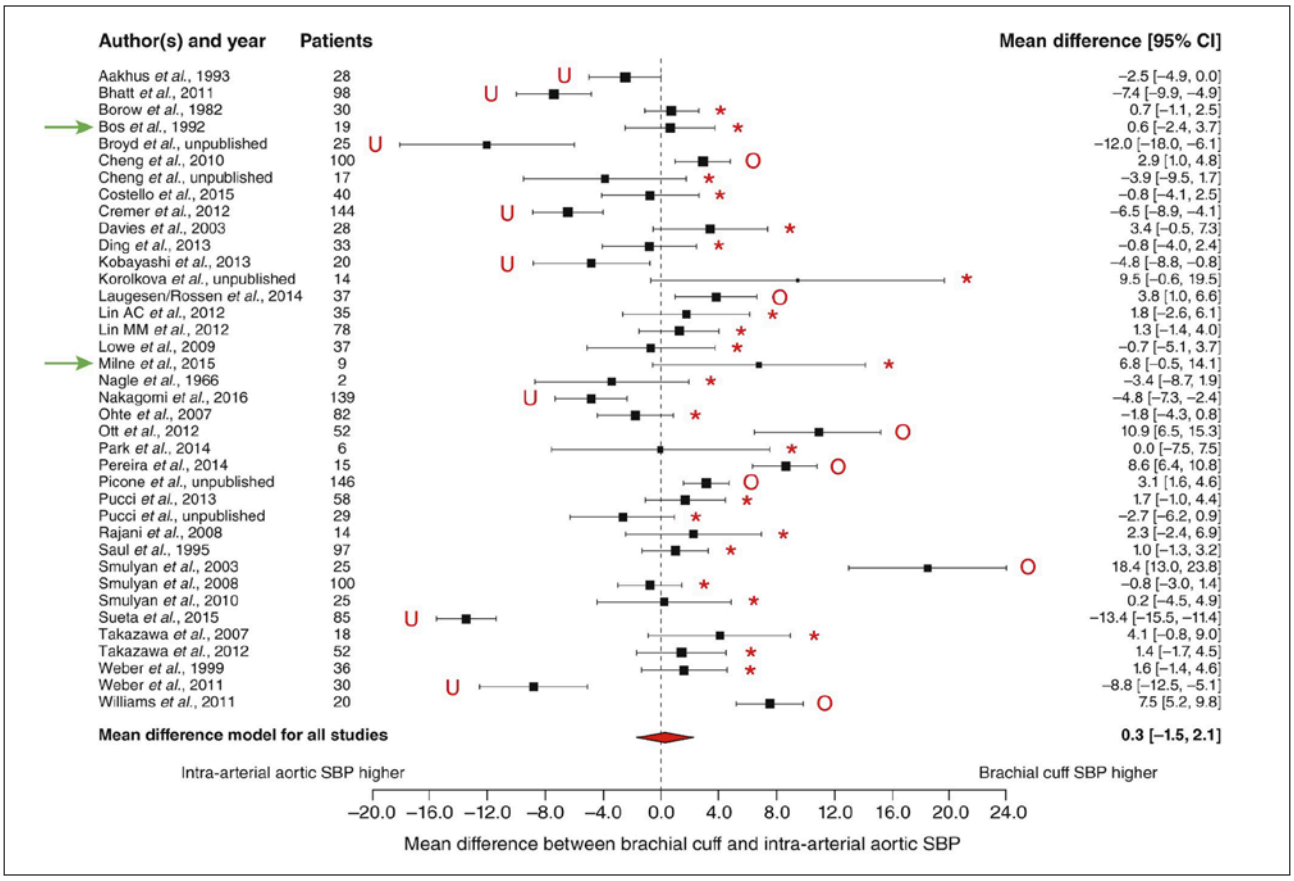
301 people with cuff BP controlled by antihypertensive treatment, but with central hypertension, were randomised to 24-months intervention with spironolactone 25 mg/d or usual care. The primary outcome was the change in left ventricular mass index (LVMi) measured by cardiac magnetic resonance imaging. At the time of trial design there wasn't an accepted central hypertension threshold, and we defined this as central SBP ≥1.0 standard deviation above age- and sex-specific normal values, ascertained from the largest central BP dataset available.[3] We hypothesised that spironolactone would reduce LVMi and have greater central BP lowering effects than for cuff BP. Further, we expected that reduction in LVMi would be associated with central (not cuff) BP and that central BP lowering would be associated with reduced aortic stiffness. These ambitious expectations were based on published rationale, and if proven would provide the first clinical trial evidence justifying central BP as a treatment target.

As predicted, intervention reduced LVMi, but cuff and central BPs were lowered to the same magnitude (no differential effects), and the relationships between the change in BPs with the change in LVMi were virtually identical for cuff and central BPs. This was irrespective of the BP measurement setting (either office BP, 7-day home BP or 24-hour ambulatory BP) or calibration mode of the central BP device (using Type 1 cuff SBP/DBP or Type 2[4] cuff mean arterial pressure/DBP). Aortic stiffness did not change despite significant BP reduction, which was surprising but not inconsistent with other drug trials among different patient cohorts.[5, 6]

A cautionary note to investigators seeking to study people with central hypertension – the phenotype is hard to find. The prevalence is now known to approximate 1.4%[7] to 3.7%.[1] During screening for recruitment in our trial, most of the people with cuff SBP treated and controlled to <140 mmHg also had controlled central SBP. Thus, most were ineligible, and this forced a change in central hypertension criteria early in the trial. A contributory factor to this issue, only discovered post facto,[8] was that the central BP device used for screening overestimated the true level of SBP amplification (difference between cuff SBP and central SBP) at low values, meaning that potentially eligible people may have been incorrectly screened out of participation. This highlights the issue of device-specific differences in BP measurement accuracy and the imperative for clinical triallists to fully understand central BP device performance against invasive central BP at the trial design phase.

Along the above lines, new knowledge from individual participant data meta-analysis[9] published after we started the trial, show that standard automated cuff BP devices may already

Figure 1. Forest plot of the difference between standard cuff SBP and invasive central SBP from an individual participant data meta-analysis of 1838 participants. Two studies used manual devices (green arrows); the remainder were automated BP devices. There was no significant difference overall between cuff and invasive SBP (P = 0.77). *Denotes the cuff devices where SBP was not significantly different from invasive central SBP; "U" and "O" denote the cuff devices where invasive SBP were underestimated or overestimated, respectively. CI, confidence interval. Adapted from Picone et al.9 Copyright © 2017 by The American College of Cardiology Foundation, with permission from The American College of Cardiology Foundation.



provide a good estimate of central SBP. **Figure 1** is a forest plot comparing cuff SBP with invasive central SBP across 38 studies and BP devices. Sixty one percent of the cuff devices provided SBP values that were not significantly different from invasive central SBP; in other words, they were effectively 'central BP devices.' There was wide variability in the remaining devices, either over- or under-estimating invasive central SBP. Unless these types of comparisons are made there is no way of knowing which cuff device measures what invasive BP value, and this has implications for the accuracy of central BP devices.

The default calibration of cuff SBP/DBP used by most central BP devices (Type 1), including those used in our trial, results in systematic underestimation of central SBP and pulse pressure.[4] This calibration also leads to near perfect correlation between cuff SBP and derived central SBP (r≈0.95), as also witnessed in our trial. The alternative Type 2 device calibration method can be applied, however, this made no difference to our trial findings. We were aware of, or suspected, several of the above BP measurement issues before designing the trial, but several emerged in the time taken to complete the trial. Altogether, the panoply of measurement nuances leaves little opportunity for demonstrating clinical superiority of central BP in clinical trials such as the one we did using a surrogate endpoint of LVMi, or other large ones with hard cardiovascular outcomes still yet to be undertaken.

In the years since starting the trial, the US Hypertension Guidelines have lowered the cuff hypertension threshold from 140/90 mmHg to 130/80 mmHg. If we applied this criterion to our trial, all participants would have qualified for up-titration of antihypertensive therapy. Importantly, our finding that LVMi improved with intervention despite people having controlled cuff hypertension according to the 140/90 mmHg threshold, supports the clinical value of achieving lower cuff BP targets, as is also advocated by the International Society of Hypertension.

Ultimately our trial failed in the attempt to target central BP and control central hypertension for cardiovascular risk benefits in isolation from standard cuff BP. Of course with every study there are limitations and caveats on appropriate interpretation of the results which we extensively discuss in the paper.[2] Until there is data to the contrary, the trial findings support the general opinion[10] for standard cuff BP rather than central BP remaining as the recommended method for hypertension management.

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PERSPECTIVES IN HYPERTENSION

Onco-Hypertension

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The number of hypertensive patients is increasing in modern society, concurrent with the rising prevalence of cancer due to population aging. Moreover, as cancer prognosis improves and the number of survivors grows, many elderly cancer patients also suffer from hypertension. Additionally, newer biologics such as vascular endothelial growth factor (VEGF) inhibitors can elevate blood pressure, further contributing to the rise in hypertensive cancer patients. Despite the significant increase in cardiovascular events among cancer survivors with hypertension, there are currently no guidelines for managing blood pressure in this population. Furthermore, recent findings suggest that hypertension itself may predispose individuals to various cancers. Hence, we propose the establishment of a new scientific field termed "Onco-Hypertension" to address this gap and have undertaken various initiatives in this regard.

Historically, hypertension and cancer have not been thoroughly investigated together in large-scale clinical studies used to develop hypertension treatment guidelines, with cancer patients typically excluded from such research. However, the cardiovascular risk faced by cancer survivors with hypertension has escalated significantly, and hypertension itself is now recognized as a risk factor for various cancers. Consequently, the Japanese Society of Hypertension established the Onco-Hypertension Working Group to pioneer research in this novel academic discipline. This group aims to elucidate the mechanisms underlying the elevation of blood pressure by cancer drugs and the pathophysiological links between hypertension and cancer development, ultimately developing new diagnostic and therapeutic approaches. By leveraging interdisciplinary expertise, the group endeavors to formulate guidelines for managing blood pressure in cancer patients.[1]

Untreated high blood pressure has been associated with an increased risk of developing several cancers, including thyroid, esophageal, colorectal, liver, and kidney cancers. However, the mechanisms underlying the link between hypertension and cancer remain poorly understood, and conducting large-scale clinical trials to assess the efficacy of antihypertensive treatment in reducing cancer incidence poses ethical challenges. Despite inconsistent data suggesting a potential association between antihypertensive medications and cancer risk, our recent review article has summarized existing evidence on this topic.[2] Moving forward, research within the Onco-Hypertension framework aims to clarify the precise relationship and mechanisms linking blood pressure and cancer through comprehensive analyses of patient samples and animal studies using state-of-the-art technology.[1]

For many cancer types, cardiovascular disease poses a greater threat to survival than cancer itself. Approximately 20% of cancer survivors have hypertension, making it the most common comorbidity in this population. Elevated blood pressure has been shown to increase the risk of heart failure and other cardiovascular events in Japanese patients with a history of breast, colorectal, or gastric cancer.[3] Given the high prevalence of hypertension among cancer survivors and its association with cardiovascular events, effective blood pressure control is essential for mitigating cardiovascular disease and reducing mortality in this vulnerable population.

