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O-01 - Impaired β2-Adrenergic Vasodilator Function in Hypertensive Patients with Symptoms of Depression

Miss Bushra Farukh[1], Dr Luca Faconti[1], Dr Ryan J McNally[1], Professor Phil J Chowienczyk[1]

[1]King's College London, London, United Kingdomrly Career Researcher Abstracts Part 1, Conference Suite 1C, September 18, 2023, 13:30 - 15:00

Introduction:

Hypertension complicated by affective disorders may be characterised by high sympathetic activity. We investigated whether symptoms of depression may be associated with impaired endothelium-dependent β_2-adrenergic vasodilator responses [1].

Methods:

Hypertensive subjects with no previous history of diabetes or cardiovascular disease were recruited. Detailed medical history and baseline characteristics including blood pressure (BP), heart rate (HR), routine biochemistry including C-reactive protein (CRP) and low-density lipoprotein (LDL) were obtained during a single study visit. Plasma concentrations of normetadrenalines (NM) were measured as a marker of resting sympathetic activity. Depression symptom severity was assessed using the Patient Health Questionnaire-9 (PHQ-9). The pulse wave response to the β_2-adrenergic vasodilator salbutamol (PWRS) was assessed using radial tonometry to measure the change in augmentation index after inhalation of 200µg salbutamol from a metered dose inhaler with spacer device.

Results:

85 hypertensive individuals (64% male) with (mean ± SD) age of 43.6 ± 13.1 years were recruited. 75% of the population were on pharmacological treatment for hypertension. Mean PHQ-9 score was 7.7 ± 5.9, consistent with a high prevalence of depression. After adjusting for confounders (age, sex, smoking status, BP, CRP, LDL, treatment for hypertension), PWRS was inversely related to PHQ-9 score (β= 0.408, P<0.001). Depression score was also significantly associated with NM (β= 0.617, P<0.001), however after adjusting for NM, the association between PWRS and PHQ-9 was no longer significant (β= 0.324, P=0.131).

Conclusions:

Our results suggest that in hypertensive subjects with depression, an impaired endothelium-dependent β_2-adrenergic vasodilator response is mediated by a high level of sympathetic activity and could contribute to cardiovascular complications.

Disclosures:
N/A

References:

[1] Wilkinson IB, Hall IR, MacCallum H, et al. Pulse-wave analysis: clinical evaluation of a noninvasive, widely applicable method for assessing endothelial function. *Arterioscler Thromb Vasc Biol*. 2002;22(1):147-152. doi:10.1161/hq0102.101770

O-02 - Multi-Organ Phenotypes of Offspring Born Following Hypertensive Disorders of Pregnancy: A Systematic Review

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Introduction:

Exposure to hypertensive disorders of pregnancy (HDP) is associated with an increased risk of cardiovascular and neurological diseases in the offspring later in life. However, less is known about their potential impact on multi-organ phenotypes in the offspring before these diseases develop. This review aims to determine the association of fetal exposure to maternal HDP with multi-organ structural or functional changes across developmental stages by comparing offspring from HDP to offspring from normotensive or uncomplicated pregnancies.

Methods:

Electronic database search was performed in Ovid/MEDLINE, EMBASE, CENTRAL, Scopus, WoS, CINAHL, and ClinicalTrials.gov until February 2023. All unique results were independently screened by two authors. Studies reporting on organ structure or function in HDP offspring compared to a control population were included. Outcomes were extracted from these studies. The risk of bias was assessed using the Newcastle-Ottawa Scale.

Results:

We identified 56 studies (39064 participants) that met the inclusion criteria. Nineteen studies investigated fetuses, eleven neonates, eleven infants, ten children, two adolescents, and three adults with low to moderate risks of bias. We could not perform a quantitative synthesis due to substantial heterogeneity and the unavailability of Z-score data. Compared to the unexposed group, HDP offspring were demonstrated to have higher left and right ventricular mass, more impaired mitral E/A ratio, higher biventricular myocardial performance index, lower left ventricular strain, and preserved left ventricular ejection fraction. HDP offspring also had smaller occipital and

parietal vessels, thicker aortic intima-media, lower flow-mediated dilation, and decreased retinal arteriolar-to-venular ratio.

Conclusions:

Our systematic review found that there is evidence of multi-organ structural and functional changes in HDP offspring. The evidence base should therefore be strengthened through well-designed and conducted prospective cohort studies. Early screening for HDP offspring may identify those who require preventive strategies to reduce later life cardiovascular disease risk.

Disclosures:

None

References:

None

O-03 - Soluble Guanylate Cyclase Stimulators and Activators Attenuate Production of sFlt-1 and Improve Vascular Function in Placental Ischaemia-Induced Hypertensive Pregnant Rats

Dr Bhavisha Bakrania[1], Dr Frank Spradley[2], Dr Bijalben Patel[2], Dr Peter Sandner[3], Professor Joey Granger[2]

[1]University Of Queensland, Brisbane, Australia, [2]University of Mississippi Medical Centre, Jackson, United States of America, [3]Bayer AG, Wuppertal, Germany

Introduction:

Preeclampsia is a pregnancy disorder associated with hypertension, endothelial dysfunction, excess anti-angiogenic factors (sFlt-1), and depletions in nitric oxide production. Nitric oxide is critical for healthy pregnancy as it binds to soluble guanylate cyclase (sGC) to facilitate vasodilation. A novel drug, sGC stimulators and activators, may have therapeutic benefit in preeclampsia by increasing nitric oxide signalling, but have not been tested before. The aim of this study was to determine whether sGC modulators attenuate sFlt-1 production and improve endothelial function in the reduced uterine perfusion pressure (RUPP) model of preeclampsia.

Methods:

Placental villous bundles were isolated from healthy pregnant rats and plated with Matrix Matrigel Basement Membrane. sGC stimulator and activator (n=6/group, 30 μM) was added to media of treatment groups. Explants were exposed to 1% oxygen (24h). To determine whether sGC modulators reduced circulating sFlt-1 and improved endothelial function, Sham/RUPP rats were treated with either placebo, sGC stimulator- or activator-supplemented diets from gestational day (GD) 14 to 19 (n= 5-11/group). Blood pressure, sFlt-1 and endothelial function (wire myography) were measured on GD19.

Results:

sGC activator treatment produced the most profound effect to reduce sFlt-1 production (Untreated 4699±942 pg/mL; sGC activator 3247±1402 pg/mL; $P<0.01$). Placental ischaemia significantly increased mean arterial pressure (Sham+P, 105±9 mmHg; RUPP+P, 126±13 mmHg; $P<0.05$), which was attenuated by treatment with the sGC activator (RUPP+sGC-A, 107±8 mmHg; $P<0.05$). Placental ischaemia induced endothelial dysfunction in uterine arteries (% relaxation, Sham+P, 92±2 %; RUPP+P, 34±12%,

P<0.05) that was restored in the sGC activator treated group (RUPP+sGC-A, 103±2%, P<0.05). Improved endothelial function was associated with reduced circulating sFlt-1.

Conclusions:

The results of this study demonstrate that increasing sGC activity attenuates sFlt-1 production from the placenta and improves endothelial function. In conclusion, these findings suggest there is a therapeutic potential for treating preeclampsia with sGC modulators.

Disclosures:
None

References:

O-04 - Diastolic Function in Children with CKD: An Ad Hoc Analysis in HOT-KID RCT

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Introduction:

Relationship between blood pressure control and diastolic function in children with chronic kidney disease (CKD) is uncertain.

Methods:

An Ad hoc analysis was performed in HOT-KID RCT (ISRCTN25006406): children with pre-dialysis CKD (n=124), mean eGFR 81.7 (SD 26.8) ml/min/1.73m^2, were randomised to standard treatment (auscultatory office systolic blood pressure target between the 50th-75th percentiles) and intensive treatment (systolic target <40th percentile), with median follow-up of 38.7 (IQR 28.1, 52.2) months.[1] Diastolic function was assessed from echocardiographic measures of mitral inflow E/A ratio, Tissue Doppler imaging e' and E/e' ratio by a blinded observer.

Results:

Throughout follow-up, mean systolic/diastolic (SD) blood pressure in the intensive-treatment group was 103/60 (10/10) mmHg, z-score 0.06/-0.27 (0.88/1.09) and 107/64 (10/12) mmHg, z-score 0.19/0.004 (0.80/1.16) in the standard-treatment group (all P<0.001 for SBP, DBP). At baseline, there was no significant difference of E/A, e' and E/e' between standard and intensive treatment groups. There was significant average annual reduction in E/A ratio in the standard compared to the intensive treatment group: -0.21 (95% confidence interval [CI]: -0.35 to -0.07, p=0.003). (figure 1 and table 1) However, the average annual changes in e' (-0.005, 95%CI: -0.01 to 0.001, p=0.102) and E/e' ratio (0.26, 95%CI: -0.05 to 0.56, p=0.093) were similar between standard and intensive treatment groups. Intensive blood pressure treatment was not associated with significantly worse renal outcomes or greater adverse effects.

Conclusions:

These results suggest that haemodynamic diastolic filling pattern as measured by E/A ratio in children with CKD is closely related to blood pressure control.

Disclosures:
None

References:

1. Sinha MD, Gu H, Douiri A, Cansick J, Finlay E, Gilbert R, *et al.* Intensive compared with less intensive blood pressure control to prevent adverse cardiac remodelling in children with chronic kidney disease (HOT-KID): a parallel-group, open-label, multicentre, randomised, controlled trial. *Lancet Child Adolesc Health* 2022. doi: 10.1016/S2352-4642(22)00302-9

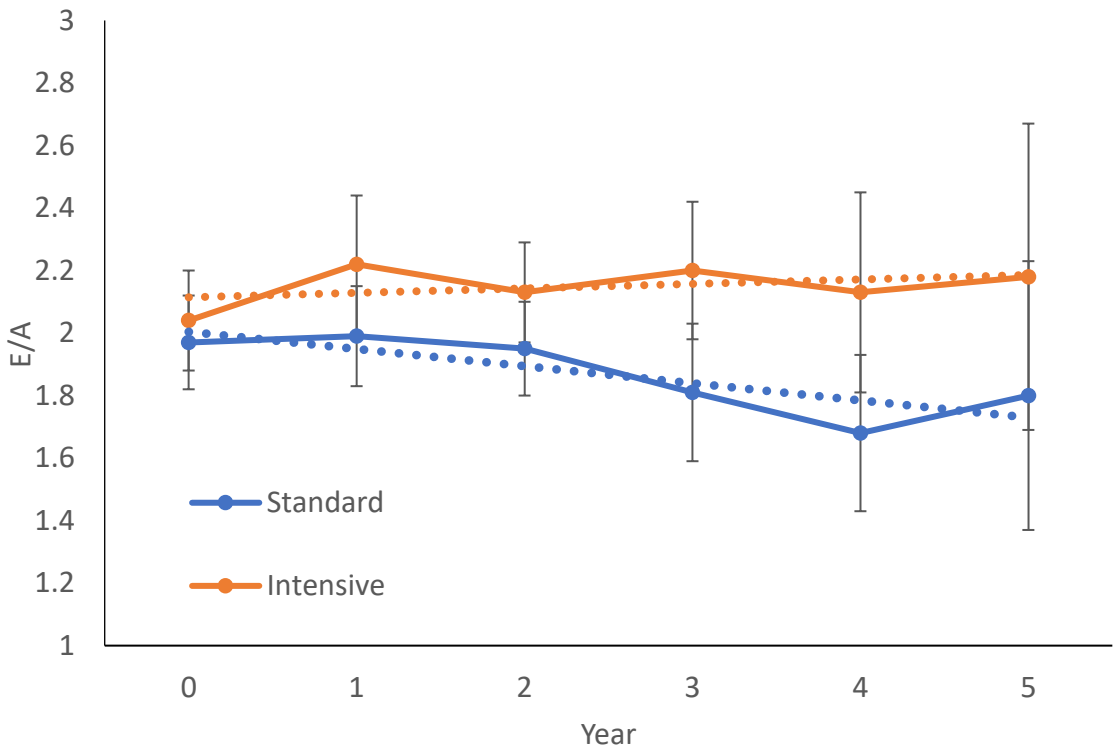

Figure 1. E/A ratio over time by a linear mixed effects model for repeated measures. At the final follow up visits the majority of patients had not reached 5-year of study participation, which accounts for the sharp decrease in numbers available between year 4 and 5.

Table 1. E/A ratio over time in the intention to treat population

E/A		Standard		Intensive	Difference	p
Change in mean E/A per year (95% CI)					-0.21 (-0.35, -0.07)	**0.003**
Baseline (n=60, 64)	n=60	1.97 (1.82, 2.11)	n=64	2.04 (1.87, 2.20)	-0.07 (-0.29, 0.15)	0.532
Year 1 (n=54, 50)	n=54	1.99 (1.83, 2.15)	n=50	2.22 (2.00, 2.43)	-0.23 (-0.49, 0.03)	0.083
Year 2 (n=43, 45)	n=43	1.95 (1.79, 2.10)	n=45	2.13 (1.96, 2.31)	-0.19 (-0.43, 0.05)	0.117
Year 3 (n=28, 32)	n=28	1.81 (1.59, 2.03)	n=32	2.20 (1.98, 2.42)	-0.39 (-0.70, -0.09)	**0.012**
Year 4 (n=17, 21)	n=17	1.68 (1.43, 1.93)	n=21	2.13 (1.82, 2.45)	-0.46 (-0.86, -0.05)	**0.029**
Year 5 (n=7, 9)	n=7	1.80 (1.38, 2.23)	n=9	2.18 (1.69, 2.67)	-0.37 (-0.99, 0.24)	0.216

O-05 - The Effects of Angiotensin Receptor Blockers and Calcium Channel Blockers on Pulse Wave Velocity and their Implications for Cardiovascular Prevention and Management: A Systematic Review and Network Meta-Analysis of RCT

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Introduction:

Pulse wave velocity (PWV) is a widely used measure of arterial stiffness, and its reduction has been associated with improved outcomes in patients with CVD. However, there is uncertainty regarding the comparative effectiveness of different ARBs and CCBs in reducing PWV and improving CVD outcomes. Therefore, this network meta-analysis (NMA) aims to compare the effects of different ARBs and CCBs on PWV and their implications for CVD prevention and management.

Methods:

PubMed, Web of Science, Scopus, EMBASE and Clinicaltrials.gov databases were searched for RCTs to identify relevant articles published until June 2022. We performed a NMA to estimate the relative effects of each intervention on PWV and major adverse cardiovascular events (MACE). The results of the NMA were expressed as standardized mean differences (SMD) in PWV and odds ratios (OR) for MACE. Heterogeneity was evaluated using Cochran's Q test and the I2 test. The quality of the evidence was assessed using the GRADE approach.

Results:

A total of 26 RCTs involving 2,660 patients were included in the NMA. Among ARBs, losartan had the largest effect size (SMD 1.44 m/s, 95% CI: -2.08 to -0.81). Among CCBs, amlodipine had the largest effect size (SMD 1.38 m/s, 95% CI: -2.11 to -0.65). However, there was significant heterogeneity and inconsistency among the included studies ($\tau 2 = 0.7096$; I2 = 82.9% (95% CI =0% to 92.6%). In terms of MACE, the results showed no significant differences between the interventions.

Conclusions:

In conclusion, ARBs and CCBs are both effective in reducing PWV, with losartan and amlodipine showing the largest effect sizes. These findings have important implications for the prevention and management of CVD, as reducing arterial stiffness is an important therapeutic target for improving cardiovascular outcomes.

Disclosures:
No Disclosure.

References:
Database links

O-08 - Unravelling Hypertension Endotypes through Organ-on-a-Chip Culture Systems Utilising Patient-Derived Cells

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Introduction:

Hypertension, a leading global health issue, is a complex and heterogeneous condition, with diverse underlying pathophysiological mechanisms. Identifying distinct hypertension endotypes can lead to improved personalised medicine strategies and targeted therapies. We aim to elucidate hypertension endotypes using patient-derived cells in the Organ-On-a-Chip (OOaC) culture systems, which provides genuine replication of renal tubular pathophysiology and allows for functional and pharmaceutical research.

Methods:

Urine-derived renal tubular epithelial cells (uRTEC) and blood outgrowth endothelial cells (BOEC) were isolated from urine and blood samples freshly collected from healthy volunteers and patients from tubular disease/hypertension clinics by methods previously described [1,2]. uRTEC and BOEC cells were applied in a three-lane, micro-plate-based microfluidic chip platform OrganoPlate (Mimetas, Leiden, Netherland) adjacently following manufacture's protocol with modifications on the constitution of the extracellular matrix gel.

Results:

Patient-derived renal tubules and blood vessel endothelium formed in the OrganoPlate channel on an average of 5-7 days of culture. Barrier integrity assay in the OrganoPlate using fluorescent probes confirmed tight junctions between cells. qPCR of the cell lysate showed these tubules expressed the distal convoluted tubule specific marker NCC (SLC12A3).

Conclusions:

These preliminary data demonstrate that patient-derived uRTEC and BOEC were able to form tubule/blood vessel-like structures in the OrganoPlate. Given these samples are primary cells from patients, we propose this OOaC

model will dynamically reflect *in vivo* human renal physiology with tubule-capillary interaction. We highlight the potential of OOaC culture systems combined with patient-derived cells to uncover hypertension endotypes and pave the way for personalised medicine approaches. It can be employed to screen a panel of anti-hypertensive drugs, revealing varying drug efficacies and toxicity profiles among the different endotypes with continuous monitoring of disease progression. This innovative methodology has the potential to revolutionize the diagnosis and treatment of hypertension, ultimately reducing the global burden of this complex disease.

Disclosures:
No

References:

1. Ikeda, K., Kusaba, T., Tomita, A., Watanabe-Uehara, N., Ida, T., Kitani, T., Yamashita, N., Uehara, M., Matoba, S., Yamada, T., Tamagaki, K., 2020. Diverse Receptor Tyrosine Kinase Phosphorylation in Urine-Derived Tubular Epithelial Cells from Autosomal Dominant Polycystic Kidney Disease Patients. Nephron 144, 525–536. https://doi.org/10.1159/000509419
2. Ormiston, M.L., Toshner, M.R., Kiskin, F.N., Huang, C.J.Z., Groves, E., Morrell, N.W., Rana, A.A., 2015. Generation and Culture of Blood Outgrowth Endothelial Cells from Human Peripheral Blood. J Vis Exp 53384. https://doi.org/10.3791/53384

O-09 - A systematic review and meta-analysis and a cross sectional study to assess the effects of potassium supplementation on the renin-angiotensin-aldosterone system and blood pressure

Dr Ryan McNally[1], Miss Bushra Farukh[1], Professor Phil Chowienczyk[1], Dr Luca Faconti[1]

[1]King's College London, London, United Kingdom

Introduction:

Dietary potassium decreases blood pressure (BP) but can also stimulate aldosterone production [1]. However, the magnitude (and clinical significance) of potassium-dependent regulation of aldosterone in humans is not fully characterised. Here we perform a (1) systematic review and meta-analysis of potassium supplementation effect on aldosterone, renin and BP in adults alongside a (2) cross-sectional multi-ethnic study to explore the relationship between potassium intake and aldosterone in hypertension.

Methods:

(1) The meta-analysis was carried out in accordance with PRISMA guidelines using three databases. (2) Self-defined black or white hypertensives were recruited from a specialist hypertension clinic and had aldosterone, renin and a 24-hour urinary potassium collected.

Results:

(1) Of 6395 articles, 124 full-text articles were assessed for eligibility and 36 met the pre-specified inclusion criteria (of which 18/36 also reported systolic BP). Potassium supplementation caused a significant decrease in systolic BP (mean difference [95% CI] -3.69 mmHg [-4.91, -2.46], P<0.001) and increase in serum (+0.37 [0.23, 0.52] mmol/L, P<0.001) and urinary potassium (+55 [45.0, 65.1] mmol/24hr, P<0.001). There was an increase in aldosterone (standardised difference 0.414 [0.291, 0.537], P<0.001) but no change in renin (+0.03 [-0.07,0.54], P=0.54). Meta-regression showed a significant positive correlation between Δ aldosterone and Δ serum potassium (P<0.001) which was unrelated to Δ BP (P=0.28). From the regression line we calculated that a change of 270.5 [176.2, 364.8] pmol/L in aldosterone level was expected for each 1 mmol/L change in serum potassium. (2) In 469 subjects (72% black), there was a positive association

between potassium excretion and aldosterone in black (β = 0.200, P = 0.014) but not in white individuals (P = 0.531).

Conclusions:

Despite a BP-lowering effect, potassium supplementation increases aldosterone level without affecting renin concentration. In subjects with hypertension, urinary potassium appears to be related with aldosterone only in black subjects.

Disclosures:

References:1. Dreier R, Andersen UB, Forman JL, Sheykhzade M, Egfjord M, Jeppesen JL. Effect of Increased Potassium Intake on Adrenal Cortical and Cardiovascular Responses to Angiotensin II: A Randomized Crossover Study. J Am Heart Assoc 2021; 10:e018716.

O-10 - Association of obesity and high blood pressure with adverse left ventricular structure and function in children with primary hypertension

Miss Syeda Bilgrami[1], Dr Manish Sinha[1]

[1]Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom

Introduction:

Primary hypertension in children can lead to adverse structural and functional changes to the heart. There are few systematically performed studies evaluating prevalence and determinants of adverse left ventricular changes in childhood primary hypertension.

Methods:

Retrospective cross-sectional cohort study analysing M-mode, tissue doppler and speckle
tracing echocardiography data of children and adolescents aged 5-18 years with clinically diagnosed primary hypertension. Hypertension was confirmed with 24-hour ambulatory blood pressure monitoring, as per European Society of Hypertension Guidelines.

Results:

99 children with, aged 14.2 ± 2.6 years, including 55 boys, of whom 54% were White and 30% were on antihypertensive medication. 25 children had left ventricular hypertrophy (LVH), with concentric hypertrophy and concentric remodelling being most prevalent. There was a significant correlation of both office systolic blood pressure and 24-hour mean arterial pressure (MAP) with left ventricular mass index (LVMI) ($r=0.303$, $p=0.002$; and $r=0.282$, $p=0.007$ respectively), and of 24-hour MAP with global longitudinal strain (GLS) ($r=0.255$, $p=0.04$) and E/e' ($r=0.226$, $p=0.044$). Following multivariable regression analysis, body mass index (BMI) had a significant association with LVMI ($\beta = 0.473$, $P < 0.001$) and GLS ($\beta = 0.461$, $P < 0.001$); and 24-hour MAP with GLS ($\beta = 0.348$, $P =0.002$) and E/e' ($\beta = 0.342$, $P =0.008$).

Conclusions:

Left ventricular hypertrophy is highly prevalent in hypertensive children. In them, blood pressure and BMI are independent predictors of adverse left ventricular structural and functional outcomes and important therapeutic targets. Longitudinal studies are required to explore the impact of active

interventions in hypertensive children on the reduction of adverse cardiac changes and future cardiovascular risk.

