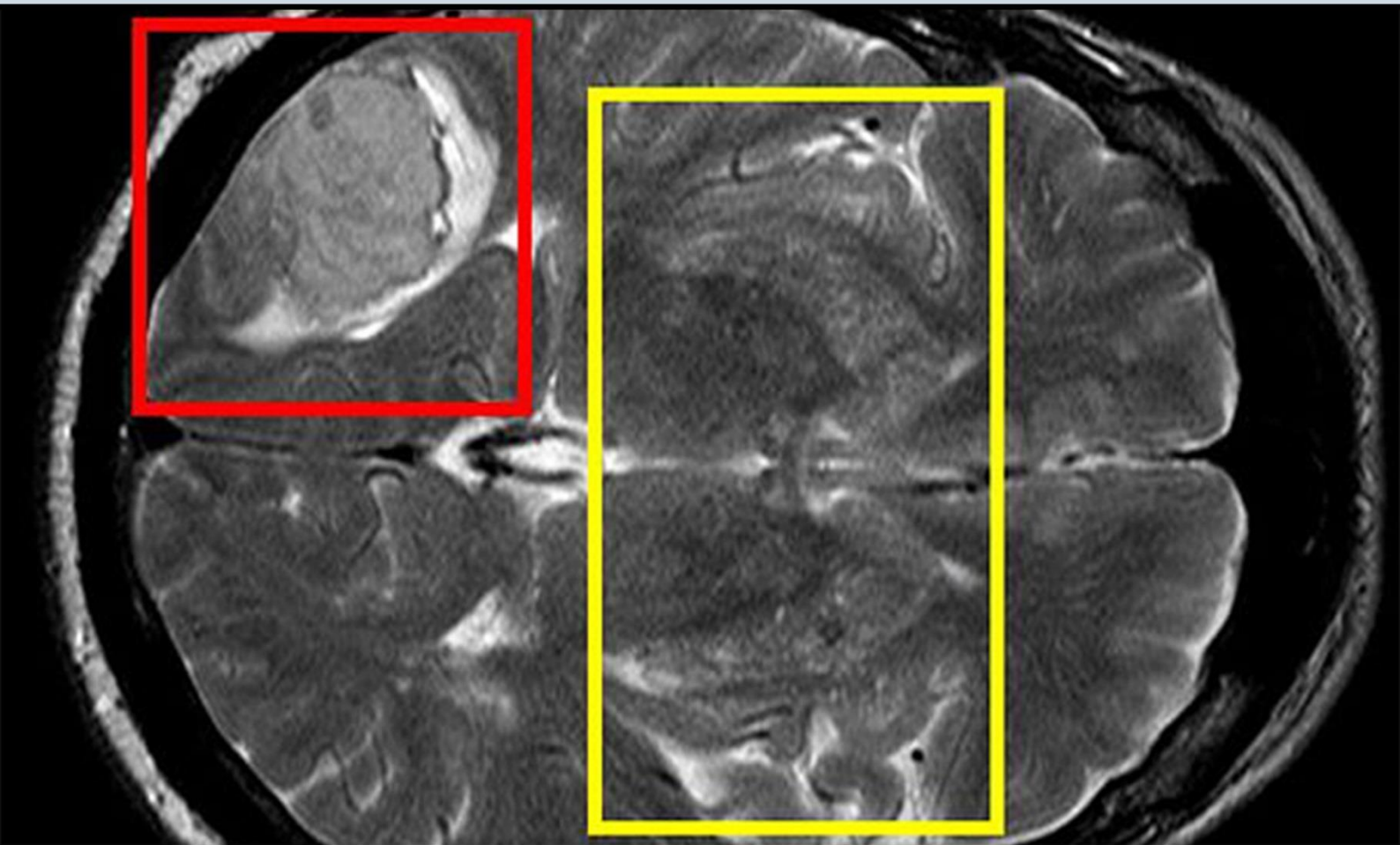


The 2015 HYPERTENSION SUMMIT

ABSTRACTS



6TH - 8TH OCTOBER 2015
LONDON, UK

EuroSciCon 

This international interdisciplinary event is an open forum for discussion of all scientific and clinical aspects of hypertension. Using a multi-professional and inter-specialty approach we will discuss scientific research and its application to the prevention, diagnosis and management of hypertension and related diseases.

This event has [CPD accreditation](#)

This abstract book will be finalised two weeks before the event
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Invited Speakers Abstracts

High Altitude Pulmonary Hypertension

Dr Julio Brito, Institute of Health Studies, University Arturo Prat, Iquique, Chile

High altitude pulmonary hypertension in people who undergoes exposure to chronic intermittent hypoxia is growing issue. We have found that this exposure depicts lesser morphological and functional changes than a chronic condition. Even though some ones could be observed at early stages, after some years a rise in PAPm, a remodeling of pulmonary artery and RVH occurs. A novel association with ADMA is under study. Some molecular mechanism would be shared by systemic hypertension. Functional capacity is lesser affected unlike other pulmonary hypertension. Whether many changes are only adaptation or constitute a transient pathologic state is still to be determined.