Certain anticancer drugs, such as VEGF inhibitors and calcineurin inhibitors, are known to elevate blood pressure through distinct mechanisms. Conversely, immune checkpoint inhibitors, despite

their widespread use, have been shown not to significantly increase short-term hypertension risk in cancer patients.[4] Future research under the Onco-Hypertension framework aims to identify blood pressure fluctuations induced by various anticancer drugs and elucidate their underlying mechanisms to tailor individualized treatment strategies effectively.

Recently, the American Heart Association proposed guidelines on "Cancer Therapy-Related Hypertension," underscoring the importance of this emerging area of research.[5] In the future, it will be necessary to develop "Onco-Blood Pressure (BP)" activities in collaboration with researchers and medical professionals in all areas of the world, including hypotension that occurs during the active treatment phase of cancer.

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PERSPECTIVES IN HYPERTENSION

Post-natal care for mothers with pre-eclampsia

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Hypertension in pregnancy and pre-eclampsia are the leading causes of maternal deaths, worldwide.[1] Traditionally, it has been taught that these conditions resolve with the end of pregnancy but, more recently, this teaching has been called into doubt. There is now evidence that hypertension in pregnancy is associated with an exaggerated risk for the development of early onset hypertension, higher risk for cardiovascular disease and as much as a six times increased risk of developing end stage kidney disease.[2, 3]

We noticed that when women were discussed for our dialysis and transplantation programme, a large proportion of young mothers had reported hypertension in pregnancy. On auditing these discussions, 17% of women who had end stage kidney disease had a history of hypertension during their pregnancy. Their mean age was 10 years younger (average 34 years) than the women who had not had hypertension in a pregnancy.[4]

However, there is very little information about the long-term outcomes of hypertension in pregnancy, in Africa.[5,6] To improve care and better understand long-term consequences in Africa, a colleague and I have developed a follow-up service for these mothers. This service started in 2020 and, despite the interruption from the COVID-19 pandemic, we have followed up 214 mothers who had pre-eclampsia.

In the mothers who have followed up within our service, 46% had acute kidney at the time of delivery. About one third had haemolysis, elevated liver enzymes, low platelets (HELLP) syndrome and abruptio complicated 10% of pregnancies. Pulmonary oedema was seen in 7% of mothers but, fortunately, seizures were only present in 4%. The median gestational age at the time of delivery was 30 weeks and two thirds of mothers were delivered by cesarean section. The median weight for the infants was 1755 grams but, sadly, 22% of mothers delivered stillbirths.

While the details from delivery are concerning, the follow-up data are equally perturbing. At the first visit after delivery (around 3 months later), hypertension was detected in 55% of women. This is far over the estimated prevalence for women with an average age of 30 years. Many mothers had extremely high blood pressures at their first visit [**Figure1A**]. Unfortunately, the high prevalence of hypertension was coupled with an excess of impaired kidney function (24% had an eGFR <90ml/min/m2) and persistent albuminuria was detected in 56% of mothers [**Figure 1B**] at 1 year.

One positive for our follow-up service is the improvement in proportion of women with hypertension taking antihypertensives: at 3 months 83% were taking treatment but by 1 year, 96% were on antihypertensives. The benefits of antihypertensive use are demonstrated with a high proportion of women achieving target blood pressures: 55% at 3 months rising to 67% by one year after delivery.

Unfortunately, there has been an overwhelming loss to follow-up. We have had close to 2000 mothers referred to us who have received a date to attend our clinic. Sadly, only 214 have arrived. Despite attempts to mitigate the loss to follow-up we have had little success in improving uptake. Even after arriving for their first appointment there has

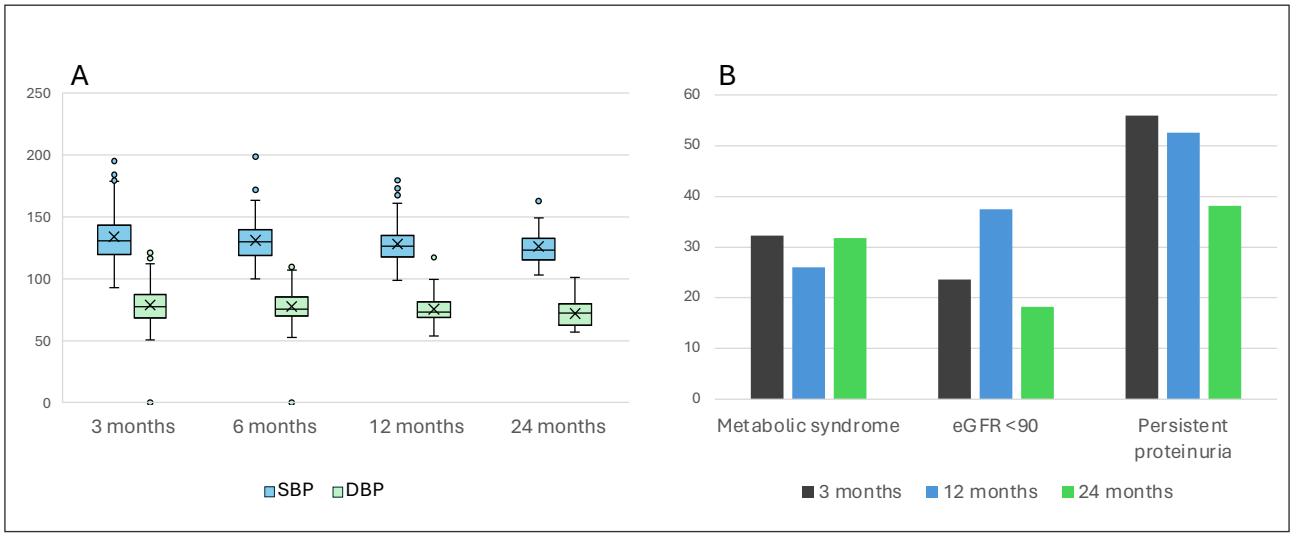

Figure 1: Cardiorenal risk factors in the first two years after delivery; A) Blood pressure at the post-partum visits and B) Proportion of mothers with metabolic syndrome, impaired kidney function and persistent proteinuria.

been considerable drop off on mothers returning for later appointments. Without monitoring, the concern is that long-term cardiovascular and renal outcomes will be missed with considerable socioeconomic impact.

Loss to follow-up has been a recurring issue in the post-natal period,[7, 8] with disengagement as high as 90% in people with HIV.[9] The need to address post-natal care and follow-up has become more apparent, particularly in the cardiovascular setting, as cardiovascular disease is a leading cause of death for women. Targeting high risk populations makes socioeconomic sense.

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PERSPECTIVES IN HYPERTENSION

High-fat diet and hypertension: possible brain mechanisms involved

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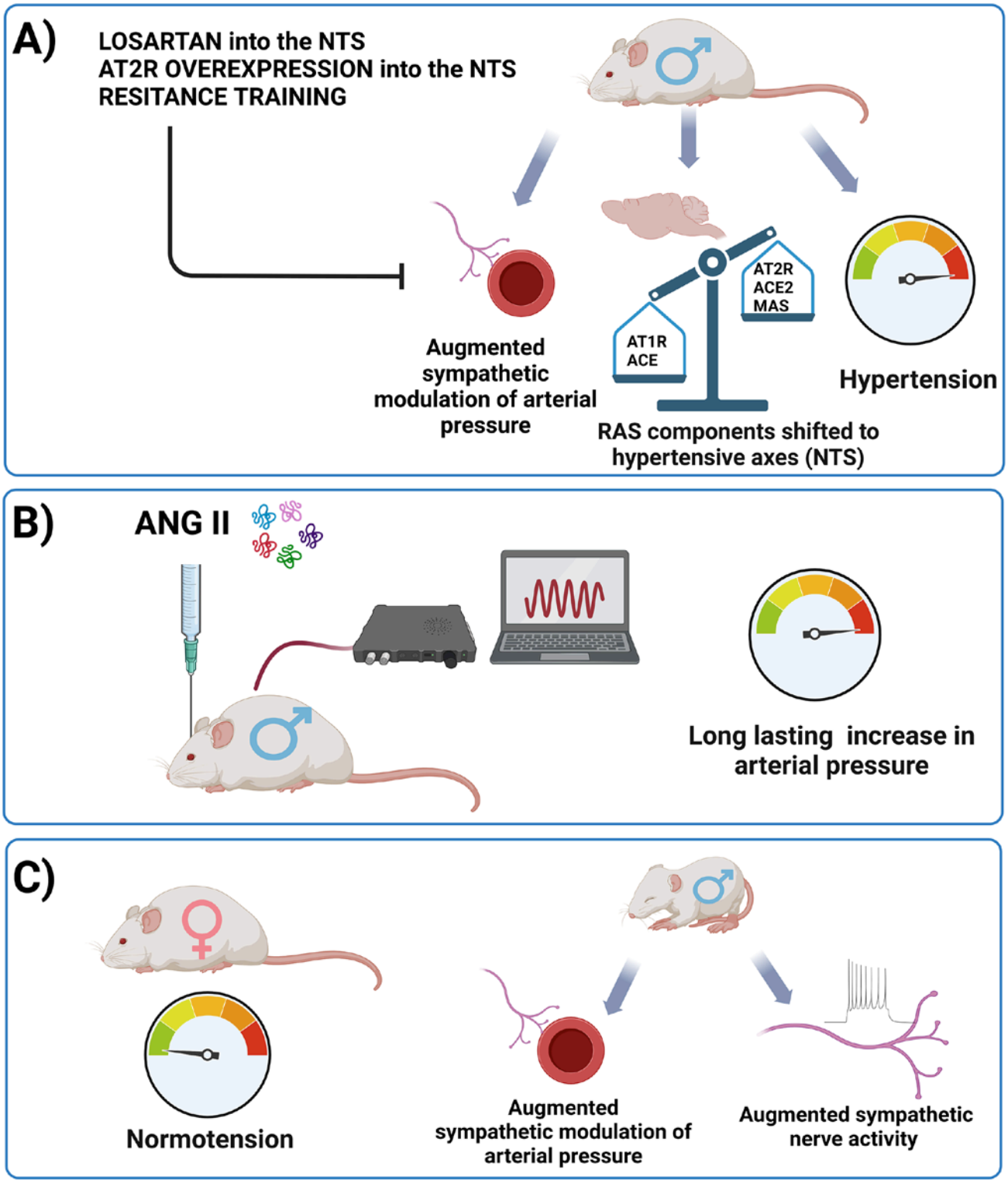
Obesity's burden has been seen around the globe.[1] The increase in the intake of highly caloric food and reduction in physical activity have been suggested to contribute to weight gain in the last decade.[2] One of the possible consequences of obesity is an increase in arterial pressure, and different mechanisms have been described as causing or facilitating hypertension, including increased activity in the renin-angiotensin-aldosterone system (RAS), sympathetic nerve activity, insulin and leptin, kidney dysfunction and baroreflex impairment.[3,4] If we consider the epigenetic effects, a considerable amount of research has demonstrated that children of obese mothers can develop obesity and hypertension, as shown in an excellent review from 2014.[5]

As a basic science and experimental scientist, I have been using animal models of disease, and became very interested in recent years to study the mechanisms underlying obesity-induced hypertension, particularly if the brain is involved. In addition, since peripheral renin-angiotensin-system (RAS) is involved with the increase in arterial pressure observed in obese subjects,[3] is there a role for the central RAS? Finally, is there any sexual dysmorphism and do the offspring of obese rat dams also have cardiovascular changes?