Disclosures:
None

References:
Sinha, M. D., Azukaitis, K., Sladowska-Kozłowska, J., Bårdsen, T., Merkevicius, K., Karlsen Sletten, I. S., Obrycki, Ł., Pac, M., Fernández-Aranda, F., Bjelakovic, B., Jankauskiene, A., Litwin, M., & HyperChildNet Working Group (2022). Prevalence of left ventricular hypertrophy in children and young people with primary hypertension: Meta-analysis and meta-regression. *Frontiers in cardiovascular medicine*, *9*, 993513. https://doi.org/10.3389/fcvm.2022.993513

Azukaitis, Karolis1; Rus, Rina2; Sagsak, Elif3; Jankauskiene, Augustina1; Sinha, Manish4; Litwin, Mieczyslaw5; Wg3, Hyperchildnet6. SYSTOLIC AND DIASTOLIC LEFT VENTRICULAR DYSFUNCTION IN CHILDREN WITH PRIMARY HYPERTENSION: A SYSTEMATIC REVIEW. Journal of Hypertension 40(Suppl 1):p e23, June 2022. | DOI: 10.1097/01.hjh.0000835492.86531.79

O-11 - Recruiting participants from "hard to reach" groups, to AIM HY-INFORM: obstacles identified in a Primary Care research site

Dr Jack Roberts[1], Dr David Wingfield[1]

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Introduction:

AIM HY-INFORM seeks to establish if the response to antihypertensive drugs differs by selfdefined ethnicity (1). We at Hammersmith and Fulham Partnership, a Primary Care Network situated based in inner city London, have contributed to AIM HY as a research site since August 2019. Since August 2021, we have been mandated to focus on recruiting participants from traditionally “hard to reach” ethnic groups. Although we have made a material contribution to the overall recruitment of Black participants, we have struggled to recruit from South Asian populations.

Methods:

We analysed the AIM HY’s approved participant recruitment materials, the study protocol, and our own research site’s recruitment strategy, to assess for potential obstacles to recruitment from “hard to reach” groups.

Results:

We identified numerous potential obstacles to recruitment. These included (but were not limited to): 1) unstimulating recruitment letters and text messages, which failed to pique interest in the relevant populations; 2) a verbose participant information leaflet, which may have deterred some with poor English skills or low educational attainment; 3) expectation of high commitment, without a clear incentive or financial reimbursement.

Conclusions:

Recruiting participants into clinical studies from “hard to reach” groups is difficult. However, study design, recruitment materials and strategies could each be optimised to lower barriers to participation. Many obstructions we have identified in AIM HY-INFORM are common to other studies. Steps should be taken by study Sponsors and collaborators to tackle these when

designing future studies, to improve participation across different populations.

Disclosures:

Jack Roberts is a Salaried GP at Hammersmith and Fulham Partnership. He was a SubInvestigator while working on AIM HY-INFORM. David Wingfield is a Partner GP at Hammersmith and Fulham Partnership. He was a Principal Investigator while working on on AIM HY-INFORM.

References:

1. https://www.aimhy.org/

O-12 - Pathway-based genetic risk score analyses identify biological pathways linking together blood pressure and dementia-related brain-MRI traits

Dr Helen Warren[1,2], Osorio Meirelles[3], Dr Claudia Cabrera[1,2], Zhiguang Li[3], Prof Michael Barnes[1,2], Dr Ajay Gupta[1,4], Prof Morris Brown[1], Prof Patricia Munroe[1,2], Prof Mark Caulfield[1,2], Prof Lenore Launer[3]

[1]Centre of Clinical Pharmacology & Precision Medicine, William Harvey Research Institute, Barts and The London Faculty of Medicine and Dentistry, Queen Mary University of London, London, United Kingdom, [2]NIHR Cardiovascular Biomedical Research Centre, Barts and The London Faculty of Medicine and Dentistry, Queen Mary University of London, London, United Kingdom, [3]Intramural Research Program, National Institute on Aging, National Institutes of Health, Baltimore, USA, [4]Barts Blood Pressure Centre of Excellence, St Bartholomew's & Royal London Hospital, London, United Kingdom

Introduction:

Cerebral small vessel disease (CSVD) is highly prevalent and contributes to cognitive impairment and dementia in the elderly. Elevated blood pressure (BP) increases risk for cerebrovascular damage[1], but the related mechanisms are uncertain[2]. Published studies show associations between BP polygenic risk scores (PRS) and brain-MRI (magnetic resonance imaging) endophenotypes of dementia[3]. However, analyses of full genome-wide BP-PRS cannot reveal which biological pathways are involved.

We aim to investigate how our knowledge from BP genetic studies[4] can provide insight into mechanisms linking hypertension and CSVD.

Methods:

Using novel approaches, we constructed genetic risk scores (GRS) based on specific BP-pathways (“BP-path-GRS”). We selected 59 KEGG-database pathways most enriched for BP genes from genome-wide association study (GWAS)-based pathway analysis. Per pathway we listed all k genes, then per gene we extracted the variant most significantly associated with BP from BP-GWAS. Following pairwise Linkage Disequilibrium filtering for independence, these k top variants were combined to construct three “BP-path-GRS” variables per pathway, one for each different BP trait (systolic-BP, diastolic-BP, Pulse Pressure) using BP-trait-specific weights in the GRS from ICBP-GWAS (International Consortium of Blood Pressure).

We tested each of the 177 BP-path-GRS for association with three brain-MRI phenotypes [grey (GM), white (WM) matter, WM hyperintensity (WMH)

volume]. Analyses were performed within n=37,599 UK-Biobank individuals with MRI data.

Results:

27 of 59 BP pathways were significantly associated with at least one brain-MRI trait. Five pathways were robustly associated with WMH, significantly associated for all three BP-path-GRS. Two of these pathways remain jointly independently associated after multivariate stepwise analyses: “Cytomegalovirus” infection and “Endocrine/Calcium-regulating” pathways.

Conclusions:

These results suggest new underlying biological pathways linking hypertension and dementia, which could indicate potential novel drug candidates. Targeting these BP-pathways most strongly associated with brain-MRI traits could lead to strategies to mitigate negative effects of high BP on the brain.

Disclosures:
None

References:

(1) Santisteban MM et al, Hypertension (2023);

(2) Ding J et al, Lancet Neurol (2020);

(3) Sargurupremraj M et al, Nat Comms (2020);

(4) Evangelou et al, Nat Genetics (2018)

O-13 - Effect of diastolic function on exercise tolerance in atrial fibrillation in the community IMPRESS-AF randomised control trial

Dr Eduard Shantsila[1], Dr Alena Shantsila[1], Professor Gregory Lip[1]

[1]University Of Liverpool, Liverpool, United Kingdom

Introduction:

Poor exercise intolerance is common in atrial fibrillation (AF), even in people with preserved left ventricular ejection fraction (LVEF). This study analysed the impact of diastolic dysfunction on peak oxygen consumption (peakVO2) and how blood pressure (BP) influences diastolic function in AF with preserved LVEF.

Methods:

The study analysed diastolic function measured by echocardiography (E/E′ ratio) in participants of double-blind IMPRESS-AF RCT (2-year treatment with spironolactone vs placebo) in patients with AF and preserved LVEF (n=250, age 72±7, 24% female); 207 completed 2-year follow-up (Python 9.3 modules used for analyses).

Results:

During the study period, E/e' median [interquartile range] reduced from 6 [7.7-12.6] to 8.9 [7.0-10.9], p<0.001. On linear regression, higher baseline E/e' predicted lower peakVO2 on univariate analysis (regression coefficient [B]± standard error [SE] -0.31±0.08, p<0.001) and multivariate analysis (B±SE -0.22±0.08, p=0.003, adjusted for age, sex, and treatment with spironolactone). A similar association was observed at 24 months: univariate B±SE -0.31±0.10, p=0.002, multivariate B±SE -0.22±0.10, p=0.02.

Systolic BP reduced from 129 [118-140] to 125 [115-138] mm Hg, p=0.004. Higher follow up systolic BP was associated with higher 24-month E/e' on univariate (B±SE 0.04±0.01, p=0.008) and multivariate (B±SE 0.03±0.01, p=0.028) linear regression. The association between systolic BP and E/e' was supported by the predictive value of changes in systolic BP over the 2-year period for the changes in E/e' (univariate B±SE 0.05±0.02, p=0.001, multivariate B±SE 0.06±0.02, p=0.001)

Diastolic BP reduced from 74 [67-82] to 72 [66-80] mm Hg, p=0.004. Diastolic BP did not predict E/e' (B±SE -0.02±0.02, p=0.44).

Conclusions:

Lower systolic, but not diastolic BP is independently associated with better diastolic function in AF, which in turn was independently related to exercise tolerance, measured by cardiopulmonary exercise testing.
Pharmacological BP reduction by spironolactone does not influence diastolic dysfunction.

Disclosures:

IMPRESS-AF trial was funded by NIRH-EME grant

References:

O-14 - Adiposity over the adult life course and its implications on cardiac structure in later life

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Introduction:

Elevated body mass index (BMI) is associated with elevated left ventricular (LV) mass (LVM) (i.e., LV structure) in cross-sectional studies and there is some evidence for a causal relationship between obesity and cardiac disease including LV hypertrophy. However, the importance of the time of onset of excessive adiposity over the adult life course on future cardiac structure is unknown. We studied the consequences of earlier age of adiposity over the adult life course on subsequent cardiac structure.

Methods:

Participants in the oldest and the longest-running birth-cohort in the UK underwent comprehensive clinical examination including echocardiography and BMI measurements at 60-64 years. BMI had also previously been measured at 20, 26, 36, 43 and 53 years. The relationship between BMI at each of these ages and cardiac structure (LVM, relative wall thickness (RWT), and LVIDd) at 60-64 years was investigated using multivariable linear regression models adjusted for potential confounders.

Results:

Increased BMI from 20y onwards was associated with increased LVM and LVIDd after adjustment for confounders. Associations between BMI at 26y, 43y and 53y and LVM remained after adjustment for BMI at age 60-64y while associations between LVIDd and antecedent BMI at all ages remained after conditioning on current BMI. Increased BMI from 43y onwards was associated with increased RWT, but not when BMI at 60-64y was included in the model.

Conclusions:

Higher BMI (i.e. adiposity) in early adulthood is associated with higher LVM and adverse LV remodelling in later life despite adjusting for current BMI.

Early identification of those with rising BMI (i.e., early adulthood adiposity) may be important to prevent future adverse cardiac target organ damage in later life.

Disclosures:

None.

References:

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O-16 - Nitric oxide given as isosorbide mononitrate improves outcome after lacunar stroke without any effect on blood pressure; the LACI-2 trial

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Introduction:

Lacunar stroke, a form of cerebral small vessel disease (cSVD), causes dependency and cognitive decline/dementia. However, there is no specific treatment to prevent adverse outcomes after lacunar stroke.[1]

Methods:

The LACunar Intervention Trial-2 (LACI-2) was an investigator-initiated prospective randomised open-label blinded-endpoint 2x2 factorial phase IIb trial assessing feasibility, safety and efficacy of isosorbide mononitrate (ISMN, nitric oxide donor acting via cGMP, 25 mg bd) and cilostazol (phosphodiesterase-3 inhibitor preserving cAMP, 100 mg bd) over one year.[2] Adults age >30yrs with clinical lacunar ischaemic stroke, compatible MR/CT brain imaging and capacity to consent, were randomised to ISMN, cilostazol, both, or neither, for one year. Clinical outcomes included function and cognition, and blood pressure (BP).

Results:

LACI-2 recruited 363 (91%) participants (of planned 400) between 2018 and 2022 from 26 UK hospitals. Baseline characteristics were balanced: age 64 years, females 31%, onset to randomisation 79 [27-244] days, blood pressure 143.0/83.0 mmHg.[3] LACI-2 retained 358 (99%) at one year with 95% taking ≥50% of allocated drug. At 1 year, BP (in 46%) was: ISMN 143.0 (19.4)/82.4 (10.5) vs no ISMN 141.5 (18.2)/82.5 (10.2) mmHg (p=0.51/0.77); ISMN/cilostazol 142.5 (18.1)/82.0 (9.6) vs neither 138.5 (18.5)/81.6 (11.9) mmHg (p=0.53/0.87). Combined ISMN-cilostazol vs control reduced dependency (shift in modified Rankin scale, acOR 0.51, 95% CI 0.28-0.93), cognitive impairment (shift in 7-level neurocognitive scale, acOR 0.44, 95% CI 0.23-0.85), improved mood (Zung scale, aMD -6.0, 95% CI -10.8, -1.2) and quality of life (EQ-visual analogue scale, aMD 9.0, 95% CI 3.1-15.0).[4]

Conclusions:

A nitric oxide donor and PDE-3 inhibitor may reduce cSVD complications including dependency and cognitive impairment, especially in combination, but without effects on blood pressure. We will test these in the phase III LACI-3 trial.

Disclosures:
LACI-2 was funded by the British Heart Foundation. The authors have no other relevant disclosures.

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O-17 - Effect of blood pressure and kidney function on progression of arterial stiffening in children with chronic kidney disease

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Introduction:

Chronic kidney disease (CKD) is associated with development of hypertension, which in turn is strongly associated with stiffening of the central elastic arteries. However, the extent of an association between arterial stiffening and kidney function independent of the blood pressure (BP) is not clear. Here we examine the roles of BP and kidney function in development of arterial stiffening in children with CKD, compared to healthy children.

Methods:

Children who had attended for two measurements (mean interval 3.1±1.4 years) of carotid-femoral pulse wave velocity (PWV) as part of the HOTKID study[1] were included (*n*=151, mean age 10.5±3.2 years). Annual progression of PWV (PWV_{AP}) was compared for children with CKD (*n*=106) versus healthy controls (*n*=45), adjusting for mean arterial pressure (MAP), estimated glomerular filtration rate (eGFR) and other risk factors at baseline and follow-up. Multivariable linear regression analyses identified variables significantly associated with PWV_{AP} for each group.

Results:

There was no significant difference in PWV_{AP} between children with CKD and those without, when adjusted for age, height, weight, MAP and eGFR (0.08±0.07(SE) m/s) compared to 0.13±0.04(SE) m/s, $P = 0.59$). In healthy controls, annual progression in MAP (MAP_{AP}) was independently associated with PWV_{AP} ($\beta = 0.55$, $P = 0.01$) , whereas in children with CKD, PWV_{AP} was strongly associated with both baseline MAP and MAP_{AP} ($\beta = 0.24$, $P = 0.016$ and $\beta = 0.45$, $P < 0.001$) but not baseline or change in eGFR.

Conclusions:

Within childhood, there is no demonstrable difference in PWV_{AP} between children with CKD and those without. Kidney function does not appear to affect progression of arterial stiffening, independent of the BP. However, the

strong association between PWV_{AP} and baseline MAP and MAP_{AP} in children with CKD reiterates the need for careful BP control in these patients at increased risk of cardiovascular disease.

Disclosures:

None

References:

1. Sinha MD et al. Intensive compared with less intensive blood pressure control to prevent adverse cardiac remodelling in children with chronic kidney disease (HOT-KID): a parallel-group, open-label, multicentre, randomised, controlled trial. *Lancet Child Adolesc Heal* 2023;**7**:26–36

O-18 - A weight centric approach to blood pressure management: analysis of individual participant level data of clinical trials assessing semaglutide for weight reduction

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Introduction:

Randomised clinical trials (RCTs) assessing semaglutide (STEP trials), an anti-obesity medications targeting the incretin pathway, have resulted in significant weight reduction in patients without diabetes. We have performed a meta-analysis of these trials which reported a 5 mmHg reduction in systolic BP in treated participants who were on average normotensive. We aimed to determine if there was a greater reduction in SBP for hypertensive participants.

Methods:

Access to participant level data was approved by the sponsor's independent review board for the STEP 1, 3 and 4 trials. All trials compared semaglutide 2.4mg to placebo. Initial analysis created groups according to baseline BP (>130/80 mmHg), anti-hypertensive treatments and a prior diagnosis of hypertension. Those meeting all three criteria were categorised into the Hypertension group. Subgroups were those with a BP >130/80 mmHg at baseline (Subgroup1), >140/90 mmHg (Subgroup2) and resistant hypertension (Subgroup3). Adjustments of antihypertensives were identified.

Results:

Mean baseline SBP was 125 mmHg (n=3136). The mean difference in SBP change between the treatment (n=2109) and placebo (n=1027) groups was -4.89 mmHg. The mean difference was -4.62 mmHg for the Hypertension group. The effect was consistent across all subgroups (Subgroup1 -5.05 mmHg; Subgroup2 -4.84 mmHg; Subgroup3 -5.15 mmHg). Anti-hypertensives were more frequently decreased in the treated versus placebo participants of Subgroup3 (26.5% v 5.9%). These figures were 7.1% and 3.4% for the full cohort. The between group difference in body weight reductions was similar across the subgroups (11%-13%) in favour of the semaglutide groups.

Conclusions:

This initial analysis of three large RCTs examining the effect of semaglutide on body weight did not find a larger BP reduction in those with hypertension or resistant hypertension. This finding may in part be due to differences in decreases of anti-hypertensive medications. More detailed statistical analysis will now be performed.

Disclosures:
None

References:

O-19 - Individual titration of amlodipine during the Personal CovidBP study reduced blood pressure regardless of background antihypertensive therapy

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Introduction:

This study tested patient use of a drug-device combination of a smartphone application (App) to record blood pressure (BP), drug (amlodipine) dose daily during the COVID-19 pandemic. Here we examine the effect of background level of antihypertensive therapy on response to titration of amlodipine, as the entry criteria for the study were very broad- excluding those already on 10mg of amlodipine or more, but little else.

Methods:

In this community-based trial with remote monitoring and remote medical management from the investigational site, hypertensive participants aged 18 years + with poor BP control (prior 7 day mean of 135 mmHg systolic BP or above and/or 85 mmHg diastolic BP and above) were enrolled to intervention with open label dose titration over 14 weeks, allowing personalized dosing of liquid amlodipine (1–2 mg steps from 1–10 mg daily).

Results:

205 patients were enrolled into the intervention group between October 2020 and July 2021. Average BP in intervention fell from 141/87 to 131/81 (difference −10/6 $p < 0.001$). Even low doses or small increments: 1 or 2 mg amlodipine or 5 mg to 6 mg, produced meaningful BP responses. Here we report that the addition of amlodipine during the study reduced blood pressure regardless of background level of antihypertensive medication: No antihypertensive (n=49), Amlodipine monotherapy (n=26),

Amlodipine in combination therapy (n=36) or Other antihypertensive medication (n=94). The response slopes were comparable, and mean reductions in SBP were consistent across groups: -11.9 (95% CI: -13.8 to -9.9); -10.9 (-13.6 to -8.2); -8.5 (-10.7 to -6.3); -11.7 (-13.1 to -10.3), respectively.

Conclusions:

Although previous meta-analyses have suggested that the effect of addition of antihypertensive medications is largely additive (Law et al) our real-world remote care study produced results consistent with this view-treatment titration was effective regardless of level background therapy, or stage along the hypertension care pathway.

Disclosures:

References:

Law et al BMJ 2003;326:1427

O-20 - Erythrocyte glycocalyx sensitivity to sodium, inflammation and endothelial function in subjects with primary hypertension

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Introduction:

The erythrocyte glycocalyx sensitivity to sodium (eGCSS) is a novel test of sodium-induced damage on the erythrocyte surface which correlate with plasma renin (surrogate marker of sodium-induced volume expansion in primary hypertension (HT)) [1]. However, eGCSS is based on erythrocyte aggregation properties and may be affected by inflammation and endothelial vasodilatory capacity. Here we explore the relationship between inflammatory markers and eGCSS, renin, body composition and vascular function in a cohort of subjects with HT.

Methods:

Subjects with HT had clinical assessment, biochemistry investigations (including eGCSS, ESR, CRP, full blood count) and body composition (bioelectrical impedance scale (TANITA)) measured. In a subsample, endothelial function was evaluated as the pulse wave response to salbutamol (PWRS) calculated as change of radial augmentation index after inhalation of 200 mcg of salbutamol.

Results:

84 subjects (53 male), age (mean±SD) 44.6±13 years, 63 on pharmacological treatment were recruited. Blood pressure (mean ± SD) 150.2 ± 21.0 mmHg, BMI 30.2 ± 5.5 Kg/m^2. Contrary to CRP and white blood cell count, ESR was strongly correlated with eGCSS (β=0.462, P<0.001) but not with renin (P=0.402). ERS and CRP were also positively correlated with fat mass (β=0.531 and β=0.531 respectively, P<0.001 for both) but eGCSS was not. In a subsample (n=49) endothelial function was evaluated and we found no correlation between inflammation markers and PWRS. However, eGCSS was negatively correlated with PWRS (β=-0.334, P=0.020). After stratifying individuals according to PWRS, we found that subject with impaired endothelial function (n=15) had lower eGCSS compared to the other group (81±28% vs 101±28%, P=0.023).

Conclusions:

Inflammation markers are related with fat mass in subjects with hypertension. Inflammation affects aggregation properties of erythrocytes but is not related with renin and preliminary data suggest a negative correlation between eGCSS and endothelial function for which further investigations are warranted.

Disclosures:

None

References:

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O-21 - Association of Sleep Duration and Very Short-Term Blood Pressure Variability

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Introduction:

Sleep disorder is associated with poor cardiovascular outcomes and hypertension while blood pressure (BP) variability can be the manifestation of vascular disorder. We aim to examine the association between sleep hours and BP variability.

Methods:

A cross-sectional study using 2017-2020 NHANES included 3 consecutive BP measurements on one physical examination visit. BP variability was assessed by average real variability (ARV) of systolic and diastolic BP (AVR-SBP and AVR-DBP) defined as an average of absolute difference in consecutive BP. The association of quartile (Q) of sleep duration either during weekdays or weekends and AVR was examined by multiple linear regression.

Results:

Of 9,693 adult participants, mean±SD age was 50±19 years old and 51% were female. Mean±SD (IQR) sleep duration during weekdays and weekends were 7.6±1.7 (7, 8.5) and 8.4±1.8 (7, 9.5) hours, respectively. Mean of the three average SBP and DBP were 124.2±19.3 and 74.3±11.6 mmHg, respectively. Mean (IQR) of ARV-SBP was 4.4±3.7 (2, 5.5) and of ARV-DBP was 3.3±3.4 (1.5, 4) ($P < 0.001$). Compared to Q1 of the sleep duration on the weekdays, there was no significantly lowered ARV-SBP and ARV-DBP in Q2 through Q4, while there was a negatively graded association of higher Q of sleep duration during weekends with AVR-SBP and AVR-DBP (SBP: β_{Q4} -0.34; 95%CI -0.60, -0.09; DBP: β_{Q3} -0.21; 95%CI -0.39, -0.05; and β_{Q4} -0.23; 95%CI -0.42, -0.05). After adjusting for

age, gender, race/ethnicity, body mass index, mean SBP and DBP, only the Q3 and Q4 of the sleep duration on the weekends was significantly associated with ARV-DBP (DBP: β_{Q3} -0.19; 95%CI -0.37, -0.02; β_{Q4} -0.20; 95%CI -0.39, -0.01).

Conclusions:

Sleep duration during the weekends was inversely associated with ARV-DBP. While the underlying mechanism remains unknown, possible vascular stiffness related to DBP, and long-term clinical outcomes related to sleep and ARV are required additional studies.