Improving outcomes for women with chronic hypertension in pregnancy

Dr Lucy Chappell, Women's Health Academic Centre, Faculty of Life Sciences & Medicine, King's College London, London, UK

Chronic hypertension affects around 2-3% of women of reproductive age, and in pregnancy is responsible for a disproportionate burden of disease for the mother (severe hypertension, superimposed pre-eclampsia) and fetus (preterm delivery, small-for-gestational age infants, stillbirth and perinatal death). Current methods of prediction, diagnosis and prevention of adverse outcomes are limited, but recent research has elucidated contributions of maternal and placental factors to development of superimposed pre-eclampsia. Given known ethnic variation in response to antihypertensive drugs, and emerging evidence for disparate outcomes in women of different ethnicities, there is an urgent need to re-evaluate use of therapeutic antihypertensives in pregnancy.

Experimental hypertension increases spontaneous intracerebral hemorrhages and caa in a mouse model of cerebral amyloidosis

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Rationale: Hypertension is a major risk factor for intracerebral hemorrhage (ICH). However, the mechanisms that lead to ICH during hypertension are poorly understood. The deposition of amyloid- β (A β) peptides in the cerebral vasculature, a condition known as cerebral amyloid angiopathy (CAA), is an important component leading to ICH and cognitive impairment in Alzheimer's disease (AD). Blood pressure lowering was shown to reduce the risk of CAA-related ICH, suggesting that hypertension is a factor inducing ICH in patients with CAA.

Objective: This study aims to determine the effect of A β accumulation on acute and chronic hypertension-induced ICH using a transgenic mouse model overexpressing mutant human amyloid precursor protein associated with early-onset AD and CAA.

Methods and Results: Fifteen-month-old Tg2576 mice and nontransgenic (nTg) littermates were treated with an angiotensin II (AngII) infusion (1000 ng/kg/min) and L-NAME (100 mg/kg/day) in drinking water to produce chronic hypertension. One week later, transient acute hypertension was induced by AngII injections (0.5 μ g/g, twice daily) to produce ICH. A similar increase in systolic blood pressure was observed in both Tg2576 and nTg mice, however, compared with nTg mice, Tg2576 mice developed signs of stroke with a markedly shorter latency. In addition, the number and size of spontaneous microhemorrhages were significantly increased in Tg2576 mice.

Conclusions: These data suggest that the accumulation of A β in the brain is likely to have an important role in development of hypertension-induced ICH, thus supporting the notion that hypertension is a risk factor for ICH among patients with AD and CAA.

Effect of combined ramipril-canrenone on atrial fibrillation recurrence in hypertensive patients with a history of paroxysmal atrial fibrillation

Dr Roberto Fogari, University of Pavia, Italy

Aim of this study was to evaluate the effect of ramipril/hydrochlorothiazide (HCTZ) combination (R/H) vs ramipril/canrenone (R/C) combination on AF episode recurrence in hypertensive patients. A cohort of 195 hypertensives were randomized to R/H or R/C for 1 year. Patients were asked to report any episode of AF and to perform an ECG as early as possible. SBP and DBP were similarly and reduced by both treatments. In all 29.6% of patients treated with R/H had a recurrence of AF as did 11.7% of patients with R/C. PWD was reduced by R/H and even more by R/C. R/H reduced PIP but the reduction induced by R/C was greater. These findings suggest that in these patients R/C combination is more effective than R/H combination in reducing AF recurrence.

iHOPE: International Collaboration to Harmonise Outcomes for Pre-Eclampsia

Dr James M N Duffy, NIHR Doctoral Fellow, Balliol College, University of Oxford, UK

Currently studies evaluating interventions for pre-eclampsia have reported many different outcomes. Such variation contributes to an inability to compare, contrast, and combine individual studies, limiting the usefulness of research to inform clinical practice. The development and use of a core outcome set would help to address these issues.

A core outcome set would ensure a minimum set of outcomes, important to all stakeholders, are routinely collected and reported in a standardised fashion. It would not need to be extensive, but rather comprise of particularly important consensus outcomes.

The study intends to reach a consensus by utilising Delphi methodology. An online Delphi survey enables all stakeholders to participate in a process that assesses the extent of agreement (consensus measurement) and then resolves disagreement (consensus development).