In a series of studies, my team and I observed that adult male and female rats fed for 6 weeks a high-fat diet (HFD; 45% calories from fat) had an increased body mass and adiposity, dyslipidemia, hyperinsulinemia and hyperleptinemia, similar to humans.[6-9] The juvenile male (around 35 days old – P35) offspring of HFD-fed dams also presented an increase in adiposity, despite no change in body weight at this age.[9] This age (P35) is equivalent to adolescence in humans. When we looked at the cardiovascular changes in adult male and female rats and juveniles we observed different responses. First, adult male rats had an increase in arterial pressure that started around 3 weeks after introducing the HFD and lasted for the whole experimental period, i.e., while being fed an HFD, male rats were hypertensive.[6] We also observed a higher modulation of sympathetic activity and a decrease in baroreflex sensitivity [6,7], which is also observed in obese humans.[3]

Since the increase in arterial pressure seems to have a neurogenic component, we targeted the nucleus of the solitary tract (NTS), located in the dorsal brainstem and very important to the control of cardiovascular regulation[10] to see if this was involved, particularly if the RAS in the NTS played a part. In the obese male rats, the gene expression of RAS components in the NTS was shifted to the hypertensive axis, i.e., angiotensin type 1 receptor (AT1R) and angiotensin-converting enzyme (ACE) were augmented. In contrast, angiotensin type 2 receptor (AT2R) and angiotensin-converting enzyme 2 (ACE2) were diminished.[7] Pharmacological blockade of AT1R in the NTS blocked the increase in arterial pressure and the modulation of sympathetic activity to the blood vessels and improved the baroreflex. In contrast, when we virally induced overexpression of AT2R in the NTS, the main effect observed was in the improvement of the baroreflex.[6] Since exercise has been proposed to be an effective approach to diminish the deleterious effect of high caloric/fat intake, resistance-trained HFD-fed rats had similar responses observed when AT1R was blocked and AT2R was overexpressed [7], suggesting a beneficial effect of resistance training in the deleterious changes in arterial pressure and brain RAS seen in HFD-fed rats.



However, not only the brainstem is involved in angiotension II (ANG II) responses. The injection of ANG II directly into the lateral ventricle in adult male rats induced a longer pressor response in HFD-fed rats when compared to standard diet (SD; 11% calories from fat) fed rats.[8] Therefore, the central RAS seems to be a pivotal mechanism involved in cardiovascular changes induced by a HFD in male rats **(Figure A and B panels)**. We then asked if the female rats had the same cardiovascular changes, and surprisingly, there was no change during the 6 weeks of the HFD

food regimen.[9] The absence of hypertension in female HFD-fed rats in our study may be related to the protective effect of estrogen. There was, however, an increase in heart rate, which is also similar to male rats.[9] Overall, it seems that there is a sexual dimorphism in the cardiovascular changes induced by HFD [9] **(Figure C left panel)**.

Finally, we focused on the offspring of obese dams, which were fed an HFD for 6 weeks before mating and during gestation and lactation (an additional 6 weeks). The male offspring were fed a SD after weaning (P21) to the day of the experiment (P35) and therefore, did not have access to HFD after birth. In spite of that, they presented a sympathoexcitation and a greater modulation of sympathetic activity to the blood vessels [9] **(Figure C right panel)**. The mechanism for these changes might be associated with blunted respiratory-related oscillations in sympathetic activity.[9] Taking together, brain mechanisms seem to be pivotal for the changes in arterial pressure/sympathetic activity in HFD-fed adult male rats and the juvenile offspring of HFD-fed dams.

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PERSPECTIVES IN HYPERTENSION

Coffee and blood pressure: what is fact and what is fiction?

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One of the most common requests we receive almost daily from our patients is: what should I do with my coffee? The connection between coffee and blood pressure has been very difficult to understand for many years because of the interference of uncontrolled "pseudo-scientific" rumors that insinuate the dangerous effects of drinking coffee on blood pressure control. However, science does not rely on rumors, but is based on evidence and the evidence is moving very fast in the opposite direction. Coffee is probably the most popular beverage after water, and it is largely consumed in different ways across the world. Its presumed negative effect on the human system has been extensively discussed, and the conclusion has been reached that drinking coffee has a favorable impact on human health and quality of life.[1] Does this revolutionary approach apply to hypertensive patients as well? The answer is positive, and I will try to support my point of view in this burning area by trying to answer a few simple questions.

A. Why is coffee OK for hypertensive patients?

The composition of coffee is much more complex than expected and includes over 1000 chemical constituents, and many of them are biologically active as antioxidant and anti-inflammatory compounds than can have a favorable effect on the cardiovascular system beyond the well-known effects of caffeine.[2] Coffee has a variable caffeine content depending on how it is prepared but the impact on blood pressure is largely comparable between the espresso and soluble coffee.[3]

B. What is the effect of coffee on blood pressure control?

Over 40 years ago, a seminal study reported an increase in blood pressure and sympathetic nervous system activation in non-habitual coffee drinkers.[4] These findings have been confirmed by some additional studies[5] which mainly tested the effects of the administration of unusually high doses of caffeine in a heterogeneous population of patients with different blood pressure values and levels of habitual coffee consumption Conversely, more recent epidemiological studies[6,7] and comprehensive meta-analyses have reported a neutral or protective effect of coffee in patients with arterial hypertension (**Table 1**). A remarkable difference in the effects of coffee on blood pressure values has been reported between naïve subjects and habitual coffee drinkers.[5] A minimal increase in blood pressure values has been observed in non-consumers while the pressor effects of coffee in habitual drinkers are usually negligible and clinically non-significant. This is due to the tolerance to caffeine that develops in a few days thus enhancing the benefit of the biological substances with antihypertensive action (vitamin E, niacin, potassium and magnesium) and antioxidant compounds, such as polyphenols, which also have vasodilator and antihypertensive properties.[2]

C. Does coffee consumption increase cardiovascular risk in hypertension?

This important issue has been investigated by many cohort studies that have scrutinized the incidence of cardiovascular events in relation to

coffee consumption.[8] The results consistently report the lack of any increase in the rate of cardiovascular events in drinkers of up to 5 cups of coffee per day when compared with lack of consumption. Conversely, a reduction in the risk of major cardiovascular events has been associated with coffee consumption with a greater benefit in subjects consuming between 3 and 5 cups of coffee per day. Furthermore, no relationship has been observed between coffee consumption and the incidence of ventricular arrhythmias, atrial fibrillation (where there is an inverse relationship!) and other cardiac rhythm disturbances.[5]

D. Does coffee increase cardiovascular/ all-cause mortality?

A reduction in all-cause mortality has been reported in a large data setting of regular coffee consumers. The benefit ranged from 7-12% in the 500,000 European adults of the EPIC study (European Prospective Investigation into Cancer and Nutrition), followed over 16 years and compared to non-drinkers.[9] To quantify the benefit, the intake of 3 to 5 cups of coffee a day was associated with the lowest CV risk and longer survival; that was recently confirmed by three large cohort studies including over 1 million subjects drinking an average of 2-3 cups/day followed for at least 10 years.[8] In another large prospective cohort study of over 200,000 healthcare workers followed for 25 years, an inverse relationship between coffee consumption and all-cause mortality was reported.[10] The reduction in risk for CVD and mortality included decaffeinated coffee, confirming the primary role of non-caffeine compounds as important factors associated with the successful survival results observed in coffee drinkers.

Table 1: Summary of studies investigating the effects of coffee and caffeine on blood pressure and prevalence of hypertension.

Author	Substance	Dose	Population	Outcome
Nurminen, et al. Eur J Clin Nutr, 1999	Caffeine	200-250 mg/single dose	Normotensive	SBP/DBP: -3-14/-4-13 mmHg
Jee et al. (9), Hypertension, 1999	Coffee	Various doses	Metanalysis	SBP/DBP: -2.4/1.2 mmHg
Klag et al, Arch Int Med 2022 (10)	Coffee	Various doses	Habitual drinkers vs. non drinkers	New onset HTN: 28.8% vs. 18.8%
Lane et al, Psychosom Med 2002 (11)	Caffeine	500 mg vs. placebo	Global population	Mean BP: -3-4 mmHg
Steffen et al, J Hypertens, 2012	Coffee	Various doses	Metanalysis (mix)	No excess in prevalence HTN
Xie et al, J Hum Hypertens 2018	Coffee	Various doses	Metanalysis (mix)	2% reduction of HTN/cup /day
Zhang et al, Am J Clin Nutr 2011	Coffee	≥ 4 cups/day	Global population	No excess in prevalence HTN
Winkelmayer et al, JAMA 2011	Coffee	1-6 cups/day	Women (NHS)	No excess in prevalence HTN
Brisighella,2023	Coffee	0-6 cups/day	Global population	Mean SBP: -5/-7 mmHg
PAMELA, 2023	Coffee	0-3 cups/day	Hypertensive	Mean SBP: 0,7 mmHg

E. What about the position of coffee in prevention guidelines?

One of the greatest pieces of news in terms of coffee, high blood pressure and cardiovascular disease is the unexpected upgrading of the recommendations for coffee drinking in the prevention guidelines. The ESC Guidelines on Cardiovascular Disease Prevention in Clinical Practice suggest that "moderate coffee consumption (3-4 cups/day) is probably non harmful, perhaps even moderately beneficial". The 2023 ESH guidelines for the treatment of Hypertension state that: "Coffee has been reported to have a modest short-lasting pressor effect, but recent data appear to indicate that its moderate regular consumption does not adversely affect BP and the CV system." The 2019 ESC/EASD Guidelines on Diabetes, Pre-diabetes and cardiovascular diseases report: "In a meta-analysis of 18 observational studies increasing coffee or tea consumption appeared to reduce the risk of diabetes Mellitus (DM)". The same is true for many other consensus documents across the world dealing with the management of hypertension and this is opening a new era in the implementation of lifestyle changes in hypertensive patients who do not have to refrain anymore from the consumption of coffee or other coffee-based products.

Conclusion

Time is moving on and one of our steps forward is that one of the most popular companions must not be banned from our daily life if blood pressure increases above the limits. Paradoxically, it could be part of a strategic policy aimed at improving adherence to treatment by launching on the market a new concept of behavioral fix-dose combination based on morning cup of coffee + antihypertensive drugs with a better blood pressure control, a better quality of life and the perception of a friendly medicine.

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NEW DIMENSION SERIES
SUSTAINABLE DEVELOPMENT GOALS (SDGS) FOR HYPERTENSION ZERO IN THE ERA OF ANTHROPOCENE.