Disclosures:

None

References:

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O-22 - Events Avoided and Lifetime Cost-Effectiveness of Radiofrequency Renal Denervation in a UK Setting based on Randomized Study Data

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Introduction:

Catheter-based radiofrequency renal denervation (RDN) is an interventional treatment for uncontrolled hypertension. In this study, events avoided and the lifetime cost-effectiveness of RDN in the UK NHS healthcare system were evaluated using an updated costing model and data from randomized, sham-controlled studies.

Methods:

A decision-analytic model based on multivariate risk equations was used to project clinical events, quality-adjusted survival and costs over 10 years and lifetime. Risk reduction associated with changes in office systolic blood pressure (oSBP) in the treatment group was estimated based on a published meta-regression of 47 hypertension RCTs [1]. The base case effect size of -4.8 mmHg oSBP (observed vs. sham control) was derived from a meta-analysis of all randomized sham-controlled studies (identified through a registered systematic search (PROSPERO 2022 CRD42022374189)). An additional scenario considered an effect size of -6.9 mmHg based on the SPYRAL HTN-ON MED study's subset of patients on 3 or more antihypertensive medications treated outside the United States (OUS). Costs were based on 2022 NHS England costs, and a 3.5% discount rate was applied for both costs and health effects. The incremental cost-effectiveness ratio (ICER) was evaluated against the NICE willingness-to-pay threshold of £20-30,000 per quality-adjusted life year (QALY) gained.

Results:

Over 10 years, clinical event reductions with RDN were 12%, 20%, and 28% for MI, stroke, and heart failure. RDN resulted in an increase in health benefit over a patient's lifetime, adding 0.35 QALYs (0.44 based on ON MED OUS data) at a concurrent cost increase of £4,779 (£4,293), resulting in an ICER of £13,629 (£9,795) per QALY gained.

Conclusions:

Based on model-based projections and latest trial evidence, radiofrequency RDN can be expected to lead to meaningful reductions in clinical events while providing good health-economic value in the UK healthcare system, with an ICER substantially below NICE willingness-to-pay thresholds.

Disclosures:

ASPS reports personal fees from Medtronic, Boston Scientific, Recor Medical, and Philips. MDL reports research grants from Medtronic & Recor Medical and is a consultant to Medtronic, Recor, Ablative Solutions, CVRx, Rox Medical, Vascular Dynamics, and Aktiia. Wing Tech Inc. (JBP, KC, and AMR) provided health-economic consulting services to Medtronic to develop the underlying analysis model.

References:

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O-23 - Pregnancy-associated changes in urinary uromodulin excretion in chronic hypertension

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Introduction:

Pregnancy involves major adaptions in renal haemodynamics, tubular, and endocrine functions. Hypertensive disorders of pregnancy are a leading cause of maternal mortality and morbidity. Uromodulin is a renal protein that is associated with hypertension and kidney diseases. Here we study the role of uromodulin excretion in hypertensive pregnancy.

Methods:

Urinary uromodulin was measured by ELISA in 146 pregnant women with treated chronic hypertension (n=118) and controls (n=28). We studied non-pregnant and pregnant Wistar Kyoto (WKY) and Stroke Prone Spontaneously Hypertensive rats (SHRSP) (n=8/strain) and, n=7 and n=8 pregnant SHRSPs was also treated with nifedipine and propranolol monotherapy, respectively.

Results:

In pregnant women, chronic hypertension diagnosis, increased maternal body mass index, black maternal ethnicity and elevated systolic blood pressure at the first antenatal visit were significantly associated with lower urinary uromodulin-to-creatinine ratio. In rodents, pre-pregnancy urinary uromodulin excretion was 2-fold lower in SHRSP than WKY. During pregnancy, the urinary uromodulin excretion rate gradually decreased in WKY (a 2-fold decrease), whereas a 1.5-fold increase was observed in SHRSP compared to pre-pregnancy levels. Neither antihypertensive changed urinary uromodulin excretion rate in pregnant SHRSP.

Conclusions:

In summary, we demonstrate pregnancy-associated differences in urinary uromodulin excretion between chronic hypertensive and normotensive pregnancies. Further research is needed to fully understand uromodulin physiology in human pregnancy and establish uromodulin's potential as a biomarker of renal function in pregnancy.

Disclosures:

None

References:

O-24 - Understanding the measurement of postural hypotension in primary care - national survey

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Introduction:

Postural hypotension (PH), the drop in blood pressure (BP) on standing, is associated with falls, cognitive decline and all-cause mortality. PH diagnostic criteria require lying-to-standing BP measurements. PH occurs in 19% of older primary care patients but is infrequently (<1%) recorded in routine English primary care data, suggesting that checking for, and/or recording of, PH is under-utilised.

We aimed to understand current PH measurement and management strategies in primary care practices across England.

Methods:

Clinical Research Networks circulated an online survey to primary care staff who undertake BP measurements from 10th August until 8th December 2022. Responses were summarised as percentages and/or median (inter-quartile ranges (IQR)) and chi^2 tests. Mixed-effect logistic regression models are underway exploring response variation by professional and practice characteristics.

Results:

Responses from 703 practitioners (predominantly doctors (51%), nurses (28%) and healthcare assistants (HCAs; 11%), plus pharmacists, paramedics and others) in 242 practices were received; median age 45 (IQR 38 to 53) years, 72% female. Doctors (97%) and nurses (92%) reported checking for PH more often than HCAs (82%) or pharmacists (80%; p<0.001). Most reported checking for PH when symptoms are present (97%). Other reasons for checking, such as patients being aged over 80 (24%) or during reviews for hypertension (17%), medication (12%), or diabetes (11%) were more commonly undertaken by allied health professionals than doctors (p<0.001). Standing BP measurements are feasible, usually (77%) following a sitting BP assessment; 22% use lying-to-standing measurements, 64% observe a rest period (median 5 (2 to 5)

minutes) before sitting or lying measurements and 1 (IQR 1 to 2) standing BP measurements are made, usually (66%) within the first minute of standing.

Conclusions:

Findings suggest that most primary care PH assessments do not meet current guideline criteria. Results from this survey will inform future national guidelines to support PH detection.

Disclosures:
This study is funded by NIHR SPCR FR3.

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The views expressed are those of the authors and not necessarily those of the NIHR, the NHS or the Department of Health.

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O-25 - Methodological considerations for improving arterial stiffness measurements in clinical practice

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Introduction:

The assessment of aortic stiffness (AS) is viewed as a comprehensive indicator of all the damage inflicted on the arterial wall over the years in response to both conventional and less established cardiovascular risk factors. As a result, it enables the early detection of vascular aging, and enhances cardiovascular risk stratification in both primary and secondary prevention. Its use in clinical practice is however limited.

Methods:

We present the results of multiple studies that aimed to reduce intra-subject variability, and enhance measurement precision of carotid-femoral pulse wave velocity (cfPWV), the gold standard for assessing arterial stiffness.[1-2] We also explored how to mitigate the difficulties associated with measuring cfPWV using two types of devices: applanation tonometer Sphygmocor and oscillometric device Arteriograph. Lastly, we investigated a significant factor to consider for longitudinal studies that concentrate on AS and are conducted during the COVID pandemic.[3]

The study designs included: a) a randomised crossover design with 12 repeated measurements collected in a wide range of participants over 2 weeks in which different experimental conditions resembling those in a clinical practice were investigated, and b) a pre-post study investigating long term changes in AS after the COVID-19 infection resolved. All analyses were sufficiently powered.

Results:

We present a set of methodological considerations aimed at reducing the issues associated with measuring cfPWV in clinical settings and improving measurement accuracy. These recommendations address protocol procedures, experimental settings, outdoor meteorological conditions, and COVID-19 infection as a confounding factor. We also address the resolution of studies for detecting minimal clinically important difference in cfPWV.

Conclusions:

Despite its potential, cfPWV is not commonly used in clinical practice. The presented findings have the potential to improve the reproducibility of

cfPWV measurements in future studies and thus increase the power of longitudinal studies.

Disclosures:
None

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O-26 - Prevalence and characteristics of low-renin hypertension in a treatment-naive primary care population

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Introduction:

Low-renin hypertension (LRH) is an under-recognised subtype of hypertension. This study aims to identify the prevalence of LRH in treatment-naïve hypertensive patients in primary care and to compare baseline characteristics to people with normal renin hypertension (NRH) and primary aldosteronism (PA).

Methods:

In a prospective cohort primary care study, plasma aldosterone and renin concentration were measured using immunoassay in treatment-naïve hypertensive adults (1). Participants with an elevated aldosterone-renin ratio (ARR≥70pmol/mU) were invited to undergo a saline suppression test (SST) (2). Patients were then classified as having PA (defined as ARR≥70 and post-SST aldosterone >140pmol/L supine or >170pmol/L seated), LRH (defined as plasma renin concentration <10mU/L but did not meet the criteria for PA) and NRH.

Results:

Of 261 participants, 70 (26.8%) had LRH. The mean age of participants with LRH was higher compared to those with NRH; 57.0±12.8 years versus 51.8±14.0 years, $p<0.05$ but similar to those with PA (53.6±11.6 years, $p=0.15$). Median plasma aldosterone was lower compared to NRH or PA groups; 280pmol/L (216-369) versus 320pmol/L (231-472) and 419pmol/L (360-530) respectively, $p<0.01$. Clinical parameters (sex, blood pressure, body mass index), biochemistry (serum sodium, bicarbonate, creatinine) and metabolic markers (fasting glucose and lipids) were similar in each subgroup.

Conclusions:

A significant proportion of people with hypertension in the community have low plasma renin concentration without meeting the current screening and diagnostic criteria for PA. Aside from older age and lower plasma aldosterone concentrations, the LRH group was clinically and biochemically

similar to the NRH and PA groups. Further research is needed to understand the pathophysiology and optimal treatment for LRH.

Disclosures:
None.

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O-27 - Prediting The Risk Of Fracture Associated With Antihypertensive Treatment: Development Of The Stratify-Fracture Prediction Model

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Introduction:

The benefits of antihypertensive treatment are well known, but less is known about the potential risk of harm from antihypertensive medication. This current study aimed to develop a prediction model for an individual's risk of hospitalisation or death from fracture.

Methods:

Participants aged ≥40 years, registered to an English primary care practice within the Clinical Practice Research Datalink (CPRD), with a least blood pressure reading between 130-179 mmHg were included the study. The outcome investigated was fracture leading to hospital admission or death within 10 years. Model predictors were pre-specified based on the literature and expert opinion. The model was derived using a Fine-Gray competing risks approach to account for death from other causes.

Results:

A total of 1,772,601 participants were included, with a mean age of 59 years and median follow-up of 6.1 years. The strongest predictors for fracture were heavy drinker [SHR: 1.79, 95%CI: 1.68-1.92], chronic liver disease [SHR: 1.62, 95%CI: 1.47-1.80], female gender [SHR: 1.59, 95%CI: 1.57-1.62], and previous fractures [SHR: 1.57, 95%CI: 1.54-1.60]. Other significant predictors associated with fracture such as underweight [SHR: 1.25, 95%CI: 1.19-1.31], osteoporosis [SHR: 1.30, 95%CI: 1.25-1.34] and rheumatoid arthritis [SHR: 1.30, 95%CI: 1.24-1.37], multiple sclerosis [SHR: 1.41, 95%CI: 1.29-1.55], epilepsy [SHR: 1.37, 95%CI: 1.29-1.46], Parkinson's disease [SHR: 1.29, 95%CI: 1.22-1.36], and prescribed medications such as anticonvulsants [SHR: 1.37, 95%CI: 1.29-1.44]. All antihypertensive medications were significantly associated with the risk of fracture with the exception of Alpha-blockers and Beta-blockers.

Conclusions:

In this study, a number of predictors routinely available in UK electronic health records were identified which allowed estimation of an individual's baseline risk of fracture. If the model found to perform well in external validation, then such model could be used to provide personalised estimates of an individual's risk of fracture from antihypertensive treatment, thus facilitating more informed treatment choices.

Disclosures:

This study is supported by the Welcome Trust/Royal Society via a Sir Henry Dale Fellowship.

References:

None

P-01 - Incidental intra-hepatic cholangiocarcinoma in a patient with mineralocorticoid excess syndrome of unknown origin

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[2]School of cardiovascular medicine and science, Kings Collage London , London, United Kingdom

Introduction:

AH a 46-year-old south Asian lady was referred to our unit for hypertension and hypokalaemia. Biochemistry revealed an aldosterone/renin ratio not suggestive of primary hyperaldosteronism (elevated renin) with unremarkable biochemistry tests. Renal/ adrenal pathologies were excluded with a dedicated MRA and the patient was discharged by Endocrine colleagues because of no underlying endocrine causes of hypokalaemia. In an attempt to exclude aortic vascular abnormalities, she performed an aorta MRA highlighting an incidental liver lesion then characterized as non-metastatic cholangiocarcinoma. She was treated with embolization, right hepatectomy and post-op chemotherapy as curative treatment. Her antihypertensive regime was changed from amlodipine 10mg + Sando K to Spironolactone 50 mg with optimum control of blood pressure and normokalaemia. This case highlights a not defined mineralocorticoid excess syndrome in a patient with a hepatic tumour responding to spironolactone. The role of an upregulated renin-angiotensin-aldosterone system in the carcinogenesis process is still debatable.

P-02 - Post Transplant Diabetes Mellitus in Renal Transplant Recipient

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Introduction:

Initially referred to as NODAT (New-Onset Diabetes after Transplantation), post-transplant diabetes mellitus has now been grouped together since 2014 under the term PTDM (Post-Transplant Diabetes Mellitus) The aim of our work is to report a case whose evolution was fatal despite diagnosis and early treatment

Methods:

40-year-old man, renal transplant from a living related donor who is his brother (6 mismatch), hypertensive, smoker, with a family history of diabetes, a weight, with an BMI <30, pre-transplant hypertriglyceridemia without metabolic syndrome. The patient had an induction treatment then oral maintenance with immunosuppression, and corticosteroid. Immediate post-transplant hyperglycaemia treated by lifestyle and dietary measures with complete regression. After 6 months, the occurrence of an opportunistic pulmonary tuberculosis infection associated with a PTDM where posed.

Results:

Our patient had predisposing risk factors to develop PTDM such as non-modifiable factors and modifiable factors. The diagnosis was made on two examinations: high fasting blood sugar and HbA1C > 6.5%, the patient's evolution was marked by the occurrence of opportunistic infections and CMV after the diagnosis of PTDM which suggests the possibility that the latter promotes infections, as well as for cardiovascular complications. A few months later, the patient died following a cerebral meningitis but having kept a normal function of the graft.

Conclusions:

Diabetes post-kidney transplantation are frequent and multifactorial pathologies, unequivocal risk factors exist, making it possible to guide the screening of predisposed subjects, because they are most often associated with the occurrence of a large number of complications, involving the renal, cardiovascular, infectious spheres

Disclosures:

No conflicts of interest

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P-03 - Not just hypertension: endocrine-related cardiomyopathy in a young patient with obesity?

Mr Matthew Knight[1], Dr Wiaam AlHasani[1], Prof Philip Chowienczyk[1], Dr Luca Faconti[1]

[1]King's College London, London, United Kingdom

Introduction:

MK is a 26-year-old African origin lady recently diagnosed with hypertension. On examination: grade III obesity (BMI 41.3 Kg/m^2, 43.1% body fat) and BP 121/93 mmHg on treatment with amlodipine 5 mg od. Her cardiac US showed normal left ventricular mass but impaired global systolic function. A cardiac MRI confirmed systolic dysfunction of non-ischemic origin (EF 44%) with no sign of hypertrophy or atria enlargement. Her treatment was changed to lisinopril 20 mg and a diagnosis of obesity-related cardiomyopathy was suggested. At one-year follow up despite optimal BP control and decreased BMI (39 Kg/m^2) no improvement was noted (cardiac MRI). An endocrine screening was arranged showing normal plasma/urine metadrenalines with an aldosterone/renin ratio repeated twice and elevated in one sample. Adrenal MRI positive for an 11 mm adenoma/myelolipoma. The patient was lost in follow up and a recently repeated an MRI showed worsening of the remodelling and systolic impairment.

P-04 - Management of hypertensive crisis in emergency department and outpatients.

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Introduction:

Hypertensive crises (HC) can be life-threatening 1. NICE guidelines recommend that patients with severe hypertension (HTN) undergo a same-day review, including assessment of end organ damage (EOD) - fundus examination, urine dipstick, electrocardiogram, and eGFR. If no EOD is identified patients do not require urgent treatment and can be reassessed in 7 days. There are no robust data to suggest that starting urgent treatment to reduce BP is better, unless there is evidence for acute end organ damage, but NICE highlight this as a recommended research area [2]. 2.The objective of this study was to evaluate the management plans for patients presenting to the hospital with suspected HC [1].

Methods:

A retrospective survey of electronic medical records (EMR) of patients (>18 years), excluding pregnancy-related HTN over 3 months.

Results:

23 patients met inclusion and exclusion criteria (mean age: 68.2 +/- 11.5, 57% Males). 74% had pre-existing HTN. 6 patients with evidence of acute EOD including hypertensive heart failure (2), hypertensive encephalopathy (2), and malignant HTN (1) were started appropriately on IV medications. 73% of patients who had no EOD (acute severe hypertension) were started on oral medications. 69% of patients did not have ocular fundus examination findings noted. The mean length of hospital stay was 3 days (0-20), 91% admitted, and 91% had a follow-up arranged. In 6 out of 9 patients prescribed amlodipine, the admission was based solely on nonresponse assessed within 1-4 hours of administration of amlodipine.

Conclusions:

Building management guidance into EMR such as hypertension evaluation order set might pre-empt evaluation and coding. Availability of fundus photography in emergency departments might improve the detection of malignant HTN and alternative oral agents such as modified release nifedipine might help reduction in BP if that is considered important in each scenario [3,4].

Disclosures:

None.

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P-05 - Prevalence of non-steroidal anti-inflammatory drugs (NSAIDs) use in patients with hypertensive crisis

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Introduction:

One of the known risk factors for hypertensive crisis (HTN-C) is non-steroidal anti-inflammatory drugs (NSAIDs) which their adverse effects can lead to end-organ damage such as gastrointestinal and cardiovascular issues.

Data on the correlation between NSAIDs and HTN-C are limited. In this study, we determined the prevalence of NSAID use among patients with HTN-C.

Methods:

This cross-sectional study was conducted among patients primarily diagnosed with HTN-C referred to Alzahra hospital, Shiraz, Iran from April 2015 to April 2020. Demographic data, as well as information regarding the past medical and drug history and laboratory findings, were gathered retrospectively. The history of NSAID use was also asked specifically. The collected data were analyzed by SPSS and the *P*-value less than .05 was considered significant.

Results:

A total of 257 patients with a mean age of 59.73 were enrolled in the study. Among them 62.6% were female and 137 patients (53.33%) used NSAIDs. Of all the patients 197 (76.7%), 71 (27.6%), and 46 (17.9%) suffered from concomitant hypertension (HTN), diabetes mellitus (DM), and ischemic heart disease (IHD) respectively. A significant relation was found between having each of the comorbidities and NSAIDs use among HTN-C patients (*P*-value <.0001). NSAIDs use was also significantly higher in older age (*P*-value <.0001) and female gender (*P*-value <.02). A high rate of NSAID use was seen among HTN-C patients with a positive significant correlation to concomitant diseases, older age, and female gender.

Conclusions:

The Results of our study indicate that NSAIDs are frequently used among those with HTN-C and considering the adverse effects of these medication

our results further highlight the importance of monitoring and limiting NSAID use.

Disclosures:

All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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P-06 - Management of Hypertension in Same day Emergency Care

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Introduction:
Systemic arterial Hypertension is one of the most important risk factors associated with mortality and morbidity worldwide and increases the risk of stroke and cardiovascular events. The aim of audit was to evaluate our practice in management of patients with Hypertension referred to same day emergency care unit (SDEC).

Methods:

Using electronic database search, patients search was performed by the medical team using the code 'HTN or Hypertension' for the patients referred to SDEC between March to September'22. During this period, 77 patients were identified, but 2 of them self-discharged (N=75).

Results:

Among the patients referred, majority of them were from Emergency department (N=32, 42%), GP (N = 30, 40%), and remaining from various other units. 25% of patients referred to SDEC did not fit the severe Hypertension criteria as per the NICE guidelines (and so do not require same day specialist review)[1]. Among those referred, majority of them were asymptomatic (81%). 4 patients were admitted from SDEC (5%) due to symptoms. Discrepancy was noted in clinical assessments such as absence of documented neurological examination (N =33, 44%), fundoscopy (N=46, 61%). Significant variations were noted even in basic investigations such as absence of urine analysis (N =22, 29%) and electrocardiogram (N = 24, 32%). It was noteworthy that 3 patients presented with acute coronary syndrome and 1 patient was admitted with Lacunar stroke within 3 months of discharge from SDEC.

Conclusions:

The audit demonstrated significant number of inappropriate referral and discrepancy in assessments, investigation, and management of patients with hypertension. Given the significance of hypertension management in avoiding end organ damage, clear plan for follow-up/re-assessment needs to be in place. We recommend a standardized protocol of referral and management of patients with severe hypertension on SDEC and medical units.

Disclosures:
No conflict of interest.

References:

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P-07 - Climate Chaos and Cardiovascular Consequences: A Scoping Review of the Hypertension Connection

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Introduction:

Climate change is one of the most significant public health issues facing the world today. The global rise in temperature, extreme weather events, and environmental degradation can have serious implications for human health. One area of concern is the impact of climate change on cardiovascular disease, particularly hypertension. This systematic review aims to assess the existing literature on the impact of climate change on hypertension and its associated risk factors.

Methods:

We conducted a comprehensive literature search using PubMed and Cochrane databases. The search was limited to articles published in English until March 2023. The keywords used were "climate change," "global warming," "hypertension," and "blood pressure,". The search yielded 28 articles of which five articles met the inclusion criteria.

Results:

The results of the review suggest that climate change can have a significant impact on hypertension and its associated risk factors. The rising global temperature can lead to an increase in blood pressure, particularly in vulnerable populations such as the elderly, those with pre-existing cardiovascular disease, and those living in low-income countries. Extreme weather events, such as heatwaves and floods, can also increase the risk of hypertension by causing physical and psychological stress. Additionally, environmental degradation resulting from climate change, such as air pollution and exposure to toxins, can also contribute to the development of hypertension. Lifestyle factors, such as diet and physical activity, are closely linked to both hypertension and climate change. Changes in food availability, water resources, and temperature can impact dietary habits and physical activity levels, leading to an increased risk of hypertension.

Conclusion:

Climate change is a significant risk factor for hypertension and its associated risk factors. There is a need for further research into the

mechanisms underlying this association and the development of targeted interventions to mitigate the impact of climate change on cardiovascular health. Policymakers must prioritize climate change mitigation efforts to prevent further harm to human health.