Interrelation between SDGs and Hypertension Zero

Category A: Hypertension and Life Environment

Hypertension & Global Warming,
- Disaster (Earthquake, Flood)

Air Pollution, Decarbonization, War

- Housing (light, noise, vibration...)
- Sleep Condition etc.

Category B: Hypertension and Diversity

Hypertension & Genetic Ancestry

- Poverty/Economic Disparity
- Food Availability
- Loneliness, Social Isolation etc.

Category C: Hypertension and Next Generation

Hypertension & DOHaD (Developmental Origins of Health and Disease)

- Emaciation in Women
- Pregnant Women's Health
- Dietary Education, Taste Flavor etc.

NEW DIMENSION SERIES

Sustainable Development Goals (SDGs) for Hypertension Zero in the era of Anthropocene.

CATEGORY A: HYPERTENSION AND LIFE ENVIRONMENT

Loneliness – a new threat to human health

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JOLANTA SNYDER
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Loneliness is an omnipresent sensation that is often dismissed as a transient emotion. It is a feeling influenced by both internal perceptions and the external circumstances. "People feel lonely when their social needs are not met by the quantity and quality of their social relationships" as surmised by Luhman et al.[1]

Loneliness and social isolation are related terms, but they do not have the same meaning. While social isolation refers to the objective lack/deficiency of contacts with other individuals (e.g., due to living alone), loneliness reflects a subjective feeling of being isolated from others (sometimes even with an apparent social proximity of other individuals). In fact, loneliness not always correlates with social isolation.[2]

The estimates suggest that one in four adults on average are socially isolated.[3] Loneliness exists in all populations and across different age categories[4] although it appears that both younger and older populations are more affected than other age groups; possibly for different reasons.[5] Those from socially marginalised groups are particularly vulnerable.[1] Chronic loneliness has a profound effect on the emotional well-being and quality of life of affected individuals.[6] It is increasingly recognised as a new risk factor for many chronic conditions including depression, dementia, diabetes, infectious diseases, and premature death.[3-4] Given the emerging threat of loneliness to human health World Health Organisation has now created a Commission on Social Connection.[3]

There is a well-documented heterogeneity in causes of loneliness – from deeply personal factors including level of self-esteem and life events (e.g., loss of family members and friends) to global phenomena such as urbanisation, migration, and use of social media.[7] Most recently, COVID-19 pandemic has amplified the social isolation and loneliness around the globe through the imposed lockdowns, restrictions on social interactions and face-to-face contacts. Very young adults, the elderly, women, and those with the lowest income were particularly affected.[5] The full magnitude of the impact on healthcare will only start emerging in the years to come. At the same time, the COVID-19 pandemic illuminated the importance of loneliness and social isolation as a risk factor for many chronic disorders.[4]

It is acknowledged that loneliness is difficult to define and hence not easy to investigate.[4] Most studies used either a single item measurement (agreement or not with the statement 'Much of the time during the past week, I felt lonely')[5] or more developed scales for emotional and social loneliness. There is persuasive evidence for a connection between loneliness and cardiovascular disease.[8] Indeed, a meta-analysis of 11 and 8 longitudinal studies found that feeling lonely was associated with an increased risk of coronary

artery disease and stroke (respectively).[9] In the English Longitudinal Study of Ageing, those who reported feeling lonely showed a 27% higher rate of coronary artery disease and stroke in the follow-up period and this relationship was independent of the conventional biological (e.g., blood pressure and lipids), lifestyle (e.g., alcohol consumption and physical inactivity) or behavioural risk factors (e.g., depression).[5] The magnitude of loneliness' effect on cardiovascular morbidity was compared to that of smoking 15 cigarettes a day.[10] Indeed, on the scale of existing and emerging risk factors for cardiovascular disease in diabetes, loneliness was positioned higher than smoking.[11] A few small studies showed that loneliness was associated with an increase in blood pressure[12], possibly independent of the most obvious potential mediators including increased intake of calories, body mass index and reduced physical activity. There is a concern that loneliness/social isolation will deprive individuals of an essential pillar of support for regular treatment of hypertension (and other chronic conditions), i.e., encouragement/care from family and friends. Indeed, in the clinical service we often see how essential the closest support circle can be in overcoming therapeutic non-adherence and maintaining regular administration of antihypertensive medications.

In our Society, the relevance of loneliness (and its proxies) to hypertension is also increasingly attracting attention. Published in early 2023, our review article led by Professor Alta Schutte (ISH Past President) recognised poor social support as one of the drivers of global disparities in hypertension care.[13] Later that year, Professor Hiroshi Itoh, our Vice-President introduced a new series of Hypertension News articles dedicated to Sustainable Development Goals (SDGs) and listed loneliness as an important point of convergence between SDGs and Hypertension Zero.[14] Our ISH2022KYOTO Hypertension Zero Declaration highlighted the importance of "community in which no one with hypertension is left behind" and its benefits to "sustainable well-being for all".[15,16] In early 2024, in a comprehensive analysis of social determinants in hypertension, Professor Tazeen Jafar, ISH chair of Global Health Partnerships examined the relevance of poor social cohesion to hypertension and cardiovascular disease.[17] A few weeks later, ISH's team led by Professor Fadi Charchar (ISH Treasurer) contemplated "social connectedness" as one of the new areas that should be further explored in relation to lifestyle management of hypertension".[18] In this most recent ISH position paper, we further proposed that listening to music on a regular basis could be beneficial to management of hypertension, possibly through stress relief.[18] It transpires though that music can be also an important social surrogate improving mood and a sense of connection with others.[19]

With loneliness rates as high as 14% in the population, and the Government appointing a Minister of Loneliness in 2017; the challenge of tackling loneliness has been brought to the fore of thesocial care agenda in the UK.[20] These trends followed in other European countries. Indeed, in 2022, awareness campaigns on preventing loneliness were initiated at the federal level, e.g., the "Strategy against Loneliness" of the Federal Ministry for Family, Senior Citizens, Women and Youth in Germany.[21] Different strategies have been proposed to "manage" loneliness or loneliness-associated conditions, mostly through face-to-face interventions although remotely delivered (e.g., via telephone) behaviour-changing psychological interventions have started to emerge.[22] It appears that doctors may also have a role to play in combating the loneliness.[20] On the individual level, feeling lonely should be a wake-up call to reflect and re-think one's social interactions, friendships, acquaintances, habits, and hobbies, to maximise engagement in those with the highest potential to reduce the early sense of isolation and perceptions of being unconnected.

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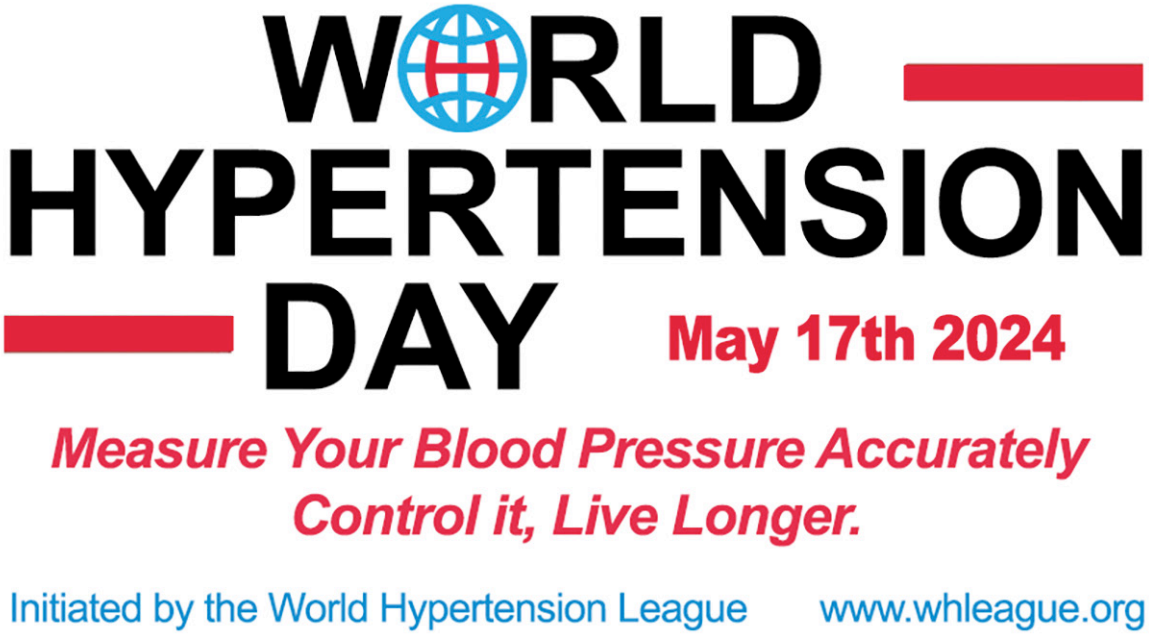

NEW DIMENSION SERIES

Sustainable Development Goals (SDGs) for Hypertension Zero in the era of Anthropocene.

CATEGORIES A, B & C

Beyond medicine: tackling social determinants for improved hypertension and cardiovascular care

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High blood pressure (BP) is a major preventable risk factor for global mortality, causing over 10 million deaths annually.[1] The global prevalence of hypertension has doubled over the past three decades, disproportionately affecting low- and middle-income countries (LMICs) where less than 20% achieve BP control.[2,3] Even though high-income countries (HICs) are generally on the right track, there are still big gaps, especially for folks with low socioeconomic status, living in rural areas, or belonging to racial/ethnic minorities. These gaps boil down to the fundamental factors of social determinants of health (SDOH).

The SDOH are a complex set of factors tied to birthplace, upbringing, residence, and employment, significantly impacting health outcomes such as hypertension and cardiovascular disease (CVD). These include socioeconomic and environmental structures, coupled with poor access to quality healthcare, affecting both community and individual health. Housing quality, neighborhood poverty, financial distress, food security, access to green spaces, transportation, conflicts, pollution, racism and segregation contribute to psychosocial stress and anxiety, leading to unhealthy behaviors. Stress increases vulnerability to hypertension and cardiometabolic disorders. Limited access to affordable, high-quality healthcare exacerbates these challenges, hindering timely diagnosis and treatment, accelerating the progression of vascular disease, and increasing morbidity and mortality.

Between 1990 and 2019, hypertension-related disability-adjusted life years decreased in HICs but rose in LMICs. Overall CVD trends have declined in HICs, including the United States (US), with the most affluent group and whites experiencing the steepest drop. However, substantial socioeconomic and racial disparities persisted, as evidenced by the increased prevalence of stroke and congestive heart failure in less affluent populations, especially among Blacks.[4] Similar trends in coronary heart disease mortality were also observed in other HICs.[5] The impact of SDOHs on hypertension and CVD became even more evident during the COVID-19 pandemic, which has affected the socially disadvantaged group the most. The widening health disparities worldwide are concerning and demonstrate that the most significant opportunities to reduce disability and death from hypertension and CVD lie in addressing the health disparities caused by SDOH.

To tackle cardiovascular health disparities, we need everyone on board — patients, healthcare

providers, the health system, policymakers, and the whole community. It's a team effort at different levels. While wiping out all social and environmental disparities is tough, teaching stress management techniques, especially for those facing social challenges, can make a positive impact on cardiovascular health.[6,7] Making sure everyone has the medications they need, expanding social insurance, and improving transportation options can really boost healthcare access for those who face social disadvantages.

Starting preventive measures early with school-based interventions for kids and teens is key to promoting cardiovascular health from the get-go. Also, targeting socially disadvantaged individuals, connecting them with community support, and factoring in SDOH in cardiovascular risk predictions and treatment plans can really make a difference in improving outcomes for cardiovascular health.

To bring SDOH into hypertension care, evidence suggests that we should switch to non-traditional, team-based care, especially in places with limited resources, using community health workers. Platforms already in place for maternal and child health and infectious disease care can be used to screen and treat hypertension opportunistically. Meanwhile, augmenting healthcare infrastructure with digital tech helps gather crucial info to target and innovate around modifiable SDOH. Keeping the community engaged and empowered is vital for the long-term success of these efforts.[8,9]

Although neglected over the years, there have been recent efforts focusing on SDOH when it comes to preventing and managing hypertension and CVD. Many organizations, like the World Health Organization (WHO), are stepping up efforts to tackle health disparities globally. For the first time ever, the WHO has released the Global Report on Hypertension in collaboration with Resolve to Save Lives.[10] The International Society of Hypertension (ISH) introduced the annual May Measurement Month campaign as an extension of World Hypertension Day to raise BP awareness on a global scale.[11,12] Initiatives like Healthy People 2030 (US) and CORE20PLUS5 (UK) identify priorities to reduce health disparity.13 More recently, a Global Hypertension Care Task Force to be jointly led by WHO, ISH, and other professional societies was proposed with the goals of reducing inequities in hypertension care at national and global levels.[11]

It is now time for concerted efforts to leverage our understanding of the mechanisms of SDOHs and develop a collaborative approach to address health disparities in hypertension and CVD that are aligned with the Sustainable Development Goals 3.4.

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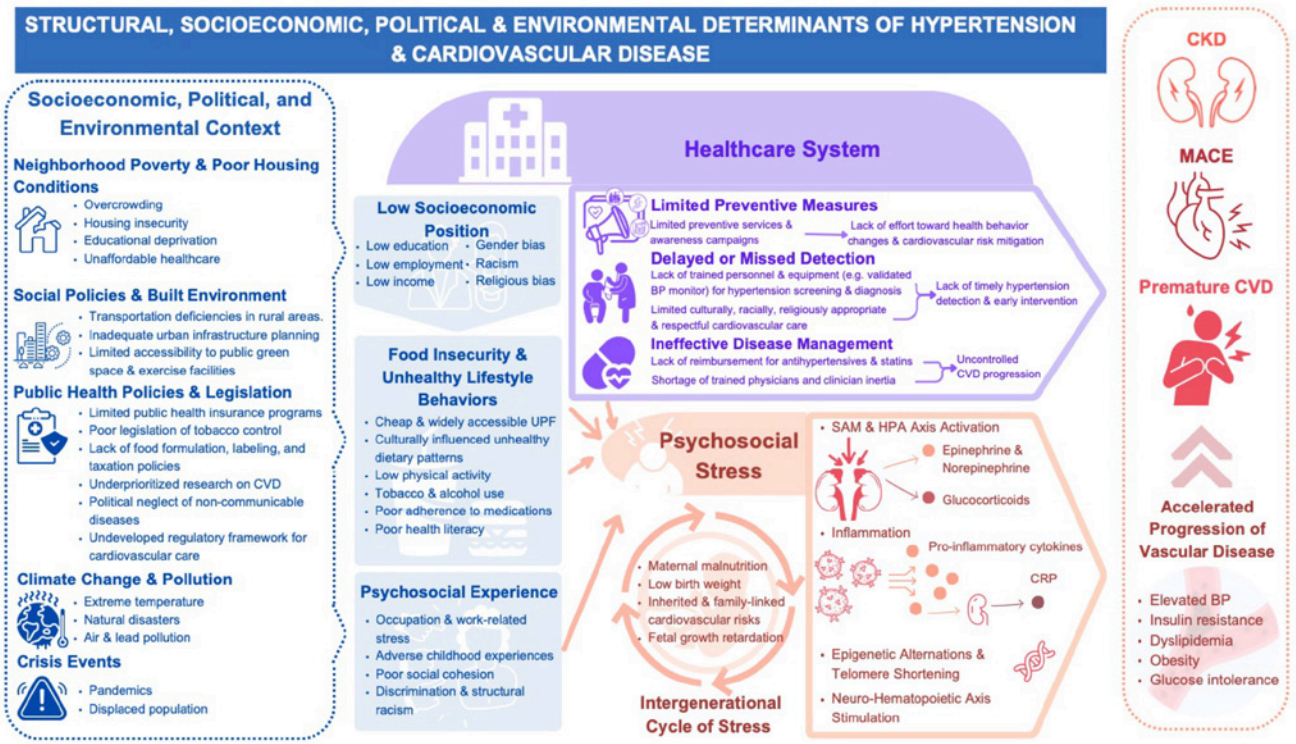

Figure 1 Socioecological and Life Course Approaches of Social Determinants of Health Leading to Hypertension and Cardiovascular Disease. Social determinants of health (SDOHs) encompass socioeconomic, political, and environmental contexts, including neighborhood poverty and poor housing conditions, social policies and built environment, public health policies and legislation, climate change and pollution, and crisis events. These contextual SDOHs contribute to health disparity, reflected in an individual's low socioeconomic position, and subsequently food insecurity, unhealthy lifestyle behaviors, and psychosocial experience. Psychosocial stress generated from SDOHs not only perpetuates itself through the intergenerational cycle of stress, but also triggers biological pathways associated with vascular disease, including the sympathetic-adreno-medullar (SAM) and hypothalamic-pituitary-adrenal (HPA) axis activation, inflammation, epigenetic alternations and telomere shortening, and neuro-hematopoietic axis stimulation. Additionally, SDOHs insert influence through the healthcare system, resulting in limited preventive measure, delayed or missed detection, ineffective disease measurement. These multifaceted interactions culminate in the accelerated progression of vascular disease, ultimately contributing to chronic kidney disease (CKD), major adverse cardiac events (MACE), and premature cardiovascular disease (CVD). BP indicates Blood Pressure; CRP, C-Reactive Protein; UPF, Ultra-Processed Food.

EXPLORING THE FRENCH PARADOX

Unravelling the role of sex in hypertension management

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Federation University Australia, Treasurer ISH

In the enchanting ambiance of a wintery Paris, amidst the twinkling lights of Christmas, the French Society of Hypertension hosted a captivating session at their 2023 meeting where experts delved into the intricacies of lifestyle modification*. Amidst the scholarly discourse, a curious revelation surfaced, echoing the sentiments of Professor Pierre Fesler from the audience – the oft-overlooked factor of sexual health.

A recent study by Lou et al.,[1] which traversed the dominions of sexual activity and hypertension, has shed some light on a previously understudied aspect of cardio-sexual health. The study postulated a provocative hypothesis: could decreased sexual frequency be an early harbinger of all-cause mortality in young and middle-aged hypertensive patients?

Drawing upon data gleaned from the National Health and Nutrition Examination Survey (NHANES), the study cast a meticulous gaze upon the association between sexual frequency and mortality risk among hypertensive individuals aged 20 to 59 years in the United States. With a formidable sample size of 4565 participants, the study wielded robust statistical power, illuminating a significant nexus between lower sexual frequency and heightened all-cause mortality risk, particularly within the realm of marital status.

While the study posits plausible explanations for this association – ranging from underlying health status to the cardiovascular benefits akin to exercise and the psychosocial dynamics of intimate relationships – it beckons further exploration into the intricate interplay of these mechanisms.

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Acknowledging the study's limitations, including its observational nature and potential biases, it underscores the imperative of holistic approaches to hypertension management.

Moreover, the discussion extended beyond mortality risks, delving into the nuanced complexities intertwined with hypertension and sexual health. From the well-known effects of certain antihypertensive medications on sexual function to the reciprocal influence of erectile dysfunction medication on blood pressure, the symbiotic relationship between hypertension and sexual health beckons closer scrutiny.

In conclusion, as we contemplate the update of lifestyle modification guidelines, perhaps it is time to embrace the quintessential French ethos – a harmonious blend of culinary indulgence, spirited exercise, and unabashed celebration of intimacy. For in unravelling the enigma of the French Paradox, we may find valuable insights into nurturing cardiovascular health and embracing life's pleasures with renewed vigour.

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* Other speakers in the session were Professor Maciej Tomaszewski on diet, and Dr Sebastien Rubin on the fascinating topic of the French paradox - the observation that despite a diet relatively high in saturated fats, the French population has a relatively low incidence of coronary heart disease (CHD) compared to other Western countries. Professor Marilucy Lopez-Sublet finished the session about implementing lifestyle recommendations into practice in France.

EXPLORING THE FRENCH PARADOX

Is low alcohol consumption good for the heart?

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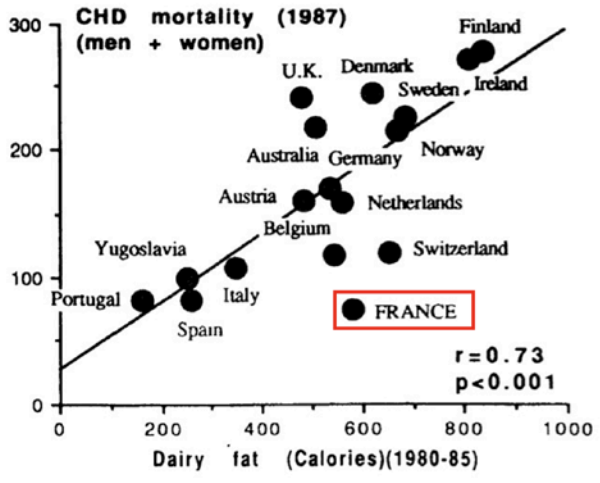
During the joint Session (French Society-ISH) at the French Society of Hypertension Congress in Paris (December 2023) I discussed the intriguing phenomenon known as the French Paradox (FP) and its association with wine consumption, particularly in light of hypertension guidelines recommending minimal alcohol intake.[1] The FP, first brought to the forefront by Serge Renaud in 1992[2], highlights a peculiar observation: despite a high intake of saturated fats, France exhibits a remarkably low coronary mortality rate (**figure 1**). Renaud's work suggested that wine, especially when consumed in moderation, might offer a protective effect against heart disease, potentially explaining this paradox.