P-08 - Associations of inter-arm blood pressure difference with treatment response in newly treated hypertension

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Inter-arm blood pressure difference and cardiovascular risk estimation in primary care

Data Supplement

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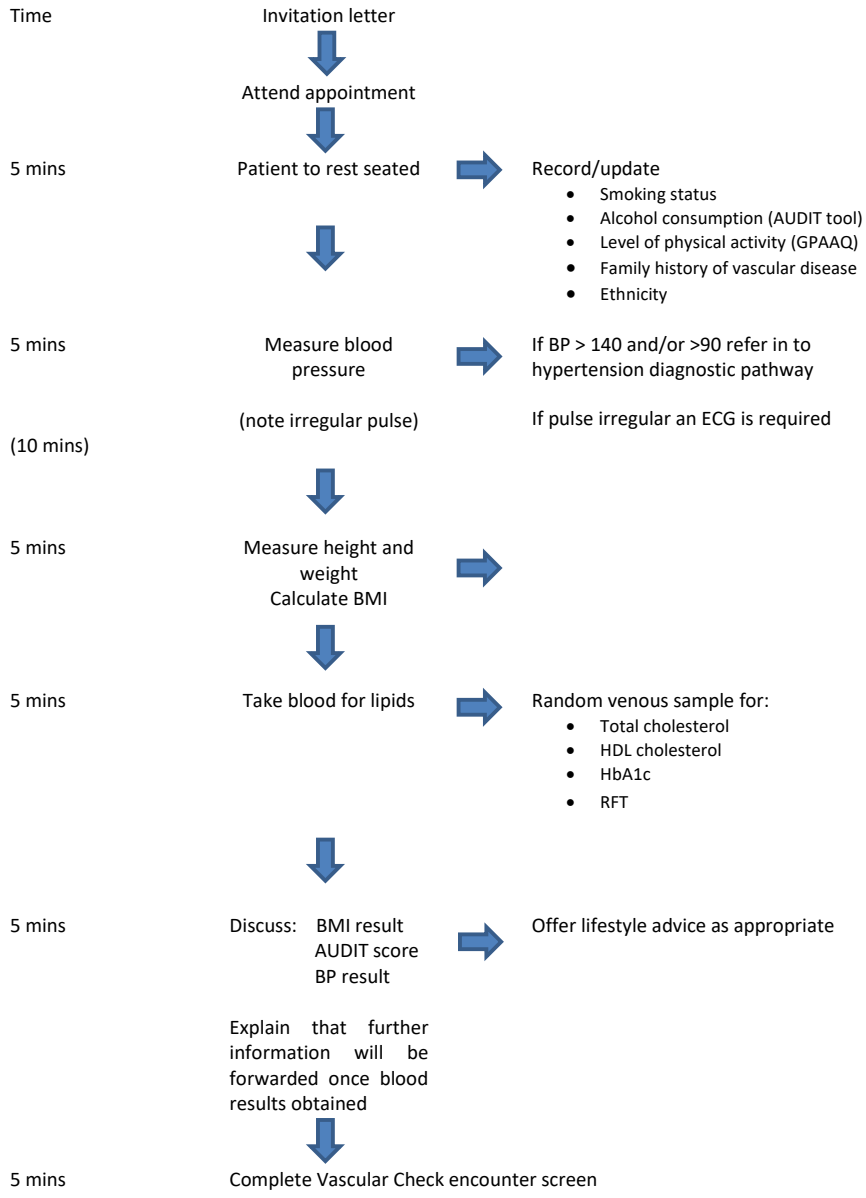

Figure S1 – The Health Check Protocol

Systolic inter-arm difference (mmHg)	ASCVD ten-year risk score (%)													
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1		1.0	2.0	3.0	4.0	5.0	6.0	7.1	8.1	9.1	10.1	11.1	12.1	13.1	14.1
2		1.0	2.0	3.0	4.1	5.1	6.1	7.1	8.1	9.1	10.2	11.2	12.2	13.2	14.2
3		1.0	2.0	3.1	4.1	5.1	6.1	7.2	8.2	9.2	10.2	11.3	12.3	13.3	14.3
4		1.0	2.1	3.1	4.1	5.2	6.2	7.2	8.3	9.3	10.3	11.4	12.4	13.4	14.4
5		1.0	2.1	3.1	4.2	5.2	6.2	7.3	8.3	9.4	10.4	11.4	12.5	13.5	14.6
6		1.0	2.1	3.1	4.2	5.2	6.3	7.3	8.4	9.4	10.5	11.5	12.6	13.6	14.7
7		1.1	2.1	3.2	4.2	5.3	6.3	7.4	8.4	9.5	10.6	11.6	12.7	13.7	14.8
8		1.1	2.1	3.2	4.3	5.3	6.4	7.4	8.5	9.6	10.6	11.7	12.8	13.8	14.9
9		1.1	2.1	3.2	4.3	5.4	6.4	7.5	8.6	9.6	10.7	11.8	12.9	13.9	15.0
10		1.1	2.2	3.2	4.3	5.4	6.5	7.6	8.6	9.7	10.8	11.9	13.0	14.0	15.1
11		1.1	2.2	3.3	4.4	5.4	6.5	7.6	8.7	9.8	10.9	12.0	13.1	14.1	15.2
12		1.1	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0	12.1	13.2	14.2	15.3
13		1.1	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0	12.1	13.2	14.4	15.5
14		1.1	2.2	3.3	4.4	5.6	6.7	7.8	8.9	10.0	11.1	12.2	13.3	14.5	15.6
15		1.1	2.2	3.4	4.5	5.6	6.7	7.8	9.0	10.1	11.2	12.3	13.4	14.6	15.7
16		1.1	2.3	3.4	4.5	5.6	6.8	7.9	9.0	10.2	11.3	12.4	13.5	14.7	15.8
17		1.1	2.3	3.4	4.5	5.7	6.8	8.0	9.1	10.2	11.4	12.5	13.6	14.8	15.9
18		1.1	2.3	3.4	4.6	5.7	6.9	8.0	9.2	10.3	11.4	12.6	13.7	14.9	16.0
19		1.2	2.3	3.5	4.6	5.8	6.9	8.1	9.2	10.4	11.5	12.7	13.8	15.0	16.1
20		1.2	2.3	3.5	4.6	5.8	7.0	8.1	9.3	10.4	11.6	12.8	13.9	15.1	16.2

Figure S2 - Modified ASCVD ten-year risk score (%) accounting for systolic inter-arm difference, based on analyses of 14,480 subjects of White or African American ethnicity, without pre-existing cardiovascular disease; age range 45 to 79.[1]

Systolic inter-arm difference (mmHg)	Qrisk2 ten-year risk score (%)													
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1		1.0	2.0	3.1	4.1	5.1	6.1	7.2	8.2	9.2	10.2	11.3	12.3	13.3	14.3
2		1.0	2.1	3.1	4.2	5.2	6.3	7.3	8.4	9.4	10.5	11.5	12.5	13.6	14.6
3		1.1	2.1	3.2	4.3	5.3	6.4	7.5	8.5	9.6	10.7	11.8	12.8	13.9	15.0
4		1.1	2.2	3.3	4.4	5.5	6.5	7.6	8.7	9.8	10.9	12.0	13.1	14.2	15.3
5		1.1	2.2	3.3	4.5	5.6	6.7	7.8	8.9	10.0	11.1	12.3	13.4	14.5	15.6
6		1.1	2.3	3.4	4.5	5.7	6.8	8.0	9.1	10.2	11.4	12.5	13.6	14.8	15.9
7		1.2	2.3	3.5	4.6	5.8	7.0	8.1	9.3	10.4	11.6	12.8	13.9	15.1	16.2
8		1.2	2.4	3.5	4.7	5.9	7.1	8.3	9.5	10.6	11.8	13.0	14.2	15.4	16.6
9		1.2	2.4	3.6	4.8	6.0	7.2	8.4	9.6	10.8	12.1	13.3	14.5	15.7	16.9
10		1.2	2.5	3.7	4.9	6.1	7.4	8.6	9.8	11.1	12.3	13.5	14.7	16.0	17.2
11		1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5
12		1.3	2.5	3.8	5.1	6.4	7.6	8.9	10.2	11.5	12.7	14.0	15.3	16.6	17.8
13		1.3	2.6	3.9	5.2	6.5	7.8	9.1	10.4	11.7	13.0	14.3	15.6	16.9	18.1
14		1.3	2.6	4.0	5.3	6.6	7.9	9.2	10.6	11.9	13.2	14.5	15.8	17.1	18.5
15		1.3	2.7	4.0	5.4	6.7	8.1	9.4	10.7	12.1	13.4	14.8	16.1	17.4	18.8
16		1.4	2.7	4.1	5.5	6.8	8.2	9.6	10.9	12.3	13.6	15.0	16.4	17.7	19.1
17		1.4	2.8	4.2	5.6	6.9	8.3	9.7	11.1	12.5	13.9	15.3	16.7	18.0	19.4
18		1.4	2.8	4.2	5.6	7.1	8.5	9.9	11.3	12.7	14.1	15.5	16.9	18.3	19.7
19		1.4	2.9	4.3	5.7	7.2	8.6	10.0	11.5	12.9	14.3	15.8	17.2	18.6	20.1
20		1.5	2.9	4.4	5.8	7.3	8.7	10.2	11.6	13.1	14.6	16.0	17.5	18.9	20.4

Figure S3 - Modified QRISK2 ten-year risk score (%) accounting for systolic inter-arm difference, based on analyses of 9,641 subjects without pre-existing cardiovascular disease; age range 25 to 84.[1]

Systolic inter-arm difference (mmHg)	Framingham ten-year risk score (%)													
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1		1.0	2.0	3.0	4.0	5.0	6.0	7.1	8.1	9.1	10.1	11.1	12.1	13.1	14.1
2		1.0	2.0	3.0	4.1	5.1	6.1	7.1	8.1	9.1	10.2	11.2	12.2	13.2	14.2
3		1.0	2.0	3.1	4.1	5.1	6.1	7.2	8.2	9.2	10.2	11.3	12.3	13.3	14.3
4		1.0	2.1	3.1	4.1	5.2	6.2	7.2	8.3	9.3	10.3	11.4	12.4	13.4	14.5
5		1.0	2.1	3.1	4.2	5.2	6.2	7.3	8.3	9.4	10.4	11.5	12.5	13.5	14.6
6		1.0	2.1	3.1	4.2	5.2	6.3	7.3	8.4	9.4	10.5	11.5	12.6	13.6	14.7
7		1.1	2.1	3.2	4.2	5.3	6.3	7.4	8.5	9.5	10.6	11.6	12.7	13.8	14.8
8		1.1	2.1	3.2	4.3	5.3	6.4	7.5	8.5	9.6	10.7	11.7	12.8	13.9	14.9
9		1.1	2.1	3.2	4.3	5.4	6.4	7.5	8.6	9.7	10.7	11.8	12.9	14.0	15.0
10		1.1	2.2	3.2	4.3	5.4	6.5	7.6	8.7	9.7	10.8	11.9	13.0	14.1	15.2
11		1.1	2.2	3.3	4.4	5.5	6.5	7.6	8.7	9.8	10.9	12.0	13.1	14.2	15.3
12		1.1	2.2	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0	12.1	13.2	14.3	15.4
13		1.1	2.2	3.3	4.4	5.5	6.6	7.8	8.9	10.0	11.1	12.2	13.3	14.4	15.5
14		1.1	2.2	3.3	4.5	5.6	6.7	7.8	8.9	10.0	11.2	12.3	13.4	14.5	15.6
15		1.1	2.2	3.4	4.5	5.6	6.7	7.9	9.0	10.1	11.2	12.4	13.5	14.6	15.7
16		1.1	2.3	3.4	4.5	5.7	6.8	7.9	9.1	10.2	11.3	12.5	13.6	14.7	15.9
17		1.1	2.3	3.4	4.6	5.7	6.8	8.0	9.1	10.3	11.4	12.6	13.7	14.8	16.0
18		1.1	2.3	3.4	4.6	5.7	6.9	8.0	9.2	10.3	11.5	12.6	13.8	14.9	16.1
19		1.2	2.3	3.5	4.6	5.8	6.9	8.1	9.3	10.4	11.6	12.7	13.9	15.1	16.2
20		1.2	2.3	3.5	4.7	5.8	7.0	8.2	9.3	10.5	11.7	12.8	14.0	15.2	16.3

Figure S4 - Modified Framingham ten-year risk score (%) accounting for systolic inter-arm difference, based on analyses of 23,802 subjects without pre-existing cardiovascular disease; age range 20 to 79.[1]

Reference

1. Clark CE, Warren FC, Boddy K, et al. Associations Between Systolic Interarm Differences in Blood Pressure and Cardiovascular Disease Outcomes and Mortality. *Hypertension* 2021;77:650-61. doi: 10.1161/HYPERTENSIONAHA.120.15997 [published Online First: 21/12/2020]

Tables avaialble at: https://medicine.exeter.ac.uk/research/healthresearch/primarycare/interpress-ipd/riskadjustmenttables/ (accessed 26/11/21)

P-09 - The effects of angiotensin receptor blockers (ARBs) and calcium channel blockers (CCBs) on pulse wave velocity and their implications for cardiovascular prevention and management network meta-analysis of RCT

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Introduction:

Pulse wave velocity (PWV) is a widely used measure of arterial stiffness, and its reduction has been associated with improved outcomes in patients with CVD. However, there is uncertainty regarding the comparative effectiveness of different ARBs and CCBs in reducing PWV and improving CVD outcomes. Therefore, this network meta-analysis (NMA) aims to compare the effects of different ARBs and CCBs on PWV and their implications for CVD prevention and management.

Methods:

PubMed, Web of Science, Scopus, EMBASE and Clinicaltrials.gov databases were searched for RCTs to identify relevant articles published until June 2022. We performed a NMA to estimate the relative effects of each intervention on PWV and major adverse cardiovascular events (MACE). The results of the NMA were expressed as standardized mean differences (SMD) in PWV and odds ratios (OR) for MACE. Heterogeneity was evaluated using Cochran's Q test and the I2 test. The quality of the evidence was assessed using the GRADE approach.

Results:

A total of 26 RCTs involving 2,660 patients were included in the NMA. Among ARBs, losartan had the largest effect size (SMD 1.44 m/s, 95% CI: -2.08 to -0.81). Among CCBs, amlodipine had the largest effect size (SMD 1.38 m/s, 95% CI: -2.11 to -0.65). However, there was significant heterogeneity and inconsistency among the included studies ($\tau 2 = 0.7096$; I2 = 82.9% (95% CI =0% to 92.6%). In terms of MACE, the results showed no significant differences between the interventions.

Conclusions:

In conclusion, ARBs and CCBs are both effective in reducing PWV, with losartan and amlodipine showing the largest effect sizes. These findings have important implications for the prevention and management of CVD, as reducing arterial stiffness is an important therapeutic target for improving cardiovascular outcomes.

Disclosures:
No Disclosure.

References:
Database links

P-10 - A systematic review and meta-analysis of efficacy and safety of mineralocorticoid receptor antagonist for the treatment of low-renin hypertension

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Introduction:

Hypertension is a major cause of premature death. Concerningly the optimal treatment of low-renin hypertension (LRH), present in 30% of hypertensive individuals, is not known (1). LRH likely reflects a state of excess salt, expanded volume or mineralocorticoid receptor (MR) activation. Therefore, targeted treatment with MR antagonists (MRA) may be beneficial. The objective of this systematic review was to assess the efficacy of MRA therapy in LRH.

Methods:

MEDLINE, Embase and Cochrane databases were searched (from inception to 19/12/2022) for randomised controlled trials of adults with LRH that compared the efficacy of MRA to placebo or other antihypertensive treatments. The risk of bias was assessed using the Cochrane risk of bias tool. A meta-analysis was performed using a random-effects model to estimate the difference in blood pressure. The certainty of the evidence was assessed using the GRADE approach. The protocol is registered on PROSPERO CRD42022318763.

Results:

From the 1611 records identified, 17 studies met the inclusion criteria with a total sample size of 1043 participants. Seven studies were assessed as having a high risk of bias. Meta-analysis indicated that MRA reduced systolic blood pressure by 6.8 mmHg (95% confidence interval -9.6 to -4.1) and 4.8 mmHg (95% confidence interval -10.6 to 1.1) compared to renin-angiotensin-aldosterone system (RAAS) inhibitors and diuretics, respectively. The certainty of the evidence was assessed as moderate and very low.

Conclusions:

MRA is effective in lowering blood pressure in LRH. Importantly, when compared to commonly prescribed classes of antihypertensives, such as

RAAS, they have a greater blood pressure-lowering effect. Translation to clinical practice is limited by the uncertainty of evidence.

Disclosures:

None.

References:

1. Funder JW. Primary aldosteronism and low-renin hypertension: a continuum? Nephrology, dialysis, transplantation: official publication of the European Dialysis and Transplant Association - European Renal Association.2013;28:1625-1627

P-11 - Temporal phenotypes of target organ damage associated with hypertensive pregnancies: an evidence synthesis without meta-analysis.

Miss Hannah Cutler[1], Logan Barr[2], Dr Prenali Drishti Sattwika[1,3], Annabelle Frost[1], Mohanad Alkhodari[1,4], Dr Jamie Kitt[1], Dr Winok Lapidaire[1], Dr Adam J Lewandowski[1], Professor Paul Leeson[1]

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Introduction:

Hypertensive disorders of pregnancy are associated with an increased risk of developing a range of vascular disorders in later life. Typically, blood pressure normalises initially after pregnancy. Therefore, traditional risk factors are not enough to identify women postpartum at greatest risk for future disease, who may gain benefit from more intensive prevention advice.

Methods:

A systematic search was performed in Ovid/MEDLINE, EMBASE and ClinicalTrials.gov up to and included February 2023. Reference lists of included articles were also searched. A synthesis without meta-analysis was conducted using a vote-counting approach based solely on the direction of effect, regardless of statistical significance. Risk of bias was assessed for each outcome domain and only higher quality studies were used for final analysis.

Results:

A total of 57 higher quality articles were found identifying progression of target organ damage during and after hypertensive disorders of pregnancy. These papers demonstrated that women with hypertensive disorders of pregnancy have increased risk of left ventricular hypertrophy, white matter lesions, proteinuria, aswell as changes in the microvasculature which are identifiable in the retina. These changes are first evident during pregnancy and then differ in distinct patterns of prevalence in postpartum follow up studies for up to a decade after deliver

Conclusions:

This review has identified initial evidence of distinct temporal patterns of target organ damage related to hypertensive pregnancy that extend from

pregnancy into later life. Future multimodal imaging studies will be of value to characterise hypertensive disease progression in more detail.

Disclosures:

The authors do not have any competing interests and they have not declared a specific grant for this review from any funding agency in the public, commercial or not-for-profit sectors.

References:

None.

P-12 - Effects of Beetroot Juice on Blood Pressure in Hypertension According to ESH Guidelines: A Systematic Review and Meta-Analysis

Mrs Rebecca Grönroos, Professor Robert Eggertsen, Dr Susanne Bernhardsson, Dr Marcus Praetorius Björk

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Introduction:

One third of adults suffer from hypertension, which is the leading modifiable risk factor of cardiovascular disease [1]. Nitrate-rich beetroot juice (BRJ) may reduce blood pressure (BP) in a mixed population [2,3,4]. In this review and meta-analysis, we aim to investigate the effect of BRJ on BP in adults with hypertension according to the European Society of Hypertension (ESH) Guidelines (clinic BP ≥ 140/ ≥ 90 mmHg) and whether BRJ can be considered as an adjunct to hypertension drug treatment.

Methods:

PubMed, SCOPUS, Medline Ovid, Cinahl and Cochrane Library were searched to find RCTs of BRJ versus placebo, water or no intake. Risk of bias was assessed using a standardized appraisal instrument from the Swedish public authority SBU, which is based on the Cochrane risk-of-bias tool for randomized trials (Rob2). Pooled BP effect size was calculated using random effects models and we applied a minimum important difference (MID) of – 5 mmHg, to the analysis. Certainty of evidence was assessed using GRADE. A protocol was published a priori (PROSPERO (CRD42022371775).

Results:

Nine trials (264 patients) were included. BRJ yielded a significant reduction in clinic systolic BP (SBP) compared with placebo group MD – 6.05 mmHg (95% CI – 7.64, – 4.45; moderate certainty), heterogeneity was low, I^2=5%. There was no significant effect on clinic diastolic BP (DBP) or 24-h SBP or DBP, heterogeneity was moderate to high.

Conclusions:

Daily ingestion of 200-600 mg nitrate from BRJ probably reduces clinic SBP. The mean effect surpassed the MID of – 5 mmHg and can be considered

clinically relevant. BRJ may be a suitable adjunct to hypertension treatment. Certainty of evidence for clinic SBP was downgraded one step due to imprecision.

Disclosures:

none.

References:

1. Mills KT, et al. The global epidemiology of hypertension. *Nature Reviews Nephrology*. 2020; 16(4): 223–37. http://doi.org/10.1038/s41581-019-0244-2.
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P-13 - Relationship between sleep and hypertension: A Narrative Review

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Withdrawn by Author

P-14 - Tricuspid valve regurgitaton associated with rheumatic left heart valve disease : 2004 cases in one single-center study

Dr Karim BADAOUI[1]

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Introduction:

Rheumatic heart valve disease is a major public health problem in developing countries.• Right sided valve abnormalities (RHVD) are less commun than their left heart sided conterparts; moreover, little data are published about RHVD when compared to that of left sided heart valves.

The aim of this study is to assess epidemiology, management and early outcome after surgery of tricuspid valve disease associated to left valverheumatic disease.

Materials and methods:

Retrospective study including 2004 consecutive patient hospitalized in our center for severe rheumatic heart disease, between 2017 and 2022.

Results:

Patients mean age was 42,3 +/- 11,5 years. 56% were female.We noted 1098 cases of mitral valve disease, 300 of aotic valve disease and 606 cases of both mitral and aortic valve disease .About 40% of patients had significant tricuspid regurgitation (≥ grade 2/4).The table 1 is a summary of our study and studies describing the organic involvement of the tricuspid valve in patients with RHD.608 patients underwent tricuspid valve surgery (586 annuloplasty versus only 22 prosthetic replacements). Intra-hospital mortality in our series was 7,4%. Post operative echocardiography showed satisfactory results in all patients.

Conclusion:

Rheumatic tricuspid valve disease is not uncommon among patients with RHD, it receives less attention and may easily be overlooked. Mitral valve disease is the most frequent associated lesion, and echocardiography the most common means of detecting organic RTVD.Significant tricuspid valve regurgitation worsens the natural history of rheumatic valvulopathy and should be managed uncompromisingly, and TV repair might have a better outcome than TVR.

P-15 - TransRadial Access for the Evaluation of Bypass Grafts using TEMPO AQUA® diagnostic Catheters, a comparative study

Dr Karim BADAOUI[1]

[1]CHU IBN ROCHD, Casablanca, Morocco

Introduction:

Over the past 10 years, the rate of patients who have undergone coronary artery bypass graft (CABG) surgery has increased twofold in cases of coronary angiography. Today, transradial access is the first choice for coronary angiography. We aimed to compare the efficacy and reliability of radial *versus* femoral access for coronary angiography in post-CABG surgery in this study.

Method:

Data from 927 patients who underwent post-CABG surgery between 2013-2022 were retrospectively compared. The right radial route was used in 358 cases, the left radial route in 304, and femoral route in 265. These three pathways were compared in terms of procedure time and fluoroscopy time, efficacy, and complication development. Comparisons among the three groups were performed with Bonferroni test for continuous variables and chi-square or Fisher's exact test for nominal variables as a binary.