I delved into the widespread belief, influenced by the FP, that alcohol, particularly wine, could be beneficial for cardiovascular health—a notion supported by various lobbies and commercial interests, leading to a distorted public perception. In the United States, for example, a significant portion of the population believes alcohol is heart-healthy, a belief often reinforced by media and sometimes even healthcare providers, thereby encouraging increased alcohol consumption.[3]

I also reviewed the scientific evidence and hypotheses suggesting that components in wine, such as flavonoids, might reduce cardiovascular risk through various mechanisms. However, I pointed out that recent large-scale epidemiological studies have begun to question the protective effects of moderate alcohol consumption, showing that the benefits might not be as clear-cut as previously thought.[4,5] Furthermore, I highlighted the limitations of such studies, including biases and methodological issues that, when corrected, negate the observed protective effects of alcohol.[6]

A potential solution to these ambiguities, I suggested, is Mendelian randomization studies,



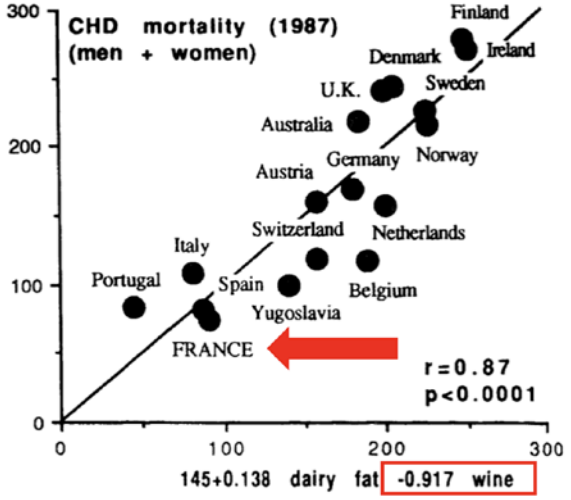


Figure 1

Renaud et al. Lancet 1992

Using mendelian randomization, the curve look very different

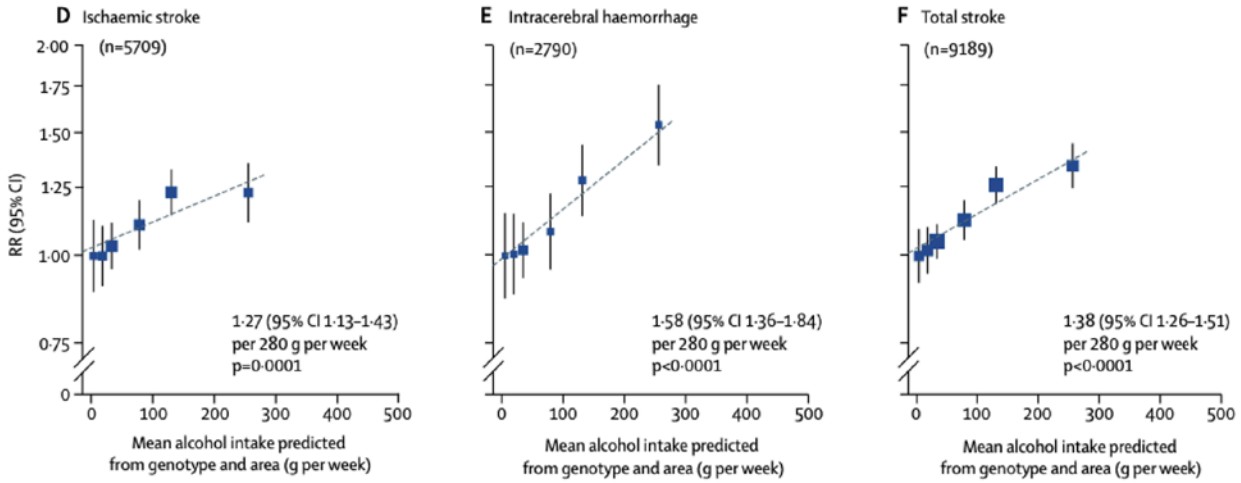


Figure 2

Millwood et al. Lancet 2019

which use genetic variants associated with alcohol consumption to explore its effects on health outcomes. These studies offer a more unbiased insight into the relationship between alcohol and cardiovascular risk. For instance, a study using this approach in China found that the supposed J-curve relationship between alcohol intake and cardiovascular risk disappears when genetic predispositions to alcohol consumption are considered[7] (**figure 2**).

In concluding, I proposed an alternative perspective on the French Paradox, suggesting it may be less about the wine and more about the French lifestyle. This includes taking time to enjoy meals, making dining a convivial experience, and overall, leading a healthy lifestyle. As I emphasised at the meeting, "If you want our paradox, adopt our lifestyle, not just our wine consumption."

Conclusion

- There is no evidence of the cardioprotective benefit of low alcohol consumption
- There is very strong evidence of the extra-cardiovascular risk of low alcohol consumption
- Hypertension specialists should advise the lowest possible alcohol consumption
- Encouraging the French lifestyle may be a good idea, but the French lifestyle is not only wine or alcohol

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WOMEN IN HYPERTENSION RESEARCH

Perspectives on career disruptions

Having a diverse workforce within the cardiovascular research sector is a critical way to ensure an effective hypertension research field. There are many barriers disproportionately faced by women that can preclude them from maintaining a successful research career. While key strategies have been identified to support cardiovascular researchers,1 barriers still impact women globally. One such barrier is career disruptions, which can have a huge impact on women in research. Here we discuss perspectives from India, Australia and South Africa.

An Indian perspective

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Women in India have achieved notable progress in education, constituting a significant proportion of degree holders. However, despite this educational advancement, their representation in the labor force remains disproportionately low. Remarkably, while women hold 53% of undergraduate degrees and 69% of master's degrees, they account for less than 20% of the labor force. This discrepancy is particularly concerning given the correlation between education and workforce participation observed in other emerging economies.

Statistics reveal a troubling trend: despite India's economic growth and increased educational opportunities, there has been a notable decline in female workforce participation. This decline is starkly different from the patterns observed in countries like Brazil, Russia, Indonesia, and China. Even more alarming is the fact that this trend is more pronounced among married women, with only around 31% of married women actively engaged in the workforce according to a 2019 report by the Indian Ministry of Health and Family.

Marriage remains a significant obstacle to women's careers in India, despite advancements in education and societal changes. The cultural emphasis on marriage reinforces traditional gender roles, compelling women to prioritize family duties over professional ambitions. Consequently, marriage becomes a pivotal juncture, shaping women's priorities and decisions. Existing career theories have evolved to accommodate women's unique experiences but often fall short in explaining the career interruptions faced by married Indian women.

Over the past decade, India has witnessed a notable surge in research opportunities aimed at fostering the participation of women across diverse fields. Initiatives such as the SERB Women Excellence Award, administered by the Science and Engineering Research Board (SERB), commend and provide financial support to outstanding women scientists and engineers under the age of 40. Additionally, the Knowledge Involvement in Research Advancement through Nurturing (KIRAN) Division, established by the Department of Science and Technology (DST), offers fellowship schemes and grants to empower women in science, encouraging their active involvement in research. The Ramanujan Fellowship, although not exclusively targeting women, attracts brilliant researchers worldwide, including women,

to conduct independent research in India. Furthermore, the Women Scientists Scheme (WOS) by the DST facilitates the re-entry of women into research careers after career breaks due to family responsibilities, offering financial assistance for projects and capacity building. Collaborative efforts between India and the U.S. through initiatives like the Indo-U.S. Fellowship for Women in STEM provide opportunities for Indian women scientists to pursue research in leading U.S. institutions. Other programs, like the Biotechnology Career Advancement and Re-orientation Program (BioCARe) and the Ucchatar Avishkar Yojana (UAY), also contribute to creating a supportive environment for women in research by offering retraining, career development, and collaborative research opportunities, albeit not exclusively aimed at women.

In essence, while women in India have made significant strides in education, their participation in the labor force remains disproportionately low, particularly among married women. The above initiatives collectively demonstrate the government's commitment to promoting gender diversity and empowerment in India's research landscape.

An Australian perspective

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In contrast to India, marriage is not generally considered a roadblock for women in Australia. However, fewer women are in senior leadership roles within research institutes and universities. Many women leave the research sector, and having children is considered a major factor in this trend.

In Australia, it is common for women to take 3-12 months of maternity leave, and many women return to work part-time. Fortunately, "relative to opportunity" is considered formally by Australia's major medical funding bodies and academic institutions. This means that time worked, or full-time equivalent (FTE), is used to determine career stage, instead of calendar years since PhD acceptance.

For example, I was considered an early career researcher until recently, even though I was ~9 calendar years since PhD completion. This means that during funding cycles, I have been competing against other early career researchers. If calendar years post-PhD were taken into account, I would have been defined as mid-career, and my productivity would have been evaluated accordingly, likely leading to decreased funding success. This system is not perfect and does not take into account other burdens that disproportionately fall on mothers or the impacts of stop-start disruptions on productivity, to name just a few. However, it does provide the framework for assessors to evaluate career disruptions.

Another initiative available in many Australia institutions are small grants available to women who have had a career disruption. The aim of these grants is to reduce the impact of career breaks and/or caring responsibilities on productivity and career advancement of academic women, to bridge the gap. This may include funding for things not generally considered within standard grants, such as childcare to facilitate conference attendance.

While these initiatives are beneficial, we still have a long way to go to reduce gender bias. Factors such as low funding rates, job insecurity and unconscious bias are still major drivers of the disproportionate lower number of women in senior academic roles.

The South African perspective

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It is crucial to first acknowledge that this perspective does not capture the influence of diverse cultural and country-specific disparities around gender roles and women empowerment in Africa. In South Africa, significant strides have been made to support women in academic institutions by investing in undergraduate and postgraduate support structures through different government ministries. Employment opportunities for women are bolstered by recruitment strategies targeting historically disadvantaged individuals such as women and people of colour due to previous discriminatory laws against these groups.

Formal mentorship and leadership development structures play an essential role in supporting academic career growth and some of these initiatives are tailored for women. For example, funding support for international placement, independent of years after obtaining a doctoral degree. Pregnancy and childcare responsibilities remain one of the most common reasons for career interruptions for women. In Africa, parental leave laws vary between countries, and maternity leave allocation in the region is mostly around 12-14 weeks, paid versus unpaid and differences apply for child adoption as well as between private and public sectors.

In South Africa, most universities and research institutions provide four months of paid maternity leave. The benefits are not equally available for non-permanent and part-time employees. Returning to work after this limited period has a negative effect on productivity and work-life balance, which may be long-term, particularly for early and mid-career women. Currently, most funding instruments and other types of awards still put emphasis on years since completion of a doctoral degree and/or age without factoring in career disruptions.

Although career disruptions especially due to childbirth or illness are mostly provided for in the conditions of employment, their evident limiting effect on career progression is not always incorporated in processes for determining attainment of important career milestones. These include, among others, grant applications, merit awards, and promotions. There are funding bodies that consider time away from research. This is specific for national funding calls focused on the development and advancement of designated groups per race and/or gender. However, such practices are not yet a norm, not comprehensively defined nor applied across a wide spectrum of career-advancing opportunities.

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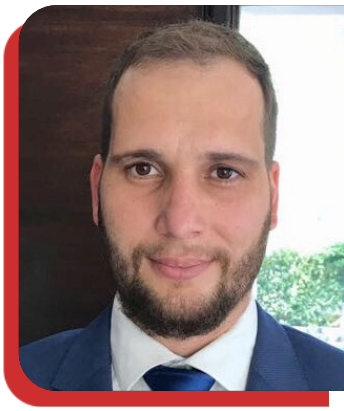
Highlights in Hypertension from the American College of Cardiology's Annual Scientific Session



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President of Argentine Society of Hypertension

New Insight in Renal Denervation: TARGET BP I

The TARGET BP I trial, which employed a novel approach utilizing dehydrated alcohol to deactivate specific nerves surrounding the arteries of the kidneys and manage high blood pressure, was presented. In a pivotal phase 3 trial showcased at the American College of Cardiology's (ACC's) Annual Scientific Session in April 2024, the system successfully achieved its primary endpoint of reducing blood pressure at three months, as measured by a 24-hour ambulatory systolic blood pressure monitor.