Results:

Comparison results indicate that femoral access was better than left radial access and the left radial access was better than right radial access in terms of fluoroscopy time (9.07±2.35, 10.35±1,32, 13,43±2.38 min, $P<0.001$) and total procedure time (18.28±1.68, 18.68±2.34, 22.04±5.84 min, $P<0.001$). The left radial pathway was the most effective way of viewing left internal mammary artery (LIMA). No statistically significant differences were found among the three groups in other graft visualizations, all minor complications, total procedure and fluoroscopy time "*Except LIMA imaging*". Mortality due to processing was not observed in all three groups.

Table 1

Baseline characteristics of patients. Femoral vs. left radial and right radial vs. left radial group.

	Femoral (n=256)	Left Radial (n=304)	*P*	Left Radial (n=304)	Right Radial (n=358)	*P*
Female gender	45 (25.9%)	42 (28.4%)	0.612*	42 (28.4%)	22 (18.3%)	0.062*
Age	67.03±7.95	68.55±9.72	0.123#	68.55±9.72	67.13±9.49	0.231#
Hypertension	156 (89.7%)	132 (89.2%)	0.892^	132 (89.2%)	109 (90.8%)	0.689^
Diabetes mellitus	92 (52.9%)	75 (50.7%)	0.694^	75 (50.7%)	62 (51.7%)	0.903^
Hyperlipidemia	148 (81.1%)	123 (83.1%)	0.633^	123 (83.1%)	91 (75.8%)	0.168^
Renal failure	4 (2.3%)	4 (2.7%)	0.817*	4 (2.7%)	7 (5.8%)	0.228*
Smokers	16 (9.2%)	14 (9.3%)	0.948*	14 (9.3%)	10 (8.5%)	0.748*
Weight	81.89±12.78	81.10±13.10	0.583#	81.10±13.10	81.63±13.56	0.748#
Height	1.67±0.10	1.67±0.12	0.823#	1.67±0.12	1.67±0.11	0.684#
BMI	28.65±4.18	28.58±4.30	0.885#	28.58±4.30	28.41±4.21	0.757#

*They were analyzed by Fisher's Exact test,

^Chi-Square test.

#Independent Samples T test. BMI=Body Mass Index

Table 2

Catheter based results. Femoral vs. left radial group and left radial vs. right radial group.

Variables		Femoral (n=256)	Left Radial (n=304)	Right Radial (n=358)	*P*
Total procedure time (min)		17.28±1.68	17.68±2.34	23.04±5.84	<0.001*
Total procedure time except LIMA (min)		9.28±1.38	9.32±1.03	9.47±1.01	0.304*
Fluoroscopy time (min)		10.71±1.65	10.94±1.25	16.12±5.28	0.001*
Fluoroscopy time except LIMA (min)		5.58±0.92	5.53±0.86	5.53±0.60	0.545*
Amount of contrast media used		59.00±9.31	58.27±11.84	61.04±11.88	0.102*
LIMA graft effectivity		129 (74.1%)	108 (73.1%)	91 (75.8%)	0.868
LIMA selective imaging		147 (85.5%)	116 (78.4%)	88 (73.3%)	0.456
Local hematoma		12 (6.9%)	3 (2%)	5 (4.2%)	0.306
Radial artery spasm		__	16 (10.8%)	14 (11.7%)	0.825
Radial artery occlusion#		__	4 (2.7%)	4 (3.3%)	0.763
Pseudoaneurysm#		4 (2.3%)	__	__	0.999
Allergic reaction		6 (3.4%)	5 (3.4%)	4 (3.3%)	0.984
Hypotension		12 (6.9)	10 (6.8)	9 (7.5%)	0.814

Variables		Femoral (n=256)	Left Radial (n=304)	Right Radial (n=358)	*P*
Opaque nephropathy[#]		__	1 (0.7%)	__	0.367
Major bleeding		__	__	__	__
Ao-Saphenous vein graft selective imaging	Ao-LAD or Diagonal	67 (88.15%) n=76[2]	71 (92.20%) n=77[1]	53 (86.88%) n=61[1]	0.236[*]
	Ao- OM or IM	85 (90.00%) n=92[4]	82 (92.13%) n=89[3]	72 (90.00%) n=80[3]	0.088[*]
	Ao- RCA	73 (91.25%) n=80[6]	87 (92.55%) n=94[5]	72 (91.13%) n=79[5]	0.073[*]

[1]Ao-LAD or Diagonal (aorta to left anterior descending or diagonal artery) graft count in the right radial group.

[2]Ao-LAD or Diagonal graft count in the left radial group.

[3]Ao-Om or IM (aorta to obtuse marginal or intermediary artery) graft count in the right radial group.

[4]Ao-Om or IM count in the left radial group.

[5]Ao-RCA (aorta to right coronary artery) graft count in the right radial group.

[6]Ao-RCA count in the left radial group.

[#]These data were recorded in the examination performed one month after the procedure.

[*]They were analyzed by one way ANOVA test (95% confidence interval).

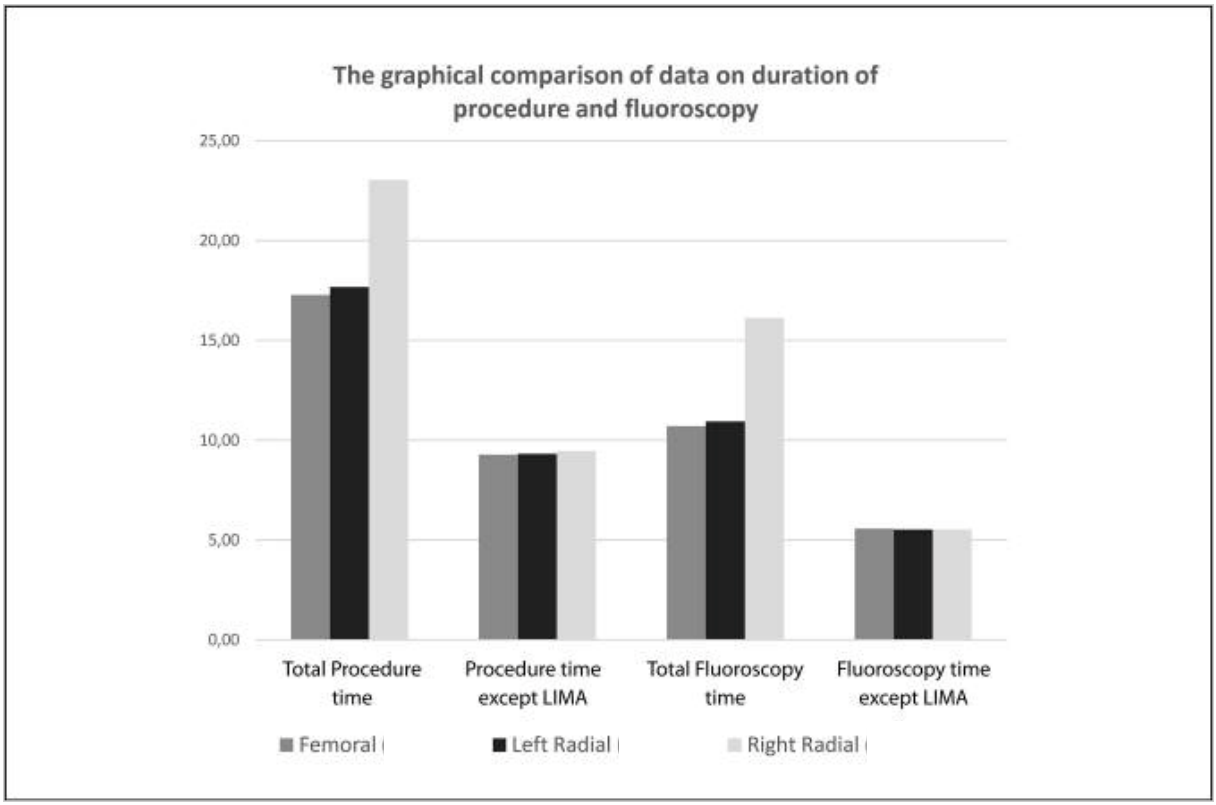

Fig. 4: The graphical comparison of data on duration of procedure and fluoroscopy.

Conclusion:

The left radial route is preferred over right radial access for post-CABG angiography because the left radial pathway is close to the LIMA and is similar to the femoral pathway. In LIMA graft imaging, right radial access is a reliable route, even though it is not as effective as other pathways. We hope that the right radial pathway will improve with physician experience and innovations especially the TEMPO AQUA® Diagnostic Catheters.

P-16 - Correlation between bnp level variation and weight variation in hemodialysis patients before and after dialysis

Dr Karim BADAOUI[1]

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Introduction:

The assessment of volemia is difficult to predict in chronic renal failure (CRF) before the hemodialysis (HD) session, however this parameter is essential to predict the volume to be withdrawn during the session.

Objective:

The aim of this work is to determine the correlation between blood volume assessed by the deviation of weight from dry weight and Brain Natriuretic Peptide (BNP) before dialysis as well as the BNP level before and after dialysis in relation to weight changes during the session.

Method:

Prospective study including 220 patients, conducted in the nephrology department between February 2019 and September 2022, including patients with CKD receiving three sessions per week of hemodialysis with a standard bicarbonate bath using the semi-synthetic membranes. Weight as well as BNP levels were measured immediately before and after HD.

Results:

The mean age was 50.0 +/-7.3years. A significant reduction in weight after HD compared to pre-HD values was found (p = 0.001).There was a significant reduction in BNP values after HD compared to pre-HD values (p = 0.03).A weak correlation between changes in BNP values and weight loss (r2 = 0.43, p = 0.04) before and after HD was noted.There was a weak correlation between changes in BNP values and weight loss (r2 = 0.43, p = 0.04). A weak correlation between changes in BNP values and weight loss (r2 = 0.43, p = 0.04) before and after HD was noted.There was also a correlation between BNP levels and weight gain relative to dry weight before dialysis (r2 = 0.63, p = 0.02).

Conclusion:

BNP can be used to assess volemia in CKD patients , especially if the patient's basal weight is unknown. However, it should be interpreted according to clinical parameters, especially in the case of underlying cardiac pathologies.

P-17 - Correlation between prolonged corrected QT interval and paroxysmal atrial fibrillation

Dr Karim BADAOUI[1]

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Introduction:

Corrected QT interval (QTc) on the electrocardiogram is a marker ofventricular repolarization and it has been proven that its lenght isassociated with the occurrence of torsades de pointe. However, fewstudies took interest in its correlation with the occurrence of atrial fibrillation(AF).

Objective:

The aim of the study is to assess the correlation between paroxysmalAF and a prolonged QTc.

Method:

Between January 2017 and february 2022, a 24 hours Holter recordingwas performed in patients with suspicion of paroxysmal AF detected in 12leads EKG. The QTc interval was calculated using the Bazett formula.A prolonged QTc was defined by a QTc >440ms in male and >450ms infemale. The collected data was analyzed using SPSS 24.0, $p < 0,05$.

Results:

A total of 502 patients underwent a 24h holter ECG.• Mean age was 63±4 years. 72,1% were male• Mean QTc was 418 ±13 ms.• It was prolongated in 113 patients(22,5%)• Positive correlation withparoxysmal AF (Pearson = 0,293($p = 0,003$).• Among the permanent AF group,11 patients hadprolongated QTc, and all the patients with sinusal rythm had normal QTc.

Conclusion:

Prolonged QTc interval is correlated with paroxysmal AF.• The potential mechanisms underlying this cause-and-effectrelationship need further investigation.

P-18 - Mitral annular calcification and significant internal carotid stenosis in the elderly: about 620 cases

Dr Karim BADAOUI[1]

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Introduction:

It is suggested that mitral annular calcification (MAC) may be a cardiac manifestation of atherosclerosis in the elderly.An association between MAC and coronary artery disease and aortic atheroma has been observed. Furthermore, it is still unclear whether MAC can be considered an independent risk factor for stroke.

Objective:

The aim of this study was to show a possible association between MAC and internal carotid artery involvement.

Method:

Patients with the diagnosis of MAC and a carotid Doppler examination performed within 1 year of echocardiography were identified from a prospective database of valvulor diseases and this since January 2017.

Results:

(MAC + group: 320 patients, 170 women and 150 men, age 74 ± 7 years). As a control group, 300 age- and sex-matched patients with no MAC and similar clinical indication on carotid echo-Doppler examination were randomly selected from the database. Significant carotid artery stenosis was found in 43.8% of MAC+ and 22.6% of controls ($p < 0.001$). The difference was significant in both sexes: in men, 50.8% versus 28.8% ($p < 0.05$), in women, 37.7% versus 17.4% ($p < 0.05$). A higher prevalence of carotid artery stenosis in the MAC + group was observed in patients older than 75 years (47.1% versus 25.0%, $p < 0.05$).

Conclusion:

Mitral annular calcifications are important echocardiographic markers of significant internal carotid artery stenosis in the elderly. The association appears to be particularly relevant in men aged 75 years. Further studies

are needed to evaluate whether or not they are associated with carotid artery stenosis.

P-19 - Technical challenges of Catheter ablation for atrial arrythmias in patients with cardiac amyloidosis

Dr Karim BADAOUI[1]

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Introduction:

Cardiac Amyloidosis (CA) is an infiltrative cardiomyopathy caused by the extracellular deposition of amyloid fibrils in the extracellular space of normal tissue. This progressive accumulation of fibrillar proteins typically occurs in the myocardium and cardiac conduction system that frequently manifests with heart failure (HF) and arrhythmias, most frequently atrial fibrillation (AF), atrial flutter (AFL), and atrial tachycardia (AT).

Purpose:

The efficacy/safety of catheter-based ablation therapy in patients with CA has not been adequately assessed. The objective of our study is to determine the technical and electrophysiological characteristics of ablation in this particular patient population.

Methods:

We conducted a retrospective and descriptive study including patients admitted to the cardiology department for catheter ablation of supraventricular arrythmia and carrying cardiac amyloidosis during the period between January 2019 and December 2021. We collected patient clinical, electrical, and echocardiographic data as well as electrophysiological and ablation parameters from electronic medical records.

Results:

Over a study period between January 2019 and December 2021, we identified 2 patients with cardiac amyloidosis who were candidates for an ablation procedure. They were 2 male patients, with a mean age of 76.5 years. Smoking, coronary heredity, and dyslipidemia were the main cardiovascular risk factors. Wild-type TTR amyloidosis was found with a mutation of the V30M gene in one of our patients. They were candidates for 2 radiofrequency catheter ablation procedures of persistent atrial fibrillation, right and left flutters. The procedures were performed using a mapping system and 2 specific ablation catheters. The local bipolar impedance drop average was - 17 ohms. The restoration of sinus rhythm was satisfactory and maintained after the procedures.

RHYTHMIA HDxTM Mapping System showing low voltage areas and bipolar impedance drop during the ablation procedure.

Discussion:

Cardiac infiltration of amyloid fibrils is known to impair cardiac conduction [1]. Patients with cardiac amyloidosis represent a unique subset considering their advanced atrial myopathy, as reflected by their markedly abnormal voltage maps. Barbaiya and colleagues reported that 6 of 7 patients with cardiac amyloidosis undergoing ablation had recurrent AT/AF at one-year follow-up. However, patients in their cohort were likely referred for ablation at a more advanced stage of disease considering their longer baseline HV intervals. Donnellan and colleagues recently reported that compared to age, gender and disease-stage matched controls, patients with TTR amyloid and AF who underwent catheter ablation had improved survival and reduced rates of HF hospitalization. The benefit was greatest in patients with early-stage TTR amyloid, suggesting that early catheter ablation may slow disease progression by restoration of atrioventricular synchrony and left atrial electrical remodeling [1].

Conclusion:

Catheter-based ablation for patients with CA and atrial arrythmias appears to provide important symptomatic relief and may be a feasible strategy for appropriately selected patients.

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P-20 - Effects of pyridostigmine and trandolapril on cholinergic signaling in the heart of SHR rats

Dr Lucie Hejnova[1], Dr Jiri Novotny[1], Mr Almos Boros[2], Dr Jaroslav Hrdlicka[2], Dr Jan Neckar[2], Dr Michal Behuliak[2]

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Introduction:

Ischemic heart disease (IHD) is associated with an imbalance in the autonomic nervous system [1]. Recent studies indicate that enhancing parasympathetic activity is a promising new therapeutic strategy for the treatment of IHD [2]. Because hypertension is one of the major risk factors for IHD, we decided to investigate the effect of the acetylcholinesterase inhibitor pyridostigmine on cholinergic transmission in the heart of spontaneously hypertensive rats (SHR). In order to compare the effects with the drug used as a standard treatment for high blood pressure, we also used animals affected by angiotensin-converting-enzyme inhibitor trandolapril.

Methods:

Components of cholinergic signaling were measured in the left ventricles of SHR and Wistar Kyoto rats (WKY). Animals were treated with pyridostigmine 25 mg/kg/day or trandolapril 1 mg/kg/day in drinking water for 8 weeks.

Results:

Acetylcholine production was increased only in SHR rats affected by trandolapril. Comparison of the two strains showed increased production in SHR treated with both drugs. Total cholinesterase activity was decreased by approximately 50% by pyridostigmine in plasma. Trandolapril reduced cholinesterase activity to 80% only in SHR rats. The number of muscarinic receptors and G-protein was not changed. Maximal adenylate cyclase activity stimulated by forskolin was decreased in SHR rats compared with WKY. Trandolapril significantly increased forskolin-stimulated adenylate cyclase activity in SHR rats.

Conclusions:

Inhibition of acetylcholinesterase by pyridostigmine had no significant effect on cholinergic signaling in the left ventricle of both strains. In contrast, treatment with trandolapril increased acetylcholine production, decreased its decomposition and enhanced forskolin-stimulated adenylyl cyclase

activity in SHR rats. The lower maximal adenylyl cyclase activity in SHR rats was compensated by treatment with trandolapril to the level of WKY rats.

Disclosures:
None

References:

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P-21 - A Study of Detailed Description of Phenotypical, Physiological and, Biochemical Characteristics of Patients with True Treatment-Resistant Hypertension

Dr Mohammed Hameed[1], Dr. Mohamed Elsadig[1,2], Dr Sayeed Haque[3], Dr Shakil Ahmad[4], Professor Dimitris Grammatopoulos[3], Professor Asif Ahmed[4], Professor Paramjit Gill[2], Professor Indranil Dasgupta[1,2]

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Introduction:

The research exploring phenotype and clinical characteristics of patients with true treatment-resistant hypertension (TRH) is limited. We aim to present the results of a prospective, cross-sectional observational study where patients were recruited to FACT-RHY study (a study of Factors AssoCiated with Treatment Resistant HYpertension)

Methods:

One hundred and forty-one patients, aged 18-80 years, with pharmacological treatment of hypertension and without any confirmed secondary causes of hypertension were eligible. Written, informed consent was gained from all participants and the study was approved by research ethics committee. Patients with uncontrolled blood pressure (average BpTRU >140/90) taking ≥3 antihypertensives or if BP controlled on ≥4 agents and in both cases at least 3 antihypertensives must be detectable by urine antihypertensive assay. All other patients were defined as a comparator control group. All patients underwent detailed history, examination biochemical and physiological testing which included assessment of arterial stiffness using Vicorder, body composition using bioimpedance spectroscopy, and endothelial dysfunction using EndooPAT.

Results:

Sixty patients had true TRH, 74 (52%) were male and 77 (55%) were Caucasian. Patients with true TRH had significantly higher prevalence of diabetes mellitus (n=17, 28%) with a longer duration of hypertension compared to controls. Patients with TRH had significantly lower eGFR (74 ml/min vs 100ml/min, $p<0.001$) and, higher combined free light chains, high-sensitivity troponin-I, pro-Brain Natriuretic Peptide, and aldosterone-renin ratio. Patients with TRH had a significantly higher extracellular-to-intracellular water ratio with bioimpedance spectroscopy (0.87 vs 0.82 $p<0.001$). Pulse wave velocity was higher among patients with TRH (9.8

m/s vs 9.0 m/s p=0.012). Endothelin-1 was significantly higher in patients with TRH (2.24 pg/mL vs 2.03 pg/mL, p=0.01).

Conclusions:

Patents with TRH have significantly higher comorbidities and higher prevalence of end-organ damage with suggestion of high levels of inflammation, arterial stiffness, and endothelial dysfunction.

Disclosures:
Nil

References:

P-22 - EPLERENONE vs IRBESARTAN AS FIRST LINE THERAPY IN OBESE HYPERTENSIVE PATIENTS: BASELINE CHARACTERISTICS FROM HEBRO STUDY

Dr Panayiotis Iliakis[1], Dr Maria Kouremeti[1], Dr Sotirios Drogkaris[1], Dr Eirini Siafi[1], Dr Ioannis Andrikou[1], Dr Kyriakos Dimitriadis[1], Dr Dimitris Konstantinidis[1], Dr Costas Thomopoulos[2], Professor Costas Tsioufis[1]

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Withdrawn by Author

P-23 - PAGE Kidney: Persisting hypertension due to traumatic subcapsular haematoma

Dr Wayne Sunman[1]

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Introduction:

A 20 year old university student was found to be hypertensive, having attended his GP following concussion playing rugby. BP 170/92. His father and paternal grandfather had hypertension and both had strokes. His renin was 54.7 (normal up to 44.9) and aldosterone of 451 (normal <= 421). Renal function, urea and electrolytes and 24hr urinary cortisol were normal, bicarbonate was 31.

Methods:

US showed a thick-walled, oedematous, sub-cortical renal cyst 7x3x6cm. This was confirmed by CT angiogram, which noted some linear calcification. Renal and aortic MRA confirmed dual supply to both kidneys with no major-vessel stenosis and no evidence of aortic coarctation. Under US guidance, 70mls of brown fluid were aspirated. Cytology, culture and microscopy found no evidence of malignancy. His BP improved for a few days, but rapidly reasserted itself. Two months later an US scan confirmed reaccumulation of cyst fluid. Renal vein sampling 8 months after presentation showed no particular evidence that there was excess renin production by the right kidney. Marsupialisation was carried out 17 months after presentation. Subsequent MRI scan showed no reaccumulationd, but continued distortion of the parenchyma.

Results:

His blood pressure required further drug titration, finally controlled on: Perindopril 8mg, Amlodipine 10mg and Eplerenone 25mg.

Conclusions:

There are multiple case-reports of subcortical haematoma as a cause of hypertension. Where the cyst has been drained, the hypertension has generally persisted. Most relate to blunt abdominal trauma. A recent, florid case related to a perinephric haematoma following renal biopsy(1). Prompt drainage of the haematoma restored the anatomy and the hypertension resolved. It is felt that distortion of the cortical arteries precipitates high-renin hypertension. We found that renin was no longer driving the hypertension in the longer-term.

Disclosures:

None.

References:

1. Niroshan et al. Int J Surgical Case Reports, 99 (2022) 107641

P-24 - El Mycoplasma Pneumonia y su asociacion con la aterosclerosis subclinica en pacientes de bajo riesgo cardiovascular como valor predictivo

Dr Isabel Conte[1]

[1]Bihs, moron, Argentina

Withdrawn by Author

P-25 - Relationship Between Blood Pressure Level and Hypertensive Mediated Organ Damage

Miss Dellaneira Setjiadi[1], Dr Carlos A Celis-Morales[1], Dr Gemma Currie[1], Professor Christian Delles[1]

[1]School of Cardiovascular and Metabolic Health, University Of Glasgow, Glasgow, United Kingdom

Introduction:

Whilst blood pressure (BP) correlates with the level of hypertension-mediated organ damage (HMOD), a disproportional degree of organ damage in relation to BP level can be observed in some patients. This study aims to quantify the proportion of discrepancy between BP level and HMOD severity including its risk factors.