This trial marked the largest randomized controlled study to date assessing alcohol-based technology for renal denervation, an innovative approach targeting connections between the kidneys and the nervous system implicated in blood pressure regulation. While the trial yielded positive overall results, it encountered complexities that needed careful navigation.

Researchers randomly assigned 301 participants to receive either renal denervation or a sham procedure. At three months post-procedure, renal denervation led to a notable reduction in 24-hour ambulatory systolic blood pressure compared to the sham group.

Despite observing a statistically significant reduction in the primary endpoint, no significant differences were noted in other measures of blood pressure, including office systolic or diastolic blood pressure. Notably, the sham control group exhibited unexpectedly large reductions in blood pressure, posing a challenge for interpretation (**Figure 1**).

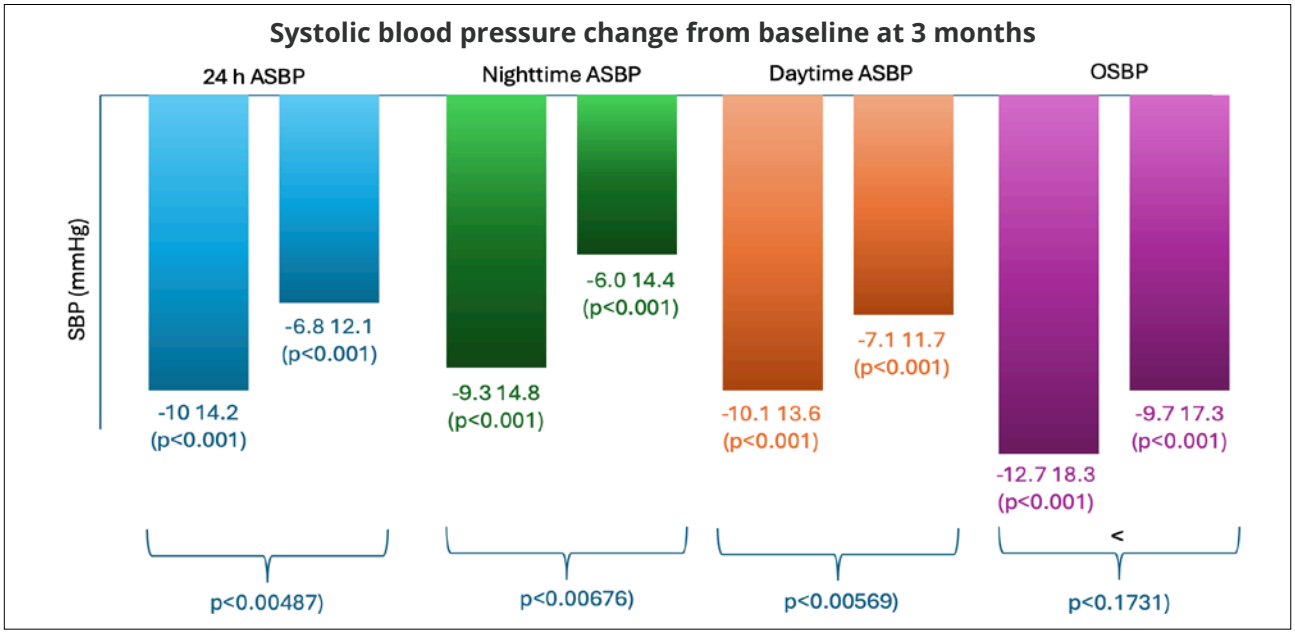


Figure 1: ASBP: Ambulatory Systolic Blood Pressure, OSBP: Office Systolic Blood Pressure
Adapted from Kandzari DE et al, Circulation 2024

The Importance of a Good Rest: Sleep Duration and Hypertension Incidence: Systematic Review and Meta-Analysis

Sleeping fewer than seven hours is associated with a higher risk of developing high blood pressure over time, as reported at the ACC's Annual Scientific Session. While the link between sleep duration and hypertension has been explored, findings have been inconsistent. This analysis consolidated data from 16 studies involving 1,044,035 individuals across six countries, all without prior hypertension history, over a median follow-up of five years. Short sleep duration correlated significantly with increased hypertension risk, even after adjusting for various demographic and cardiovascular factors. The risk was notably higher for those sleeping less than five hours.

Dr. Kaveh Hosseini, from the Tehran Heart Center, emphasized the significance of sleep duration, noting that sleeping fewer than seven hours raised the risk by 7%, spiking to 11% for those with less than five hours of sleep. Interestingly, age did not significantly alter this association, although females showed a higher risk with inadequate sleep. Despite these findings, the study didn't delve into the reasons behind this link, though disrupted sleep patterns due to lifestyle habits or comorbid conditions like sleep apnea could be contributing factors (**Figure 2**).

While the study had limitations, including reliance on self-reported sleep duration and variations in defining short sleep duration, Hosseini suggested future research should employ more accurate methods like polysomnography. Standardizing sleep research definitions could enhance comparability across studies.

The KARDIA-2: The angiotensinogen Silencer Reduces SBP With Just One Injection

The KARDIA-2, phase 2 study revealed promising outcomes regarding the efficacy and safety of zilebesiran, an investigational RNAi therapeutic, as an adjunctive treatment for hypertension. This study evaluated the impact of a single subcutaneous dose of zilebesiran when added to standard antihypertensive medications, including a thiazide-like diuretic (indapamide), calcium channel blocker (amlodipine), or angiotensin receptor blocker (olmesartan), on systolic blood pressure (SBP) reduction.

In a randomized, double-blind, placebo-controlled design, 1500 patients with mild-to-moderate hypertension were enrolled. The average age of

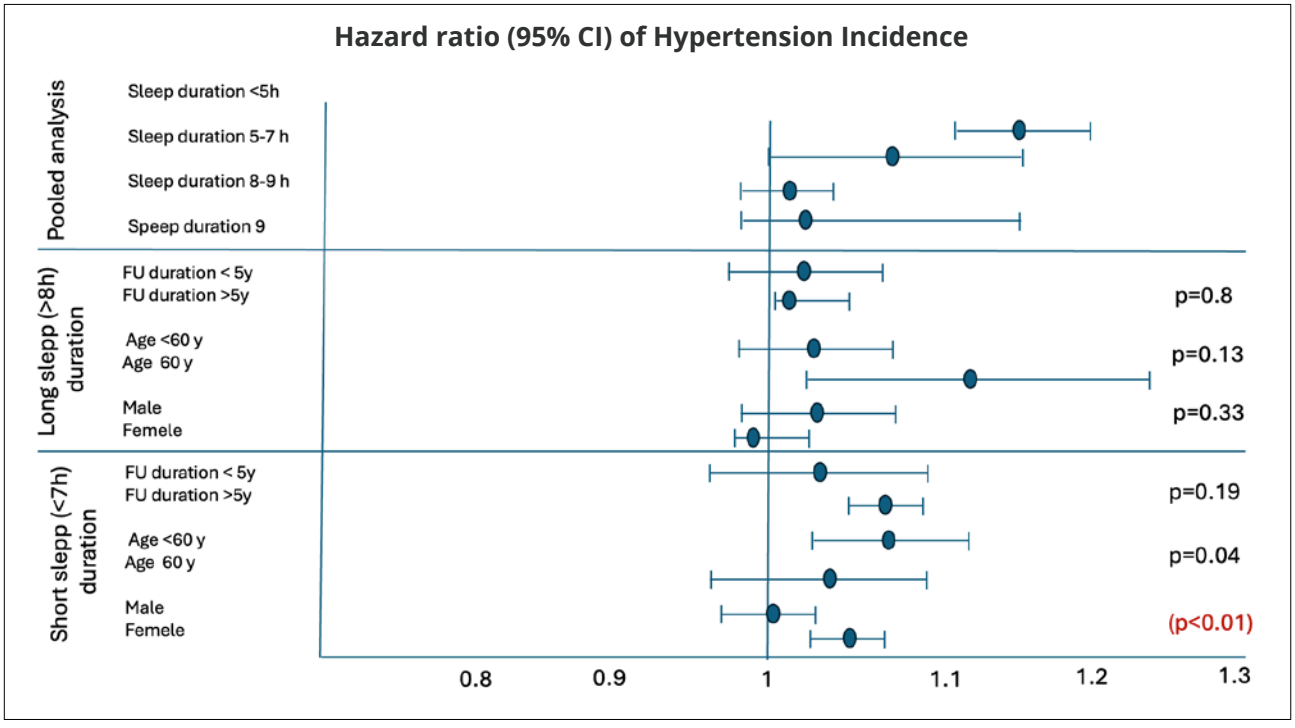


Figure 2: Adapted from Sood A et al. J Am Coll Cardiol. 2024 Apr, 83

Table 1: Adapted from Desai A, American College of Cardiology Annual Scientific Session

Key Endpoint	Indapamide (2.5 mg)	Amlodipine (5 mg)	Olmesartan 40 mg
Primary Endpoint:			
Change from Baseline to Month 3 in 24-Hour Mean SBP, Assessed by ABPM	- 12.1 mmHg (p<0.001)	- 9.7 mmHg (p<0.001)	- 4.0 mmHg (p=0.036)
Key Secondary Endpoints:			
Change from Baseline to Month 3 in Office SBP	- 18.5 mmHg (p<0.001)	- 10.2 mmHg (p<0.001)	- 7.0 mmHg (p<0.001)
Time Adjusted Change from Baseline Through Month 6 in 24-Hour Mean SBP, Assessed by ABPM	- 11.0 mmHg (p<0.001)	- 7.9 mmHg (p<0.001)	- 1.6 mmHg (p=0.26)
Time Adjusted Change from Baseline Through Month 6 in Office SBP	- 13.6 mmHg (p<0.001)	- 8.6 mmHg (p<0.001)	- 4.6 mmHg (p<0.001)

the participants was 59 years, with 43% being women and 28% identifying as Black. Most patients were initially taking one or two antihypertensive medications. The study commenced with a run-in period where patients received open-label therapy with one of the specified background antihypertensive medications for at least four weeks. Following this period, patients with elevated SBP levels, despite adherence to their medication regimen, were randomized to receive either zilebesiran 600 mg or placebo in addition to their standard antihypertensive medication for six months.

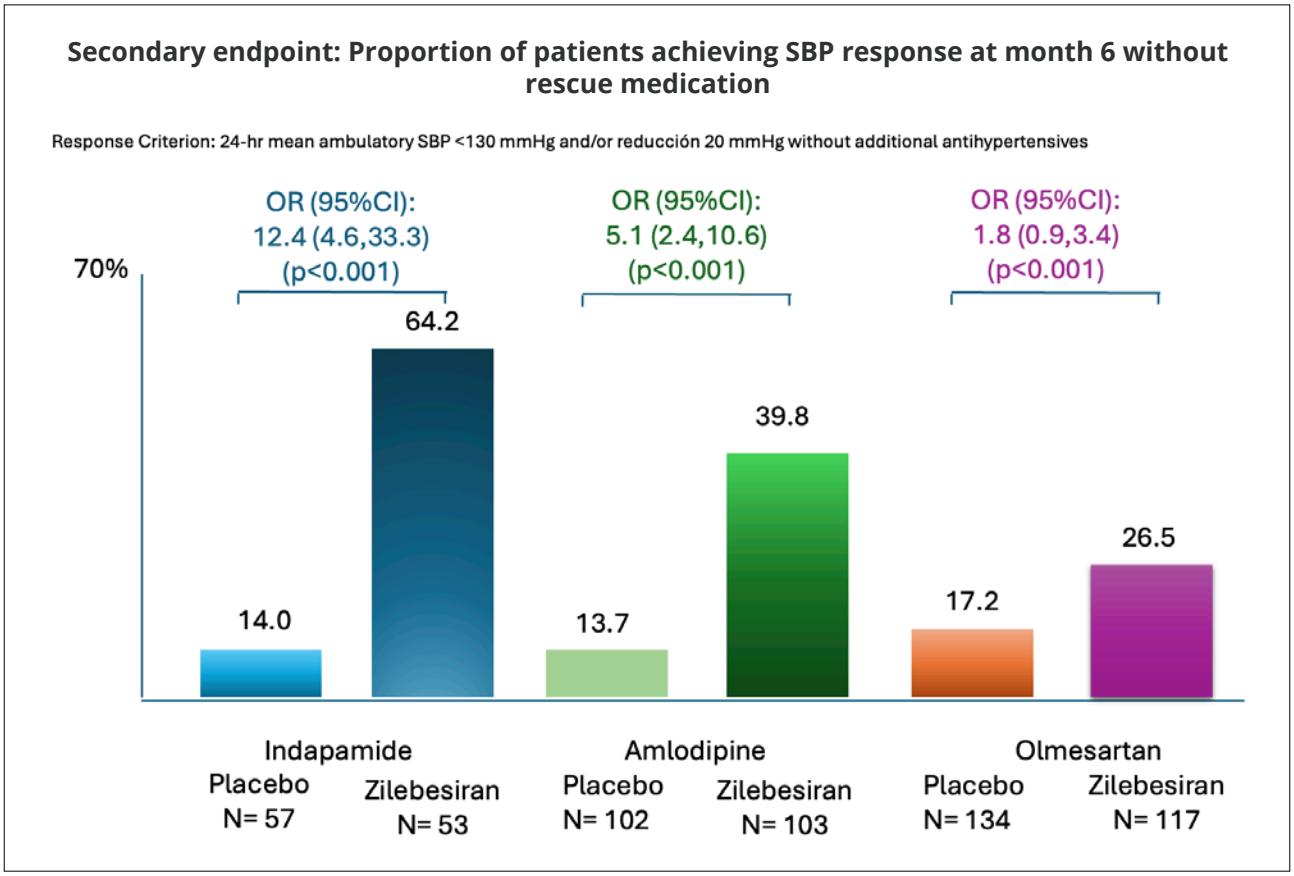
At three months, zilebesiran demonstrated statistically significant and clinically relevant reductions in 24-hour mean SBP when added to all three classes of background antihypertensive medications. The average placebo-adjusted reductions in 24-hour mean SBP were up to 12.1 mmHg with indapamide, 9.7 mmHg with amlodipine, and 4 mmHg with olmesartan, as measured by ambulatory blood pressure monitoring (ABPM). Moreover, zilebesiran consistently lowered office SBP across all cohorts, with reductions of 18.5 mmHg, 10.2 mmHg, and 7.0 mmHg for indapamide, amlodipine, and olmesartan, respectively (**see Table 1**).

The positive effects of zilebesiran on SBP persisted through the six-month duration of the study, indicating sustained efficacy. Even after the addition of rescue antihypertensive medications at three months, zilebesiran maintained its ability to reduce SBP, which suggests its potency in achieving blood pressure control. Importantly, zilebesiran exhibited an acceptable safety and tolerability profile, with no significant safety concerns observed. Most laboratory abnormalities were mild and reversible, and no adverse events led to study discontinuation during the six-month double-blind period (**Figure 3**).

Dr. Akshay Desai, Director of the Cardiomyopathy and Heart Failure Program at Brigham and Women's Hospital, emphasized the potential of zilebesiran in addressing the unmet needs in hypertension management. He highlighted the importance of reducing the pill burden and improving adherence, especially in patients with inadequate blood pressure control. The findings from the KARDIA-2 study underscore the potential of zilebesiran as a transformative approach to hypertension treatment, offering the possibility of consistent and durable blood pressure reduction with infrequent dosing.

The results from the KARDIA-2 study are encouraging and provide valuable insights into the efficacy and safety of zilebesiran as an adjunctive therapy for hypertension. Further research, including ongoing studies like KARDIA-3, will be essential to confirm the long-term efficacy and safety of zilebesiran, particularly in high-risk

Figure 3: Adapted of Desai A, American College of Cardiology Annual Scientific Session



patient populations. If proven effective in larger populations, zilebesiran could revolutionize the management of hypertension and improve cardiovascular outcomes for patients worldwide.

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The Asian-Pacific Society of Hypertension

TEO BOON WEE JIMMY
Secretary-General, Asian-Pacific Society of Hypertension

The Asian-Pacific Society of Hypertension (APSH) was established at the 1997 meeting of the second Pacific-Rim Society of Hypertension in Manila, Philippines for the Asian-Pacific region and APSH agreed to be an affiliate of the International Society of Hypertension. The Members of the APSH in 1999 were the hypertension or cardiac societies or heart foundations of Australia, India, New Zealand, Brunei, Indonesia, Philippines, China (Mainland), Japan, Singapore, China (Hong Kong), Korea, Thailand, China (Taiwan), Malaysia, and Vietnam. The secretariat was originally based in Australia. The President of the APSH becomes the President of the next Asian-Pacific Congress of Hypertension, APCH. The first APCH was held in September 1999, Bali, Indonesia. It was decided at an APSH Executive meeting in 2019 to incorporate the APSH and transfer the Secretariat to Singapore. The APSH Limited was incorporated on 13 September 2022 in Singapore to handle the business of the APSH, and the secretariat was transferred to Singapore under the care of the Singapore Hypertension Society. The members of APSH are Australia, Bangladesh, China (Mainland), India, Indonesia, Mongolia, Philippines, Singapore, Sri Lanka, Korea, Thailand, Taiwan (China), Japan, Malaysia, Myanmar, Nepal, Pakistan, and Vietnam.

The main activities of the APSH are the APCH and the APSH Summer School. The APCH is held every 2 years and in the years where the International Society of Hypertension holds its meeting in Asia, a conjoint meeting is held. The most recent APCH was held in month of December 2023 at Shanghai, China, and was a resounding success in attendance. The education program was stellar despite the challenges of holding the first face-to-face standalone APCH due to the re-opening of facilities and services for travelers. The next meeting will be in Lucknow, India in 2025. The President of APSH, Prof Anuj Maheshwari looks forward to welcoming you!

The APSH has actively collaborated with the ISH in promoting education, research, and networking among clinical specialists and researchers in hypertension in the Asian-Pacific region. The APSH aims to promote hypertension specialist development in the region with the Summer School program and create opportunities for networking. The networking allows mentorship of specialists in developing hypertension centers in the under-developed areas of the Asian-Pacific and also networking of referral centers for patients. Scholars who have been through the program make lifelong friends for research and clinical practice.

The many regions of the Asian-Pacific are quite disparate in the quality and quantity of medical resources for patients with hypertension. The APSH advocates for healthy longevity through equitable access by promoting education in all areas of the Asian-Pacific. Education is the great leveler! Members such as Australia, China, Japan, and Korea have actively provided many opportunities for less developed members in education, academic activities, and research. As the Secretary-General, I coordinate the activities of the APSH by working with the secretariat in Singapore, and execute the decisions of the APSH Council (member representatives) and the

APSH Executive, while complying with regulatory requirements of the APSH Limited.

The APSH emphasizes the prevention of hypertension in the Asian-Pacific region as the best way for reducing the burden of hypertension through healthy diet and lifestyle. APSH also advocates for voluntary and regulated sodium and sugar reduction in food products, reduction of obesity by decreasing consumption of food and increasing physical activity. APSH aims to improve health screening, treatment, and control rates in the Asian-Pacific region. There are many practice controversies and need for adaptation of clinical practice guidelines, which APSH aims to tackle for the Asian-Pacific region.

The ISH was for many years a strong supporter of the APSH, and many individual members of the ISH are also active participants in the activities of the APSH. We look forward to many years of collaboration to reach the goal of zero hypertension and a step towards immortality.

Teo Boon Wee Jimmy – mdctbw@nus.edu.sg

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Launching Indonesian Hypertension Protocol for Primary Health Care at the 18th Indonesian Society of Hypertension Scientific Meeting

MEGA FEBRIANORA
Ministry of Health Republic of Indonesia

The Ministry of Health in the Republic of Indonesia recently announced the launch of a new Hypertension Protocol for Primary Health Care during the 18th Indonesian Society of Hypertension Scientific Meeting on February 24, 2024. Held at the prestigious Ritz Carlton Hotel in Jakarta, this protocol is a comprehensive algorithm designed to aid physicians in managing hypertension derivatives in accordance with hypertension guidelines. This marks a significant milestone for Indonesia, as it is the country's very first hypertension protocol. The decision to create this protocol was driven by the WHO Hypertension Report 2023, which revealed that Indonesia's hypertension-controlled rate was only 4%, instead of the expected 50%. After analyzing the root causes of this disparity, it became clear that the management of hypertension in Indonesia was not optimal due to a lack of available drugs and a lack of protocol to assist physicians with blood pressure control. We have been working tirelessly since 2023 to create this protocol, and

we are thrilled to finally launch it at the most highly attended hypertension symposium in Indonesia.

Every year, the Indonesian Society of Hypertension Scientific Meeting attracts over a thousand general practitioners and specialist doctors. The meeting features updated topics based on the latest guidelines, and this year's theme was "Hypertension 2024: Are We Better Off?" The 18th meeting saw a total of 1400 doctors in attendance, including distinguished international speakers like Bryan Williams (President of the International Society of Hypertension), Teo Boon Wee (Asian-Pacific Society of Hypertension), Kazuomi Kario (ISH Council Member and HOPE Asia), Yook-Chin Chia (ISH Asia Pacific Regional Advisory Group and HOPE ASIA), and Wook Bum Pyun (Korean Society of Hypertension and Chair ISH Asia Pacific Regional Advisory Group).

It is our hope that future collaborations will effectively manage hypertension and address the most significant cardiovascular disease challenge. Through the implementation of the hypertension protocol, frontline workers will hopefully experience relief in managing hypertension cases across Indonesia. We look forward to seeing you at the 19th Indonesian Society of Hypertension Scientific Meeting.

Mega Febrianora – mega.febrianora@gmail.com

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