Methods:

This cross-sectional study utilized data from the UK Biobank that includes 1,046 (55% female, mean age 50 years) and 38,921 (52% female, mean age 55 years) participants with left ventricular myocardial wall thickness (LVWt) and carotid intima media thickness (cIMT) data, respectively. The independent variables were systolic BP (SBP) and diastolic BP (DBP). Left ventricular hypertrophy quantified by LVWt and atherosclerosis quantified by cIMT were used as HMOD proxies. To identify outliers for each of these variables, 0.5 and 1.0 standard deviation (SD) above or below the median were used as cut-off points for LVWt and cIMT.

Results:

In the low SBP group we found 90 participants who had disproportionally (0.5 SD) high LVWt, whereas in the high BP group 73 had disproportionally low LVWt. We also found 449 participants in the low SBP group who had disproportionally (1.0 SD) high cIMT, and 375 in the high SBP group who had disproportionally low cIMT. Outliers for LVWt and cIMT were more likely to be male, younger than 56 years of age, with lower body fat percentage, higher waist circumference, or never smokers. No differences in any outlier groups were found for BMI categories.

Conclusions:

Characteristics of people with disproportional organ damage compared to their level of BP provide insights into the pathogenesis of HMOD and could guide screening in clinical practice to improve secondary prevention.

Disclosures:

None

References:

P-26 - Comparison of ACTH stimulated and unstimulated adrenal venous sampling in patients with primary aldosteronism

Miss Natalia Smithers[1], Dr Spoorthy Kulkarni[2], Dr Johann Graggaber[2], Professor Ian Wilkinson[1]

[1]University of Cambridge, Cambridge, United Kingdom, [2]Cambridge University Hospitals NHS Foundation Trust, Cambridge, United Kingdom

Introduction:

Primary aldosteronism (PA) is a common endocrine cause of secondary hypertension. Adrenal venous sampling (AVS) is considered gold standard to distinguish unilateral (U/L) from bilateral (B/L) disease in PA. AVS is undertaken with or without ACTH infusion, based on local expertise. ACTH is thought to improve the selectivity index (SI), by improving rates of 'appropriate cannulation', however, there are concerns ACTH may artificially lower the lateralisation index (LI). The aim of this retrospective study was to assess AVS and clinical outcomes in 2 groups: AVS with ACTH and AVS non-ACTH.

Methods:

Demographic and clinical parameters of patients with PA who underwent AVS over a 5-year period were reviewed. Complete AVS datasets in 128 patients (62 ACTH and 66 non-ACTH) were included for analysis (mean age = 49.5 years, Males=71, Females=47). AVS parameters: LI and SI were evaluated in all patients (cutoffs: >1.1 non-ACTH, >3 ACTH). Cure (complete cessation of antihypertensives + BP <140/90 mmHg 1-6 months post-surgery) was assessed.

Results:

Among 128 patients, 9 patients underwent repeat AVS due to inadequate SI, 7 in the non-ACTH group and 2 in the ACTH group. 19.1% among ACTH groups and 4.8% in non-ACTH did not meet the SI. 51.6% and 55.6% met the LI criteria for U/L disease in the non-ACTH and ACTH groups. The cure rate in patients who underwent surgery (n=44 with adequate data) in the non-ACTH group and ACTH group was 23.5% (4/17) and 18.5% (5/27), respectively (p=0.78).

Conclusions:

The rate of repeat AVS was higher in non-ACTH group. However, repeating AVS with ACTH, did not improve the SI, or lateralisation index. Finally, the cure rates were better in the non-ACTH group, however, the overall

numbers in both groups were small. Larger prospective studies are needed to further characterise AVS indices in the two groups.

Disclosures:

None

References:

P-27 - Using X-ray Micro-CT to Investigate Effect of Gitelman and Gordon Syndrome on Bone Microstructure in Animal Models

Miss Olivia McKnight[1], Professor Robert Speller[1], Dr Robert Moss[1], Dr Keith Siew[1], Dr Stephen Walsh[1]

[1]University College London, London, United Kingdom

Introduction:

Gordon Syndrome (Familial Hyperkalaemic Hypertension) and Gitelman Syndrome are both rare renal disorders that appear to have inverse presentations. While their impact on blood pressure is well described, not much is known about the pathophysiology of their other effects. This study was undertaken to investigate what impacts these disorders might have on bone microstructure.

Methods:

We used a micro-CT to image the proximal end of the femur in 190 mouse samples. We used the imaging software ImageJ(1) and ilastik(2) to collect the parameters of connectivity (an estimation of the number of trabeculae) and trabecular thickness.

Results:

In our analysis we found clear differences in connectivity based on sex. After normalisation and sex separation, there were no significant differences found between the two general disorders and the wildtype animals in either connectivity or trabecular thickness. However, when separated by the specific variant of each disorder, we did find that male mice with the SPAK-L502A model mutation of Gitelman Syndrome showed higher connectivity than their wildtype counterparts (p-value: 0.0121).

Conclusions:

Our data did not show significant differences based on genetic status for the disorders as a whole; however, this could be due to factors in our method. There is also the possibility that changes in trabecular number and trabecular thickness are constrained to certain variations of each disorder as shown in the male SPAK-L502A mice. Further investigation into the impacts of these diseases on bone microstructure and the mechanisms of these effects is warranted.

Disclosures:

None

References:

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P28 - How often should patients undertake self-monitoring of blood pressure?

Dr Frances Rose[1], Dr Kate Morton, Prof. Lucy Yardley, Prof. Richard McManus

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Introduction:

Target blood pressure (BP) levels are achieved by less than half of adults in the UK (1). Digital interventions are being explored to improve this, one of which is self-monitoring (2). Currently there is no evidence as to the optimal frequency this should be performed. We aimed to evaluate how frequently patients with treated hypertension needed to self-monitor to maintain BP within target range.

Methods:

Data collected for the HOME BP (Home and Online Evaluation of Blood Pressure) trial were analysed (3). This randomised controlled trial compared self-monitoring of BP with usual clinical care for adults with treated hypertension over a 12 month period. We defined target BP to be an average of 135/85mmHg across each month's dataset, in keeping with NICE guidance. We performed a mixed effects logistic regression model to determine the change in systolic and diastolic BP per calendar month, starting from when the BP recorded was first in target range for each participant. Readings following a change in BP medication were removed from the analysis.

Results:

HOME BP included 269 participants in the intervention arm. The mean number of months of BP readings reported per participant was 4.5 (range of 1 to 13). The change in systolic BP readings per month was 0.0mmHg (95% confidence interval -0.3 to 0.2mmHg), with a change in diastolic BP readings per month of -0.1mmHg (95% confidence interval -0.2mmHg to 0.0mmHg).

Conclusions:

Once BP is in target range, self-monitoring has demonstrated very little change in BP readings over 12 months. As monitoring too frequently risks detection of false positive changes rather than true, clinically relevant, changes in BP, we recommend that once mean home BP is controlled, self-monitoring need not be repeated for at least six months and possibly longer.

Disclosures:

None.

References:

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P29 - Ethnic differences in ambulatory versus home blood pressure levels: data from the United Kingdom and Japan

Dr Takeshi Fujiwara[1], Constantinos Koshiaris[1], James Sheppard[1], Satoshi Hoshide[2], Kazuomi Kario[2], Richard McManus[1]

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Introduction:

No previous study has compared differences in ambulatory blood pressure (ABP) and home BP (HBP) levels in individuals of different ethnicity between populations in the United Kingdom and Japan. The aim of this study was to test the hypothesis that differences in ethnicity impact ABP and HBP levels.

Methods:

A retrospective analysis of cross-sectional data from the United Kingdom and Japan was performed. All participants underwent office BP, daytime ABP, and HBP measurements. A significant daytime ABP and HBP difference was defined as an absolute value of systolic BP (SBP) difference >5 mmHg and/or that of diastolic BP (DBP) difference > 5 mmHg. Masked hypertension (MH) was defined as normotensive office BP (SBP <140 mmHg and DBP <90 mmHg) and hypertensive daytime ABP and/or HBP (SBP ≥135 mmHg and/or DBP ≥85 mmHg).

Results:

In 1,408 participants (age 62±11 years, 49% males, 79% known hypertensive, White British 19%, South Asian 11%, African Caribbean 12%, Japanese 58%), Japanese people showed higher daytime ABP than HBP compared with White British: SBP +3.1 mmHg, (95% confidence interval (CI) +1.1, +5.0 mmHg); DBP +5.7 mmHg, 95% CI +4.5, +6.8 mmHg). In multivariate logistic regression analyses, Japanese ethnicity was associated with increased odds of significant differences between mean daytime ABP and HBP compared to White British as reference (odds ratio 2.6, 95% CI 1.7−3.9). For the diagnosis of MH, HBP compared to daytime ABP in Japanese showed lower sensitivity (52%) but higher specificity (92%) than other ethnic groups (range 65–77%, 81–84%, respectively).

Conclusions:

The Japanese population showed a higher daytime ABP-HBP difference compared with White British participants, particularly for DBP. To fully

assess cardiovascular risk in a multi-ethnic population, it is important to measure both ABP and HBP, particularly where HBP is close to treatment or diagnostic thresholds.

Disclosures:

This study is supported by the SENSHIN Medical Research Foundation, the 21st Century Center of Excellence Project run by Japan's Ministry of Education, Culture, Sports, Science and Technology, the Foundation for Development of the Community (Tochigi), Omron Healthcare Co., Ltd., the Grant-in-Aid for Scientific Research (B) (21390247) from the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan, 2009 to 2013, the MEXT-Supported Program for the Strategic Research Foundation at Private Universities, 2011 to 2015, Cooperative Basic and Clinical Research on Circadian Medicine (S1101022), the Wellcome Trust/Royal Society via a Sir Henry Dale Fellowship, NIHR Oxford, and Thames Valley Applied Research Consortium.

References:

P-30 - Falls and Other Serious Adverse Event Risks of Antihypertensive Medication Therapy in the Patients with Dementia

Dr Takeshi Fujiwara[1], Constantinos Koshiaris[1], Ting Cai[1], Joseph Lee[1], Ariel Wang[1], Richard McManus[1], James Sheppard[1]

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Introduction:

Deprescribing antihypertensives is increasingly being recommended in patients where the benefits of treatment are outweighed by the harms. Patients with dementia are sometimes considered in the group with less potential for benefit, but there is little evidence to support this. This study examined whether antihypertensive medication is associated with an increased risk of serious adverse events (SAEs) in patients with dementia compared to those without.

Methods:

This was a retrospective analysis using the Clinical Practice Research Datalink (GOLD) data between 1998 and 2018. Patients were included if they were aged 40+ years and had not previously received any antihypertensive treatments. The diagnosis of dementia was based on clinical codes in the electronic health record. The primary outcome was the first hospitalisation or death from falls within 10 years. Secondary outcomes included hypotension, syncope and fracture. Cox regression analyses adjusted for propensity score were used to assess the risks of SAEs.

Results:

In a population of 1,219,732 patients, 4,062/23,510 (17.3%) patients with dementia and 142,385/1,196,222 (11.9%) patients without dementia were newly prescribed antihypertensive medications in the 12 months before the index date, respectively. In patients with dementia, antihypertensive treatments were associated with increased risks of hospitalization or death from falls (hazard ratio [HR] 1.15, 95% confidence interval [CI] 1.08-1.22), hypotension (HR 1.51, 95%CI 1.29-1.78), syncope (HR 1.34, 95%CI 1.11-1.61), and fracture (HR 1.05, 95%CI 0.96-1.15). In patients without dementia, the association between antihypertensive treatment and SAEs was similar, with an increased risk of hospitalization or death from falls (HR 1.07, 95%CI 1.05-1.10).

Conclusions:

Antihypertensive treatments were associated with increased risk of SAEs in both patients with and without dementia. These data suggest that clinicians should not modify antihypertensive treatment in patients with dementia in response to concerns about adverse events.

Disclosures:

This study is supported by the SENSHIN Medical Research Foundation, Wellcome Trust/Royal Society via a Sir Henry Dale Fellowship, NIHR Oxford and Thames Valley Applied Research Consortium.

References:

P-31 - Air pollutants and Arterial function in young London Adults of 6 Ethnic groups

S Ayis[1], SD Beevers[2], JK Cruickshank[1], Kennedy Cruickshank, D Dajnak[2], C Elia[1], D Fecht[2], AJ Grande[1], S Harding[1], A Karamanos[1], FJ Kelly[2], Y Lu[1], MJ Maynard[4], OR Molaodi[3], IS Mudway[2], S Tandon[1], AJ Webb[1]

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Introduction:

Exposure to environmental air pollution is linked to higher blood pressure (BP). Whether the link could be mediated or caused by arterial dysfunction or stiffness, as measured by aortic pulse wave velocity (aPWV), in younger people is much less established. We tested whether exposures to particulate matter ≤2.5 μm ($PM_{2.5}$) and to nitrogen dioxide (NO_2) as children at 11-13 and 14-16 years were implicated in aPWV independent of BP and its change over time.

Methods:

We conducted cross-sectional and longitudinal data analyses from 426 participants aged 21-23 years with data at those previous ages. Contemporary and previous $PM_{2.5}$ and NO_2 air levels within a 20-metre radius buffer zone around participants' residential postcode centroid, from long-validated monitors across London, were utilised to estimate whether these air pollutants were independently linked to aPWV, via a least squares model, adjusting for age, sex, ethnicity, waist/height ratio, mean BP, racism and prior such measures.

Results:

Higher $PM_{2.5}$ concentrations were significantly associated cross-sectionally with *higher* aPWV (β=0.2(95%CI 0.05-0.39)m/s t= 2.42,p=0.009) and longitudinally (β=0.26(0.05-0.46) m/s, t=2.42,p=0.016), independently of current (0.03(0.02-0.04)mmHg, t=3.08,p=0.001) or previous mean BPs (NS), racism the only other effect persisting (0.36(0.11-0.61, t=2.84,p=0.005). Conversely, simultaneous higher ambient NO_2 air levels were independently if weakly associated with *lower* aPWV (β= -0.03(-0.05-0.00)m/s p=0.037 and longitudinally, -0.35(-.0008 to -0.068, t=-2.01p=0.045). No significant interactions between air pollutants, ethnicity or other variables were found; adjusted for cross-sectional MAP, Black Caribbeans had lower PWV than White British participants (-0.35 m/s, p=0.04) but not with earlier BPs included.

Conclusions:

These data using internationally recognised measures of the 2 major air pollutants highlight that exposure is associated with effects on arterial stiffening independent of ambient or previous childhood / adolescent mean BP and other risk factors; racism effects remain.

Disclosures:

Funded by the MRC.

References:

-

P-32 - The value of CT angiographic-Calcium Scoring in hypertensive patients as a referral criterion for the prediction of coronary artery disease

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Introduction:

CT angiographic calcium scoring (CCS) has been used as a predictor of the presence of underlying coronary artery disease (CAD). In this study, we investigated the significance of CCS to identify CAD in patients with hypertension referred for CT coronary angiography.

Methods:

The individual electronic health records of 420 consecutive patients who underwent CT coronary angiography (CTCA) between July and November 2020 in our Trust hospitals, were reviewed with a mean age of 59.1 years. Risk factors were recorded including smoking (38%), hyperlipidaemia (34%), positive family history (96%), systemic hypertension (48.3%), diabetes mellitus (30%) and male gender (46%). Referral criteria were also recorded for statistical analyses. Ethnicity, cardiac and past medical history were recorded. Patients were stratified into four groups according to CAD severity on the CT coronary angiography : absent, mild, moderate and severe disease, as seen on CTCA reports. The mean CCS for each CAD category was compared between hypertensive and non-hypertensive patients. Mean CCS was further compared in regard to the number of coronary arteries affected and the severity of CAD in each artery.

Results:

Out of the total cohort, 203 (48.3) patients were hypertensive. 249 (59.3%) CCS were interpreted in the very low risk category, 57 (13.6%) low risk, 58 (13.8%) moderate risk, 23 (5.48%) moderately high risk and 33 (7.86%) high risk. A significant difference in mean CCS and CAD severity was

observed between mild, moderate and severe CAD (P = 0.015 and P < 0.001). Comparison of CCS between hypertensives and non-hypertensives, across the four CAD severity categories, revealed a significant difference in mean CCS in the severe CAD category (P = 0.013). Further comparison of CCS between hypertensives with chest pain and hypertensives without chest pain was non-significant. A higher number of affected coronary arteries was associated with a higher mean CCS and a significant difference in CCS was observed between hypertensives and non-hypertensives for the number of arteries affected. Similar results were observed when comparing mean CCS in moderate-severely affected coronary arteries.

Conclusions:

Hypertensive patients with a high CCS were associated with higher incidence of severe CAD. Further, in those with hypertension, chest pain appears to have no effect on CCS. These results suggest that the incorporation of CCS in the investigation of CAD on CT angiography, may pose a powerful adjunct in proposing an alternative paradigm for the assessment of patients with hypertension and stable chest pain, in the progress of CAD.

P-33 - A pilot clinic for evaluation and management of young adults with hypertension

Miss Evita Pappa[1], Dr Spoorthy Kulkarni, Professor Ian Wilkinson, Doctor Carmel McEniery, Mister Giovanni Di Stefano, Jessica Dennis, Joanna Ford, Doctor Joseph Cheriyan

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Introduction:

There is no specific guidance on investigating young-onset hypertension for a secondary cause. A significantly long waiting list for appointments in the specialist hypertension clinic can further delay diagnosis and patient education, and represents a lost opportunity for research participation. A quality improvement project was set up aiming to create a standardised pathway for investigation and management of hypertension in young adults, and to increase research uptake in patients with hypertension.

Methods:

The specialist hypertension team at Addenbrooke's hospital set up a standardised proforma for assessments in young-onset hypertension. Together with clinical managers, a nurse-led pilot, one-stop, pre-clinic screening appointment was offered to patients for comprehensive clinical assessment. Participants were also made aware of various research studies recruiting at the time. Junior doctors supervised and offered support when necessary. Patient feedback was used to collect patient satisfaction. Regular meetings helped reassess the process via a plan-do-study-act approach.

Results:

72 patients were assessed in this clinic [mean age: 32.4±13 (20-46), Males=39, mean blood pressure (BP) in clinic 139/90 mmHg] over a period of 11 months. Height, weight, seated BP, unattended BP, supine BP, standing BP, routine biochemistry and a secondary screen of aldosterone, renin, plasma metanephrines and ECG were undertaken in all patients. 44.4% of patients had ambulatory blood pressure monitoring and 75% had 24h urine electrolytes collection. 84.7% participated in a research project, 65.3% had an adrenal, renal and/or aortic MRI and 37.5% had an echocardiogram. 90.9% of patients quoted the visit was a 'very pleasant and helpful experience', 95.4% rated the information given as excellent. Average waiting time in the NHS clinics was reduced by 7.5 months.

Conclusions:

The introduction of nurse-led screening clinic for young hypertensive led to high patient satisfaction, reduced waiting times and improved research uptake in hypertensive patients.

Disclosures:

None

References:

P-34 - A retrospective audit on the correlation between availability of ambulatory blood pressure monitoring in primary care and geographical distribution of GP practices

Dr Elizabeth Attfield[1], Dr Samuel Duffy[1]

[1]South Tyneside and Sunderland NHS Foundation Trust, Sunderland, United Kingdom

Introduction:

NICE guidelines recommend that all patients with a high blood pressure are offered an ambulatory blood pressure monitor (ABPM) to confirm the diagnosis and to help guide treatment decisions.(1) However, the availability of ABPM in primary care is variable and often not performed prior to referral, leading to delays in diagnosis and treatment. We designed this audit to investigate whether there were inequalities in the provision of ABPMs in our region.

Methods:

We did a retrospective audit of all new patients that attended the specialist hypertension clinic at Sunderland Royal infirmary between March and September 2022. We documented whether they had an ABPM performed and which GP practice each patient was referred from. We reviewed whether there was any correlation between their referral practice and likelihood of having ABPM in the community.

Results:

46 new patients attended our specialist clinic. 11 patients (24%) had ABPM performed in the community. We categorised patients by area of referral centre, namely Sunderland, Newcastle and Durham regions. 7/22 patients (32%) referred from Sunderland had an ABPM performed in the community, compared with 4/18 (22%) patients from Durham and 0/6 patients from Newcastle.

Conclusions:

Despite NICE recommending APBM as the primary method to confirm hypertension, it is not performed regularly in our region prior to referral to a specialist centre. Our data shows that there is a discrepancy between regions in accessing this investigation which may represent inequality in health provisions. Future research is needed into the factors that influence our ability to perform this investigation in the community and we intend to distribute a questionnaire to our primary care colleagues to address this question.

Disclosures:

Nothing to disclose

References:

NICE, 2019. *Hypertension in adults: diagnosis and management.* [Online] Available at: https://www.nice.org.uk/guidance/ng136/chapter/Recommendations#diagnosing-hypertension

P-35 - In Hospital Hypertension Audit

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Introduction:

Hospital admissions are opportunities for specialists to make necessary changes to medications to optimize the blood pressure control to maximize the outcome of patients which will effectively reduce the burden on the ever-stretched primary care. Patients being hospitalized will have a unique opportunity to get optimal hypertension control as a result of review by senior doctors during hospital stay. We aimed to assess this parameter in a teaching hospital.

Methods:

We conducted a retrospective audit over an unselected week with an aim to identify those with uncontrolled blood pressure recording. We reviewed the Electronic Patient records to identify measures taken in such individuals to acknowledge this and the remedial measures taken to mitigate it.

Results:

83 out of 223 (37%) patients hospitalized had a diagnosis of Systemic hypertension which is above national average prevalence of 26-31%. None of these patients had systemic hypertension as a coded diagnosis at admission or at time of discharge. Out of 34 patients who had persistent uncontrolled hypertension, 32 were managed appropriately and achieved better blood pressure control. In both patients with uncontrolled hypertension there was documentation of valid clinical reason by the clinical team responsible. None of the patients had parenteral medication administered to achieve adequate blood pressure control. The Early Warning Scoring system (EWS) was unable to alert the responsible clinician in all of the above situations.

Conclusions:

In hospital management of systemic hypertension was appropriate in 97% of patients. Although EWS score does not alert the clinician about uncontrolled hypertension, clinical staff ensured that the senior clinician with decision making capacity was informed about the same. Coding of systemic hypertension needs to be improved to reflect the disease burden on the hospital patient cohort.

Disclosures:

None

References:

Nice Guidance NG 136

P-36 - Understanding the Measurement Opostural Hypotension (UMPH) in Primary Care - A National Qualitative Inquiry

Dr Rosina Cross[1], Dr Sinead TJ McDonagh[1], Dr Bethan Treadgold[1], Dr Jane Masoli[1], Dr Judit Konya[1], Dr Gary Abel[1], Dr James Sheppard[2], Dr Bethany Jakubowski[2], Dr Cini Bhanu[3], Ms Jayne Fordham[4], Professor Katrina Turner[5], Professor Sallie Lamb[1], Professor Rupert Payne[1], Professor Richard McManus[2], Professor John L Campbell[1], Dr Christopher E Clark[1]

[1]University of Exeter, Exeter, United Kingdom, [2]University of Oxford, Oxford, United Kingdom, [3]Research Department of Primary Care and Population Health, University College London, London, United Kingdom, [4]Mid Devon Medical Practice, Tiverton, United Kingdom, [5]Centre for Academic Primary Care, University of Bristol Medical School, Bristol, United Kingdom

Introduction:

Postural hypotension (PH), the drop in blood pressure (BP) on standing, is associated with falls, cognitive decline and all-cause mortality and represents a significant burden to the NHS. PH is often asymptomatic, therefore, a systematic approach to detection is required. However, this does not occur in English primary care settings.

The aim of this study is to explore the barriers to, and facilitators of, improved uptake of PH assessment in English primary care.

Methods:

We are conducting individual, remote, semi-structured interviews to explore how multidisciplinary primary care health professionals (HCPs), involved in BP measurement, check for, and manage, PH. Participants have been identified from our related national survey and purposively sampled to maximise sample diversity.

We are exploring HCPs' understanding of who should be tested for PH, views on the potential acceptability of undertaking PH assessments using sit-to-stand and/or supine-to-stand approaches, diagnostic thresholds, and treatment options following diagnosis. Interviews are being transcribed verbatim, checked for accuracy, and anonymised. Thematic analysis is underway using NVivo (QSR International Pty Ltd. 2020).

Results:

Interviews are in progress. Interim results suggest that staff check for PH when patients are older, report dizziness, fatigue or have a chronic condition, such as diabetes. Despite awareness of guidelines, various diagnostic definitions were provided, and measurement protocols vary between participants. While supine-to-stand measurement is undertaken, a sit-to-stand measurement is more feasible due to time limitations and

mobility of patients. Both manual and automated devices are used and PH assessment training for HCPs is needed. Full findings will be presented at the conference.

Conclusions:

To our knowledge, this is the first study to explore barriers to, and facilitators of, PH assessment in English primary care settings. Study findings will inform national guidelines and a future clinical trial to detect, and guide the management of, people living with PH.

Disclosures:

This study is funded by the National Institute for Health and Care Research, School for Primary Care Research (NIHR SPCR FR3). Sinéad McDonagh is currently funded by a NIHR SPCR Post-doctoral Fellowship. The views expressed are those of the authors and not necessarily those of the NIHR, the NHS or the Department of Health.

References:

Bhanu, C., Petersen, I., Orlu, M., Davis, D., & Walters, K. (2023). Incidence of postural hypotension recorded in UK general practice: an electronic health records study. *British Journal of General Practice*, *73*(726), e9-e15.

P-37 - Review of anti-hypertensive adherence of in-centre haemodialsysis patients at Palmerston North Haemodialysis Unit

Dr Samuel King[1], Dr Ankur Gupta, Dr Norman Panlilio

[1]Te Whatu Ora - Midcentral DHB, Palmerston North, New Zealand

Introduction:

Hypertension is ubiquitous in patients with end-stage kidney disease on haemodialysis and contributes to their 10-20 fold risk of cardiovascular morbidity and mortality. Medication adherence in haemodialysis patients has been previously reported to range between 65-92%, which may reflect a possible intervention to improve outcomes.

Methods:

A cross-sectional study was performed at the Renal Unit, Palmerston North, New Zealand. All patients receiving in-centre haemodialysis for greater than three months were invited to participate. Medication adherence was self-reported using the *Hill-Bone Adherence Scale*. Pre-dialysis median blood pressure recordings were taken from the previous four mid-weeks. Demographic and clinical information accessed from electronic medical records.

Results:

120 patients were invited to participate in the study, 69 consented to be included. Data has been split into two different patient populations; group A who to take medications daily, and group B who have been asked to not take their anti-hypertensive medications on dialysis days.

28% of patients self-report incomplete adherence to their antihypertensive medications, with barriers to adherence including forgetfulness, carelessness, and running out of medications.

The average median blood pressure for group A was 141/79 for adherent patients (n=43) and 138.63/77.37 for incompletely adherent patients (n=8) (p= 0.40 systolic, 0.44 diastolic).

The average median blood pressure for group B was 148/77 for adherent patients (n=14) and 120/68 for incompletely adherent patients (n= 4)(p= 0.013 systolic and 0.062 diastolic).

Conclusions:

Self-reported adherence to anti-hypertensive medications did not result in median blood pressure differences for patients who take their medications daily. There was a statistically significant difference in patients who do not take their medications on dialysis days, with lower recordings in patients with incomplete adherence, although the number of outcomes was low.

Disclosures:

No relevant disclosures

References:

Not included to meet automatic word limit detection

P-38 Screening and detection of primary hyperaldosteronism in a specialist hypertension centre

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[1]King's College London, London, United Kingdom

Introduction:

Data on prevalence of primary hyperaldosteronism (PA) particularly in area with high proportion of African origin patients are conflicting. This is partially due to an overall low screening/detection rate related to the complexity and labour intense diagnostic workup to diagnose the condition. Here we investigated the proportion of patients who underwent screening and diagnostic tests for PA in a hypertension specialist clinic in South London..

Methods:

A retrospective analysis of patients recruited from the Hypertension service at Guy's and St. Thomas' NHS Trust was performed. Subjects were classified according to self-defined ethnicity as "black" and "white". Cases of suspected PA were identified by an aldosterone to renin ratio (ARR) > 90 pmol/mU in subjects not on treatment with beta-blockers and centrally acting drugs. The number of patients undergoing subsequent imaging and confirmatory testing (via saline suppression test) in both groups was noted.

Results:

498 subjects (of whom 262 black) were studied. In the overall population 96 subjects (19%) had an elevated ARR with a higher prevalence of black vs white individuals (28% vs 9% respectively). A saline suppression test was performed in only 14 subjects, confirming the diagnosis of PA in 10 individuals. Adrenal imaging performed in 56% of the population with elevated ARR yielded adrenal adenomas as the most common morphological abnormalities in both groups. Adrenal hyperplasia and micro-nodularity were however present in approximately 15% of adrenal scans in black patients.

Conclusions:

An elevated ARR is a relative common finding in hypertensive patients particularly of African origin background often presenting with a low-renin hypertension phenotype. In routine clinical practice only a fraction of patients with elevated ARR are fully investigated to confirm/exclude the diagnosis of PA.

Disclosures:

References:

P-39 - Evaluation of a Clinic-Based Hypertension Surveillance System in Dire Dawa, Eastern Ethiopia, 2022.

Mr Dagmawi Abebe Ayele[1]

[1]Haramaya University, Harar, Ethiopia

Withdrawn by Author

P-40 - May Measure Month 2021: An Analysis of Blood Pressure Screening Results from the United Kingdom and Republic of Ireland

Mr Shaun C. Lee[1,2], Dr. Daniel Warrington[2], Professor Thomas Beaney[3,4], Professor John R. Cockcroft[5], Dr. Christopher J. A. Pugh[5], Ms. Abbie Williams[5], Mr. Tyler Olding[5], Dr. Eamon Dolan[6], Professor Eoin O'Brien[7], Dr. Lisa Hynes[8], Ms. Madeline Rabbit[8], Mr. Paul Cunnanne[8], Professor Aletta E. Schutte[9], Professor Neil R. Poulter[3], Prof. Barry J. McDonnell[5]

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Introduction:

May Measure Month (MMM) is a global initiative to raise awareness of blood pressure (BP) measurement and the dangers posed by hypertension. Data from previous campaigns have highlighted the inappropriately high proportion of undiagnosed and uncontrolled hypertension in the community. The 2021 campaign aimed to investigate whether previous annual figures were stable estimates of undiagnosed hypertension and indicators of sub-optimal control in the United Kingdom (UK) & the Republic of Ireland (RoI).

Methods:

Opportunistic community screening sites were set up at hospitals, GP surgeries, pharmacies, gyms, and other public places in the UK & RoI. Data were analysed centrally by the MMM global team.

Results:

We screened 1322 participants (mean age 46 years, 55% women) and found that 522 (39.5%) had hypertension (systolic BP ≥140mmHg and or diastolic BP ≥90mmHg) at the time of testing. Of the 522 participants identified with hypertension, only 47.2% were aware of their condition, despite 94.5% having previous BP measurements. In those on anti-hypertensive medication, only 45.7% had controlled BP (systolic BP <140mmHg and diastolic BP <90mmHg).

Conclusions:

Our UK & Ireland data continues to shed further light on the lack of awareness and control of hypertension in the UK and RoI community setting. Opportunity to have blood pressure measured does not present as

a public health issue in our UK & RoI data. This evidence underlines the critical need to identify and take action against raised BP levels in the community. Through having better national community and primary care initiatives we can attempt to lower population cardiovascular risk and the associated economic burden.

Disclosures:

None.

References:

1. McDonnell BJ, et al. May Measurement Month 2019: an analysis of blood pressure screening results from the UK and the Republic of Ireland. Eur Heart J Suppl. 2021 May;23 Suppl_B. 147-150.

P-41 - Incidence and predictors of lost to follow up among hypertensive patients on antihypertensive therapy in Bahirdar town public health facilities, 2022

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[1]District health office, Gondar, Ethiopia

Background:

Hypertension is responsible for 10 million preventable deaths each year. A loss to follow up (LTFU) of hypertensive patients from clinic is a big challenge in the proper management of the disease mainly in developing countries. Therefore, this study aimed to determine incidence of loss to follow-up and identify its predictors among hypertensive patients.

Methods and materials:

A retrospective follow up study was conducted from 1 March 2016 to 30 April 2022 at randomly selected public health facilities in Bahirdar town, Northern Ethiopia. LTFU was defined as non-attendance from follow-up of >6 months. Data were extracted by reviewing patients' chart. The Kaplan Meier (KM) curve and Log rank test was used to describe the survival experiences of categorical variables. Cox-proportional hazard model was fitted and those variables with P-value less than 0.05 in multivariable analysis were used to determine the presence of statistical significance.

Results:

A total of 412 hypertensive patients on treatment were followed retrospectively for a median follow up time of 39 months (IQR=33 months).Out of all,11.6 % patients experienced lost to follow-up with an incidence rate of 3.2 with (95% CI: 2.41 -4.23) per 1000 person month observation. Having complications at baseline(AHR= 3.25, 95%CI: 1.18, 8.95),combination antihypertensive therapy(AHR= 3.57, 95%CI: 1.69, 7.52), >2 pills per day (AHR= 2.52, 95%CI: 1.30, 4.91),,having comorbidities(AHR= 3.84, 95%CI: 1.67, 8.83) & controlled BP status(AHR= 3.27, 95%CI: 1.61, 6.64) were found to be significant predictors of lost to follow up.

Conclusion:

The incidence rate of loss to follow-up among hypertensive patients was found to be highest in the first six months of the follow-up. Having complications at baseline, combination antihypertensive therapy, >2 pills

per day, having comorbidities and controlled Blood pressure status were found to be predictors of lost to follow up. Therefore, giving special attention to patients during the early phase of treatment and addressing those factors could decrease the rate of lost to follow up

P-42 - Hypertension among fisherman communities in the coastal area

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Introduction:

Hypertension is a condition of abnormally high blood pressure. Hypertension can increase the risk of diseases such as stroke, heart failure, heart attack and kidney damage. Kesenden is one of the villages in the coastal area in the city of Cirebon, West Java, Indonesia. This study aims to analyze the incidence of hypertension in fisherman communities in coastal areas and its risk factors.

Methods:

This was a cross sectional study conducted at Kesenden Village, Coastal area of Cirebon, West Java, Indonesia. A total of 147 respondents were taken based on the Lemeshow formula. The dependent variable was Hypertension. The Independent variable was age, gender, education, occupation, family income, smoking, and genetic. The data were analyzed by Contingency Coefficient test and Logistic Regression test.

Results:

41.7% of the total respondents were hypertension sufferers. Age (r = 0,374, p = 0,001), gender (r = 0,317, p =0,001), occupation (r = 0,313, p = 0,04), family income (r = 0,437, p =0.001), smoking habit (r = 0,347, p =0,001) and genetic (r = 0,41, p = 0,03) have a significant effect on Hypertension incident, while education(r = 0.155, p =0.121) have not a significant effect on hypertension incident. Multivariate results showed thatfamily income was the most have an effect on the incidence of Hypertension with an OR value 4.953 and 95% CI = 3.067 - 16.135.

Conclusions:

Family income was the most influential risk factor for the incidence of hypertension in the coastal area of Cirebon City

Disclosures:

The majority of the population in kesenden village consume salted food

References:

Mudgal, S.M., Kosgi, S., Hegde, V.N., Sharma, R., Rao, S.C., & Hegde, K.S. (2012). Prevalence of Hypertension Among Fisherman Community in The Island of Bengre, Mangalore. International Journal of Health Sciences and Research, 1, 1-15.

P-43 -Angiotensin II Type 1 Receptor (A1166C) Polymorphism as a Risk Factor in Patient with Essential Hypertension in Indonesia

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Introduction:

Hypertension is a major risk factor for coronary heart disease, ischemic, and haemorrhagic stroke. Hypertension arises due to the interaction of various factors and mechanisms. One of the essential hypertension factors is the Angiotensin II Type 1 Receptor gene or AGTR1 (A1166C) gene polymorphism and may play a role in renin angiotensin aldosterone system in the mechanism of hypertension. AGTR1 (A1166C) gene polymorphism is related to increased angiotensin II activity and associated with essential hypertension. This study aims to determine the relationship of polymorphism of the AGTR1 (A1166C) gene in patients with essential hypertension and normotensive controls.

Methods:

This study was conducted using an analytical observational method with a case-control approach and involved 34 hypertensive patients and 34 healthy controls. PCR-RFLP was used to check for polymorphisms. Data analysis was carried out with chi square test and odds ratio.

Results:

Data analysis showed that there was no significant association between the AGTR1 (A1166C) gene polymorphism and essential hypertension ($p=0.050$), however the odds ratio calculation results showed that the AGTR1 (A1166C) gene polymorphism had a 3.164 times greater chance of having essential hypertension (OR =3.164).

Conclusions:

There was no significant association between the AGTR1 (A1166C) gene polymorphism and the incidence of essential hypertension.

Disclosures:

The authors declare no conflict of interest

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P-44 - Identifying genetic contribution to adverse cardiac remodeling in rat models of human cardiovascular disease

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Introduction:

An F2 cross from the SHRSP and WKY identified a QTL on rat chromosome 14 (chr14) for left ventricular mass (LVM). Two contrasting chr14 congenic strains were then generated on both backgrounds. The cardiac phenotypes of WKY.SPGla14a and SP.WKYGla14a strains diverge from background strain, where both SHRSP and WKY.SPGla14a develop increased LVM and cardiac fibrosis, despite divergent blood pressure profiles.

Methods:

The role of isoform switching in genetic models of cardiac remodelling are largely unknown. We utilised RNA sequencing followed by differential gene expression (DESeq2[1]) and differential transcript usage (DTUrtle[2]) to explore the cardiac transcriptome during early development (GD18) in WKY, SHRSP and chr14 congenic strains (n=3 per group). To determine effect of chr14 congenic region, WKY.SPGla14a and SP.WKYla14a strains were compared to WKY or SHRSP background respectively.

Results:

StringTie assembled over 90,000 transcripts of which 54,930 were annotated in the reference genome (sensitivity = 99.1%, precision = 54.8%). Compared to WKY, the SHRSP and WKY.SPGla14a showed significantly different expression of over 2000 genes (2211 and 2199 genes respectively, FDR < 0.05). These genes were enriched for biological processes decreasing oxidative phosphorylation and increasing mitochondrial dysfunction in both WKY.SPGla14a and SHRSP *vs* WKY. Fewer changes were detected in the SP.WKYGla14a *vs* SHRSP (344 genes, FDR <0.05). The *Spp1* gene was significantly upregulated in both SHRSP and WKY.SPGla14a *vs* WKY, and significantly downregulated in SP.WKY14a. Differences in *Spp1* expression were validated by RT-qPCR. DTU highlighted an additional set of genes which display differential transcript usage, not identified in traditional gene-level expression analyses.

Conclusions:

The chr14 congenic region significantly alters gene expression and transcript usage in genetic models of hypertension and cardiac remodelling. During early development, the hearts of SHRSP and WKY.SPGla14a strains are primed for future dysfunction, potentially through differential regulation of genes increasing mitochondrial dysfunction and decreasing oxidative phosphorylation.

Disclosures:
None

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P-45 - The relationship between the polymorphism of AGT M235T and inflammation among patients with hypertension in Cirebon, Indonesia

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Introduction:

Hypertension affects 1.28 billion adults worldwide, mostly in low-mid income countries. A meta-analysis showed that the polymorphisms of angiotensinogen (AGT) M235T are associated with the risk of hypertension. Beside the dysregulation of renin-angiotensin-aldosterone system, inflammation plays a pivotal role in pathogenesis of hypertension. This study aimed to investigate the relationship between the polymorphisms of AGT M235T and inflammation among adult patients with hypertension in Cirebon, West Java, Indonesia.

Methods:

A cross-sectional study was conducted among 50 adult patients with essential hypertension in Public Health Center of Plumbon, Cirebon Regency, West Java Province, Indonesia. Genetic examination was held in the Laboratory of Genetics, Faculty of Medicine, Universitas Swadaya Gunung Jati. It included DNA extraction of blood sample and PCR-RFLP. The amplification of AGT M235T polymorphisms was carried out using 5'CCGTTTGTGCAGGGCCTGGCTCT-3' primer as forward primer and 5'CAGGGTGCTGTCCACACTGGA CCCC-3' primer as the reverse primer. The complete blood count (CBC) was performed at the Pramita Clinical Laboratory. The inflammation was identified by the elevated of platelet-lymphocyte ratio (PLR) with the cut-off value 111. PLR was determined based on the platelet count and lymphocyte count in CBC. The analysis statistics in this study used the contingency coefficient method. This study was approved by the Medical Research Ethics Committee at Faculty of Medicine, Universitas Swadaya Gunung Jati, Cirebon City, West Java.

Results:

Most of subjects in this study had the polymorphisms of AGT M235T (94%) and as many as 66% subjects showed inflammation. The bivariate analysis showed that the relationship between the polymorphisms of AGT M235T and inflammation was not significant (p=0.218).

Conclusions:

This study revealed that there is no statistically significant relationship between polymorphisms AGT M235T and inflammation among adult patients with hypertension in West Java, Indonesia. Further studies are highly needed to evaluate this potential pathomechanism.

Disclosures:

The authors stated nothing to declare.

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P-46 - T Allele in Angiotensinogen (AGT) M235T As A Risk Factor For Essential Hypertension In Indonesian Population

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Introduction:

Hypertension causes 7.5 million deaths per year and accounts for around 12.8% of total deaths in the world. Genome Wide Association (GWA) has identified several genes to determine gene susceptibility in essential hypertension, one of them is Angiotensinogen (AGT) gene. M235T polymorphism of AGT gene may interfere regulation of the Renin Angiotensin Aldosterone System (RAAS) and can be a risk factor for essential hypertension. This study aims to determine the role of *T* allele *M235T AGT* gene as a risk factor of essential hypertension.

Methods:

An analytic observational study with case control design at Plumbon Public Health Center, Cirebon Regency, involving 60 people (30 case and 30 control). The polymorphism was identified using PCR-RFLP, analysis was carried out using *chi square test* and *odds ratio* (OR).

Results:

The difference in genotype frequency was statistically significant, majority of case group had *TT* genotype (90%) and majority of control group had the *MT* genotype (66.7%) *(p value=0.000) (OR=18; 95%CI=4.378-74.012)*. The difference in allele frequency was statistically significant, *T* alleles in case group (95%), while *T* alleles in control group (66.7%) *(p value=0.000) (OR=9.5; 95% CI=2.644-34.136).*

Conclusions:

Presence of *T* alleles may contribute to the higher risk of essential hypertension.

Disclosures:

The authors declare no conflict of interest.

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P-47 - Effect of circulating uromodulin on vascular function in normotensive and chronic hypertensive models

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Introduction:

Uromodulin (UMOD) is a glycoprotein exclusively expressed in the kidneys, by the epithelial cells in the thick ascending limb (TAL) in the loop of Henle and plays a role in renal homeostasis. There are two distinct forms of this protein that are secreted into urine or blood circulation. Lower levels of circulating uromodulin (cUMOD) are known to be associated with cardiovascular mortality. A difference in the sequence of urinary UMOD and cUMOD has been identified, where the cUMOD protein comprises the whole protein with an additional peptide sequence, while the uUMOD is a shorter version of the protein. We hypothesis that cUMOD affects vascular function through a mechanism that is currently unknown. We aimed to assess the effect of cUMOD on vascular function by assessment via wire myography on mesenteric resistance arteries from both male and female Wistar Kyoto rats (WKY) and spontaneously hypertensive stroke-prone rats (SHRSP).

Methods:

Wire myography of the mesenteric resistance arteries was carried out using WKY (n=3/sex) and SHRSP (n=3/sex) to assess vascular relaxation and contraction properties. Vessels were incubated with either purified whole UMOD protein or UMOD synthetic peptide that mimics the additional peptide sequence found in cUMOD.

Results:

UMOD synthetic peptide increased contractility in males by ~60% and ~40% (p 0.02 and p 0.005) but decreased contractility in females by ~30% and ~20% (p 0.008 and p 0.003) in WKY and SHRSP models respectively. However, UMOD whole protein (representing the urinary UMOD) has no effect on either vascular contractility or relaxation.

Conclusions:

This study suggests that the UMOD synthetic peptide, which differs in the C-terminal region between urinary and circulating UMOD, impacts the vascular function of this protein.

Disclosures:

None

References:

None

P-48 - Melatonin Confers Cardioprotection in High Fat Diet-Induced Obesity

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Introduction:

Obesity has been established as a link to cardiovascular disease and its complications. Previous studies have shown that melatonin modulates metabolic genes for proper metabolic function. However, its impact on cardiovascular risk factors, especially in obesity is unknown. The present study therefore investigated the hypothesis that melatonin supplementation confers cardioprotection in high fat diet (HFD)-induced obesity.

Methods:

Twenty-four adult male Wistar rats (n = 6/group) were used: Control group received vehicle (normal saline), Obese group received 40% high fat diet and distilled water, MEL-treated group received MEL (4 mg/kg), and OBS + MEL group received MEL and 40% HFD and the treatment lasted for 12 weeks.

Results:

HFD increased food intake, body weight and cardiac mass. It also caused insulin resistance and enhanced β-cell function, increased fasting insulin, lactate, plasma and cardiac triglyceride, total cholesterol, lipid peroxidation, TNF-α and plasma troponin T as well as decreased plasma and cardiac Nrf2 and PPAR-Ɣ. However, these alterations were blunted by melatonin supplementation.

Conclusions:

The results demonstrate cardiovascular risk factors as a consequence of obesity and melatonin as a cardioprotective agent through modulation of PPAR-Ɣ and NrF2.

Disclosures:

There is no conflict of interest and I have no financial relationships to disclose.

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Wang L, McFadden JW, Yang G, Zhu H, Lian H, Fu T, Sun Y, Gao T, Li M. (2021). Effect of melatonin on visceral fat deposition, lipid metabolism and hepatic lipo-metabolic gene expression in male rats. *J Anim Physiol Anim Nutr (Berl).* Jul;105(4):787-796.

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P-49 - An evaluation of resistant hypertension management in the Cardiovascular risk clinic in accordance with NICE/BHS guidelines

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Introduction:

Resistant hypertension (RH), a leading risk factor for cardiovascular disease is defined as the failure to achieve targeted blood pressure (BP) in patients, despite optimal administration of 3 standard antihypertensive agents, one of which is a diuretic.[1,2]

Methods:

Records of hypertensive patients attending the Cardiovascular Risk (CVR) clinic at NHS Tayside, were audited over a 1-month period, and 24-hour home BP readings recorded, to verify the conformity to hypertension management guidelines of National Institute for Health and Care Excellence (NICE)[3] and British and Irish Hypertension Society (BIHS).[4]

Results:

Of the 61 patient records audited, 25 patients (41%) were identified with RH while 36 patients (59%) were non-RH. The mean ASSIGN scores for RH patients were 25 compared to 14.4 in non-RH patients.

Only 20% of RH patients were administered the 3 recommended drug classes on referral, recording average BP of 150/85 mm Hg. Also, 20% of RH patients reported at least 1 drug intolerance.

80% of the hypertensive patients referred to the clinic required ≥ 4 agents but only 50% of the patients on ≥ 4 drugs achieved good BP controls with average BP reading of 120/70 mm Hg.

In this sample, older patients were more likely to achieve target BP levels with average BP of 130/70 mm Hg compared to younger patients under 60 years whose average BP was 150/80 mm Hg.

Conclusions:

While guidelines of NICE and BIHS were adhered, audit results indicate multiple drug intolerances, comorbidities and probable patient non-compliance, as having contributory effects on RH.

Multidrug regimen places RH patients at elevated risk of adverse effects like hypotension and syncope.[5] Studies aimed at assessing efficacy of such regimens is required to help guide therapy. Furthermore, future research aimed at evaluating RH aetiology may help in identifying drug resistance causes and strategizing treatment.

Keywords:

Resistant Hypertension, Blood Pressure, Anti-hypertensive agents

Disclosures:
None

References:

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P-50 - Heart rate variability as early marker of cardiac injury in hypertensive young adults

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Introduction:

Hypertension remains a life-threatening risk factor for cardiovascular diseases globally. It is not only common to middle age or aged group but also affect young individuals. Heart rate variability (HRV) gives an inference of the overall cardiac function and health of an individual. Thus, the aim of this study was to investigate the association between HRV and biomarkers of cardiac injury and inflammation in hypertensive young adults. To understand whether HRV could be an early marker and a valid alternative to biochemical probes for the early detection of cardiac injury and systemic inflammation in hypertensive young adults.

Methods:

A total number of 300 participants were recruited by fixed sampling of the case control study grouped into normotensive and hypertensive young groups. Informed consent was obtained from all participants before the procedure. Blood pressure with some anthropometric data were collected. Afterward, each participant's HRV data was acquired by conducting a 5-minute resting ECG. Then, 5ml of blood was taken through sterile venepuncture, centrifuged at 4000 rpm and biochemical analysis was performed for plasma troponin-I/troponin-T and TNF-α/NF-kB.

Results:

HRV assessment showed significant decrease in HRV parameters of parasympathetic activity (SDNN, RMSSD, HF) in the hypertensive young group. LF also showed significant decrease in the hypertensive group. But, LF/HF (sympatho-vagal balance) showed significant increase in the hypertensive group. LF correlates with plasma TNF-α ($r = -0.6167$) and NF-kB ($r = -0.6673$) at $p = 0.0003$ and $p<0.0001$ respectively. In addition, LF correlates with plasma

Troponin-I (r = -0.6393) and Troponin-T (r = -0.5719) at p = 0.0001 and p = 0.0010 respectively. LF/HF had no correlation with these biomarkers. Thus, HRV correlates with plasma troponin-I, troponin-T, TNF-α and NF-kB in hypertensive young adults.

Conclusions:

HRV can be used as early marker of cardiac injury and inflammation in young hypertensive individuals.

Disclosures:

There is no conflict of interest to declare

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P-51 - Inhibition of HDAC2 by Acetate Reverses Myocardial Energy Depletion in a Rat Model of Polycystic Ovarian Syndrome by Suppression of MTOR

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Background:

In addition to the clinical manifestation of polycystic ovarian syndrome (PCOS), life-threatening diseases, especially hypertension and cardiovascular disease (CVD) are emerging critical complication of PCOS. Changes in myocardial energy remains an independent risk factor of CVD. Histone deacetylase (HDAC) inhibitors, including acetate has received attention for its beneficial role in energy regulation. However, its impact on myocardial energy metabolism, especially in PCOS was unknown. Herein we hypothesized that acetate would normalizes myocardial energy in experimental rat model of PCOS.

Materials and methods:

Female Wistar rats (8-week-old) were divided randomly into four groups; control, PCOS, acetate-treated and PCOS+acetate-treated groups. To induce PCOS, 1 mg/kg of letrozole was given (oral gavage) for 21 days. After confirmation of PCOS, 200 mg/kg of acetate was administered for 6 weeks.

Results:

Rats that developed PCOS showed multiple cystic ovarian follicles with androgen excess (elevated testosterone) and decreased SHBG. The rats also manifested metabolic alteration, which was characterized with impaired glucose tolerance, hyperinsulinemia and elevated plasma triglyceride. Increase in systemic oxidative stress (MDA) and inflammatory (NF-kB and SDF-1) markers as well as nitric oxide deficiency (NO/eNOS) were also observed. Though, the body weight was increased without affecting the cardiac mass of PCOS rats. Nevertheless, there was an increase in myocardial lipid (triglyceride), oxidative stress and inflammatory markers with consequent myocardial dysfunction, revealed by decreased levels of SIRT-1, HIF-1α and increased levels of CTGF, TGFβ-1 and plasma troponin T as well as cardiac fibrosis. These led to myocardial ATP depletion with increased AMP and AMP/ATP ratio. These alterations were accompanied by elevated level of MTOR and HDAC2, which were reversed when treated with acetate.

Conclusion:

The present results interestingly suggest that HDAC2 inhibition by acetate reversed myocardial energy depletion and attendant cardiomorbidities in experimental PCOS model. A beneficial effect that is accomplished through suppression of MTOR.

P-52 - Impact of paraoxonase-1 modulation by butyrate on cardiorenometabolic abnormalities in a rat model of polycystic ovary syndrome

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Introduction:

Among the metabolic derangements associated with women of reproductive age, polycystic ovarian syndrome (PCOS) affects 6-21% of women and is the leading cause of female infertility with about 70-80% cases worldwide. Cardiovascular diseases and its comorbid pathologies particularly Cardiorenal disorders, have been associated with individuals who suffer PCOS. Paraoxonase-1 (PON-1) is an essential enzyme that regulates the endothelial function of various organs, such as the heart and kidneys. Short-chain fatty acid (SCFAs) particularly acetate and butyrate, are essential endogenous fatty acids that regulate metabolic health. The present study hypothesizes that PON-1 modulation by butyrate would reverse cardiorenometabolic abnormalities in a rat model of PCOS.

Methods:

Eight-week-old female Wistar rats were allotted into four groups, n=5, namely control (CONT), butyrate (BUTR), PCOS, and PCOS+BUTR. Induction of PCOS with Letrozole (1 mg/kg) was for 21 days, while treatment with butyrate (200 mg/kg) was for six weeks uninterruptedly.

Results:

The present results revealed significant increase in PCOS phenotypes characterized by hyperandrogenism, multiple ovarian cysts, and disrupted metabolic indices (HOMA-IR), increase in plasma Troponin T, urea, creatinine, as well as increased cardiac/renal SDF-1, caspase-6, NF-kB, MDA, TG, TGF-β1, and renal GGT, while a significant decrease in systemic NO and eNOS, cardiac/renal HIF-1α, and NrF2. In addition, these derangements were accompanied with a significant decrease in PON-1 levels. Nevertheless, administration of butyrate reversed these systemic and cardiorenal alterations.

Conclusions:

The present study demonstrates the therapeutic benefits of SCFAs, butyrate, against cardiorenometabolic disorder in a model of PCOS. This beneficial effect is accompanied by elevated level of PON-1. The present data provides a clinical relevance for the management of cardiorenal syndrome in PCOS individuals.

Disclosures:

Authors declare no conflicting interest

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- Olaniyi, K.S. and Areloegbe, S.E., 2022. Acetate circumvents impaired metabolic switch in skeletal muscle of letrozole-induced PCOS rat model by suppression of PDK4/NLRP3. *Nutrition*, p.111914.
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P-53 - Acetate mitigates cardiac mitochondrial dysfunction in experimental model of polycystic ovarian syndrome by modulating GPCR 41/43

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Introduction:

Polycystic ovarian syndrome (PCOS) remains an independent risk factor to cardiac mitochondrial dysfunction, and attendant cardiovascular complications. Acetate, a short chain fatty acid has been identified for metabolic regulation. G-protein coupled receptors (GPCRs) is well documented in the regulation of metabolic signalling. Therefore, the present study investigated the modulatory role of GPCR41/43 by acetate on cardiac mitochondrial status in PCOS rat model.

Methods:

Eight-week-old female Wistar rats were randomly allotted into four groups (n=6). PCOS was induced by administering letrozole (1mg/kg *p.o*) uninterruptedly for 21 days, thereafter the animals were treated with 200mg/kg (*p.o*) of acetate for six weeks.

Results:

Rats with PCOS showed elevated testosterone and anti-mullerian hormone, with multiple ovarian cysts. In addition, these animals manifested insulin resistance, hyperinsulinemia, and increased plasma TG, TG/HDL and decreased HDL, as well as elevated cardiac TG, glycogen content, mTOR, GSK-3β, and plasma/mitochondrial NF-kB, TNF-α, and SDF-1. Mitochondria MDA and caspase-6 increased while plasma/cardiac NrF2 decreased in PCOS animals. Increase in mitochondrial ATP synthase, CPT2, succinate dehydrogenase, and HDAC2 was observed in PCOS rats with decrease in GPCR41/43 when compared with the control. Histological evaluation of cardiac tissue showed severe cardiac fibrosis in PCOS rats compared with normal cardiac morphology in the control. However, treatment with acetate reversed these abnormalities.

Conclusions:

The present results suggest the therapeutic benefit of acetate, an HDAC2i against cardiac mitochondrial dysfunction in PCOS rat model, through modulation of GPCR41/43.

Disclosures:

Authors declare no conflicting interest

References:

Olaniyi, K.S. and Areloegbe, S.E., 2022. Acetate circumvents impaired metabolic switch in skeletal muscle of letrozole-induced PCOS rat model by suppression of PDK4/NLRP3. *Nutrition*, p.111914.

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P-54 - DNA Methylation, Blood Pressure and Hypertension: A Systematic Review of Current Evidence

Miss Caitlin Dollin[1], Dr M Y Cynthia Stafford[1], Miss Elzbieta Krason-Kidzinska[1], Professor Mary Ward[2], Dr Diane J Lees-Murdock[1]

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Introduction:

Hypertension (HTN) is a major risk factor for cardiovascular disease and presents with significant economic and social burden worldwide [1,2]. DNA methylation, a modifiable epigenetic mechanism has been reported to be associated with HTN and changes in blood pressure (BP).

Methods:

This study aimed to comprehensively review and summarise the current evidence of association between DNA methylation, blood pressure and hypertension from randomised control trials, intervention studies and observational studies. Six databases were systematically searched (Medline, Embase, Web of Science, Scopus, CINHAL, Cochrane Library) for original research articles. Eligible studies reported associations between DNA methylation (global, gene-specific, epigenome-wide and biological age (DNAm Age)) and either systolic blood pressure (SBP), diastolic blood pressure (DBP) or HTN.

Results:

144 studies were identified which met the inclusion criteria. Studies reporting global DNA methylation levels consistently reported lower methylation levels associated with higher SBP, DBP or HTN levels. Gene-specific methylation studies reported associations between SBP, DBP or HTN and DNA methylation in 70 genes with the most commonly reported genes including *AGTR1* (a renin-angiotensin system related gene) and *IL-6* (a proinflammatory cytokine) both of which have been associated with increased blood pressure. Epigenomewide methylation studies reported over 200 differentially methylated CpG sites to be associated with SBP, DBP or HTN. Higher DNAm Age was reported in individuals with hypertension in the majority of studies investigating this outcome.

Conclusions:

Substantial evidence has been outlined indicating that DNA methylation is associated with changes in blood pressure and hypertension, with the most convincing evidence outlining the association between increased biological age and hypertension. DNA methylation is a promising biomarker which could be used to outline an epigenetic signature of hypertension, however, further large, homogenous, high-quality studies are required.

Disclosures:

None

References:

1. Zhou B, Perel P, Mensah GA, Ezzati M. Global epidemiology, health burden and effective interventions for elevated blood pressure and hypertension. Nat Rev Cardiol 2021;18:785–802. https://doi.org/10.1038/s41569-021-00559-8.

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P-55 - A pilot study using an automated blood pressure bracelet for ambulatory blood pressure monitoring in young adults.

Mr Billy Lo[1], Mr Henry Hollund[1], Mr Daniel McGrane[1], Miss Tia Hardcastle[1], Miss Anshu Firake[1], Miss Holly Cheeseman[1], Mr William Dunn[1]

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Introduction:

Blood pressure monitoring has traditionally been conducted via sphygmomanometry and auscultation and/or ambulatory blood pressure cuffs. The Aktiia bracelet is a novel product which combines the ambulatory aspect of blood pressure monitors with a wrist-based design, aimed to limit disruption and disturbance to the user[1].

Methods:

35 volunteers (aged 20-22) had their systolic and diastolic blood pressures (SBP, DBP), and heart rates (HR) measured via sphygmomanometry with auscultation, an OMRON EVOLV Blood Pressure Monitor, and the Aktiia bracelet at an initial visit. Thereafter, participants measured their own blood pressure four times daily at given time intervals for five consecutive days using the OMRON device, as well as wearing the Aktiia bracelet. Repeated measures one-way ANOVA and paired t-tests were conducted to determine any significant differences between measurements.

Results:

The Aktiia bracelet produced similar SBP, DBP, and HR measurements to the OMRON device and sphygmomanometry in a pseudo-clinical environment during the initial visit ($p>0.05$). In an ambulatory setting, DBP and HR were significantly different between the Aktiia bracelet and OMRON device ($p<0.001$), and SBP was similar ($p>0.05$). DBP was lower with Aktiia (61.7 ± 9.8mmHg) than with OMRON (68.6 ± 9.3mmHg), whilst HR was higher with Aktiia (72.8 ± 13.0BPM) than with OMRON (69.8 ± 12.1BPM). The Aktiia bracelet also demonstrated a significant diurnal pattern, with all measured parameters lower during the night ($p<0.05$).

Conclusions:

The Aktiia bracelet measurements were comparable to sphygmomanometry and the OMRON cuff in a pseudo-clinical environment. Ambulatory measurements were able to detect diurnal variations in SBP, DBP, and HR, however, DBP was lower, and HR was higher in comparison to the OMRON device. The lower DBP with the bracelet may suggest that the white-coat effect is still evident with user involvement for cuff-based measurements and that the Aktiia bracelet may preclude this.

Disclosures:

None.

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P56 - The Effect of Allopurinol and Febuxostat on Blood Pressure in Adults with Chronic Hyperuricemia

Dr FILIPPO PIGAZZANI[1], Dr Claudine Jennings[2], Dr Amy Rogers[1], Dr Robert Flynn[1], Prof Isla Mackenzie[1], Prof Thomas MacDonald[1]

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Introduction:

Hyperuricemia is an independent risk factor for developing essential hypertension[1]. The antihypertensive effect of lowering uric acid remains controversial.

Methods:

This was a sub-study of the Febuxostat versus Allopurinol Streamlined Trial (FAST)[2]. FAST enrolled individuals with symptomatic hyperuricemia who were already receiving allopurinol. At the screening visit, participants were invited to participate in the Blood Pressure (BP) sub-study. A validated BP monitor, an instruction booklet and a BP monitoring diary were provided. Home BP was recorded after receiving the BP monitor, after a 7-day allopurinol washout, and eight weeks after randomisation. Each set of home BP measurements was taken over four consecutive days, three times in the morning and the evening. Changes in home BP in patients randomised to allopurinol and febuxostat were evaluated. In addition, home BP changes relative to serum uric acid (sUA) levels were also assessed.

Results:

Between December 2012 and January 2014, 298 FAST participants consented to the BP sub-study. 223 participants who submitted a complete set of BP data were included in the analysis; 104 were randomised to allopurinol and 119 to febuxostat. There was no statistically significant change in BP from baseline in either group [Mean BP change from baseline with Allopurinol: SBP -0.10 mmHg (95% CI -1.76,1.56), p=0.9; DBP 0.50 mmHg (95% CI -1.82,2.81), p=0.6. Mean BP change with Febuxostat: SBP -0.77 mmHg (95% CI -4.20,2.67), p=0.7; DBP -0.41 mmHg (95% CI -2.56,1.73), p=0.7]. Hypertension at screening visit and reduction of sUA by > 60 µmol/L at 8 weeks on either therapy was not associated with changes in BP.

Conclusions:

There was no significant effect of either allopurinol or febuxostat on blood pressure after eight weeks of randomised therapy in the FAST study. Reductions in serum uric acid at eight weeks did not affect BP change.

Disclosures:

ISM reports research grants from Menarini, EMA, BHF, Sanofi, HDR UK, National Institute for Health and Care Research (NIHR), Health Technology Assessment (HTA), and Innovative Medicines Initiative; institutional consultancy income from AstraZeneca outside of the submitted work; and personal income from AstraZeneca, Amarin and Amgen outside of the submitted work. TMM reports grants from Menarini/Ipsen/Teijin, NIHR HTA, and MSD outside of the submitted work; personal income for consultancy from Novartis, Viatris and AstraZeneca outside of the submitted work; and is a trustee of the Scottish Heart Arterial Risk Prevention (SHARP) Society. AR reports unpaid membership of an NIHR trial steering committee. FP, CJ and RF declare no competing interests.

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CS-01 - “Can you Come to the Scanner!”: Paraganglioma in Pregnancy

Dr Bernadette Jenner, Dr Emma Hodson, Dr Joanna Gray, Dr Catherine Aiken, Mrs Catherine Barlow, Dr Laura Kessack, Mr Vasilis Kosmoliaptsis, Dr Razeen Mahroof, Dr Victoria Stokes, Dr Ruth Casey, Professor Ian Wilkinson

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Introduction:

A 28-year-old presented with hypertensive emergency associated with episodic headaches, palpitations, and worsening vomiting at 27+5 weeks of gestation.

She was gravida 1 para 0 with a past medical history of anxiety on citalopram. She reported worsening episodes with generalised weakness, pallor and visual disturbance triggered by standing for prolonged periods.

On examination she was hypovolaemic with a labile systolic blood pressure (100-280mmHg). Investigations showed normetadrenaline 26,609pmol/L, metadrenaline <180pmol/L and a large (10cm) abdominal paraganglioma extending into the thorax.

She was treated with phenoxybenzamine, labetalol and continued fluid and electrolyte replacement for persistent diuresis with resultant hypomagnesaemia and hypokalaemia.

The MDT planned a 2-stage procedure for delivery and paraganglioma removal. At 34+6 weeks she had an uncomplicated elective caesarean section and 5 weeks postpartum had a successful paraganglioma resection.

This is a rare case of paraganglioma presenting with hypertensive emergency in pregnancy with successful antepartum therapy and postpartum removal.

(149 words)

Questions:

1. When should one suspect a paraganglioma/pheochromocytoma in pregnancy?

2. What should be considered for antenatal and peripartum care of patients with paraganglioma/pheochromocytoma?
    a. Medical therapy – including the use of phenoxybenzamine, propranolol and/or labetalol.
    b. Fluid status – hypovolaemia and persistent diuresis
    c. Obstetric care
        i. Fetal monitoring – ethical decisions
        ii. Investigation for gestational diabetes
        iii. Anaesthetic considerations
        iv. Delivery considerations
        v. Breastfeeding

3. What are the post-natal considerations of paraganglioma/pheochromocytoma in pregnancy?
    a. Genetic testing of paraganglioma/pheochromocytoma.

CS-02 - Association between Uric Acid and Cardiac Outcomes mediating by Neutrophil-to-Lymphocyte Ratio in Patients with Left Ventricular Diastolic Dysfunction and Pulmonary Hypertension

Dr Yan Liu[1], Dr Ping Du, Dr Xin Gao, Dr Ran Guo

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Withdrawn by Author

CS-03 - Is this Conn's syndrome?

Dr Spoorthy Kulkarni[1], Prof. Ian Wilkinson[2]

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Withdrawn by Author

CS-04 - Safe, Effective, Patient-Centred Management of Malignant Hypertension in an Ambulatory Setting: A Case Report

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Guidelines on acute management of malignant hypertension are inconsistent, often resulting in unnecessary admission and inappropriate use of intravenous antihypertensive drugs.

A 19-year-old presented to the ED with deteriorating vision and grade 4 hypertensive retinopathy. He had severe hypertension (BP 205/99mmHg) with ECG-LVH and 2+ proteinuria but no evidence of a hypertensive emergency. He had symptoms and physical signs that raised suspicions of a phaeochromocytoma. He was treated in the ED with oral antihypertensives and discharged with next-day specialist follow-up in the ambulatory Same Day Emergency Care (SDEC) unit, where his BP was lowered gradually in a controlled manner and secondary screening completed.

A clinical diagnosis of phaeochromocytoma was confirmed biochemically and radiologically. Following neuro-endocrine MDT discussion, a definitive surgical management plan was made within 2 weeks of presentation without requiring inpatient admission.

We illustrate the safe, effective, patient-centred, acute management of malignant hypertension in an ambulatory setting.

CS-05 - Radiologically Atypical Posterior Reversible Encephalopathy Syndrome in a Multiple Myeloma Patient with Severe Acute Kidney Injury Receiving Bortezomib

Dr John Holland[1], Dr Conor O'Reilly, Dr Mark Denton

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Introduction:

Posterior Reversible Encephalopathy Syndrome (PRES) is characterised by headaches, altered mental status, seizures and visual loss; with radiological changes manifesting most often as vasogenic oedema in the parietal and occipital lobes of the brain.[1]

Here we discuss the case of a 61-year-old female, under the care of Beaumont Hospital Nephrology Service for management of a severe light chain-mediated Acute Kidney Injury (AKI), who developed PRES due to high-dose bortezomib treatment and worsening renal failure.

While the clinical picture was consistent with classical PRES, Magnetic Resonance Imaging (MRI) findings were unusual, demonstrating widespread white matter change.

Neurological symptoms and MRI findings resolved over four days following careful blood pressure control, optimisation of haemodialysis, and bortezomib dose reduction.

Key learning points from this case are the importance of prompt recognition of PRES' clinical signs, the role played by the rate of blood pressure rise in disease severity, and the challenge posed to cerebrovascular autoregulation by interplay between labile haemodynamics and the endothelium.

Disclosures:

None

NB- we have interesting MRI images of the white matter change distribution and their resolution on interval scanning 7 days later. These would be included in the presentation.

References:

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