Hypertension in pregnancy - facts and fiction

Dr. Chris Griffin, Maternal and Fetal Medicine Specialist, University of Western Australia

Despite numerous attempts at identifying the cause for pre eclampsia, the incidence has not changed over the years. This talk will examine what the best available evidence is for both the aetiology, prevention and treatment of the condition

Is there a Sex-Difference in Cardiovascular Disease

Dr Martha Gulati, The Ohio State University

Women and CVD: Is there a sex differences in cardiovascular disease. The objectives of this talk is to discuss sex-differences in the treatment, outcomes and pathophysiology of cardiovascular disease in women. Will review risk traditional risk factors of ischemic heart disease in women and sex-specific risk factors. Will also review the diagnostic strategy to assess ischemic heart disease in women and assess the role of the current guidelines on ischemic heart disease management in women

The Role of Pre-eclampsia & Hypertension during Pregnancy and its association with Future Risk of Cardiovascular Disease

Dr Martha Gulati, The Ohio State University

There is increasing evidence that pre-eclampsia, a principal cause of maternal morbidity, may also be a risk factor for future cardiovascular and cerebrovascular events. This talk will discuss the current evidence and quantify the risks of cardiovascular disease (CVD), cerebrovascular events and hypertension associated with prior diagnosis of pre-eclampsia and gestational hypertension.

Coronary Microvascular dysfunction in patients with diabetes or hypertension

Professor Salvatore Novo, University of Palermo, Palermo, Italy

In patients undergoing coronary angiography to evaluate chest pain, 20 to 30 percent has normal coronary epicardial arteries on angiograms. Several studies investigated the association between cardiovascular risk factors and coronary microvascular dysfunction, but their results are discordant. The purpose of this study was to evaluate the impact of diabetes and hypertension on the coronary microcirculation using of some angiographic indexes. The study population included 310 patients: non hypertensive diabetics (164 patients) and hypertensives non diabetic (146 patients). In another study we evaluated 208 patients with chest pain and uninjured coronary arteries that we split into two populations: diabetics (72 patients) and non-diabetics (136 patients). Both diabetic and hypertensive patients had a worse microcirculation in comparison with control subjects.

Nature and Nurture; BMI and blood pressure at 90. Findings from the Belfast Elderly Longitudinal Free-living Aging Study (BELFAST)

Dr Irene Maeve Rea, Senior Lecturer and Consultant Physician Geriatric Medicine, Queens University Belfast, Queens University Belfast and Belfast City Hospital, UK

Hypertension is a key risk factor for stroke, cardiovascular disease and dementia. This session will focus on blood pressure in the 'oldest old' and explore how genetic and life-style profiles from nonagenarians may help our understanding about malleable factors which can contribute to longer 'lifespan' accompanied by 'healthspan'. The findings will challenge our thinking about what mechanisms might underpin blood pressure control in older people. Are they the same as in younger people, or do 90-year-olds, by virtue of their survival, handle blood pressure differently or do the complex gene/environment interactions of hypertension become changed with age?

Blood Pressure and High Altitude

Dr Patricia Siques, Institute of Health Studies, University Arturo Prat, Iquique, Chile

Blood pressure changes at altitude and hypertension guidance for clinicians are still an issue since the ever growing exposure to high altitude. Despite a marked interindividual variability we have found that an acute exposure always elicits an increase of BP up to 15 mmHg. In a chronic intermittent exposure, SBP is mainly increased in adults whereas DBP does in younger. SBP is associated to SaO₂, to established metabolic variables and to others as triglycerides and ADMA. A previous upper limit value of SBP is predictive to the development of acute mountain sickness. Antihypertensive doses have to be adjusted accordingly

Self-Monitoring Of Blood Pressure In Pregnancy: The Bump Study

Dr Katherine Tucker, University of Oxford, London, UK

Raised blood pressure affects approximately 10% of pregnancies worldwide, of which around half develop pre-eclampsia. Early detection and treatment of raised blood pressure is therefore paramount. Self-monitoring is widely practiced by adults with hypertension but few data exist in pregnancy. The BuMP study; a prospective un-blinded observational study of 200 women, aimed to provide preliminary evidence that self-monitoring of blood pressure could improve the detection of gestational hypertensive disorders.

Founding a network for future leaders in Hypertension: A new investigator's perspective

Dr Praveen Veerabhadrapa, Assistant Professor, Kinesiology The Pennsylvania University -Berks, Reading, Pennsylvania - USA

As there is a pressing need for fresh initiatives to develop future leaders in the field of hypertension, the New Investigator's Committee (NIC) of the International Society of Hypertension (ISH) was co-founded. The committee's mission is to promote science in Hypertension and to link the best talent worldwide transcending language and culture. The committee facilitates new avenues for open communication, fruitful collaboration and valuable education through organizing annual international symposia, networking and mentoring events, social media promotions and circulating newsletters to its members.

RAAS prevention – current strategies and controversies, including prevention and dual blockade in diabetes and kidney disease?

Dr Adam Whaley-Connell, University of Missouri-Columbia School of Medicine, Division of Nephrology and Hypertension, Columbia, USA

The focus of this talk will be to briefly review current strategies for treating hypertension in the setting of diabetic kidney disease. The discussion will focus on current use of inhibition of the renin-angiotensin-aldosterone-system and to determine if dual inhibition of the renin-angiotensin-aldosterone system remains a viable strategy for diabetics with hypertension and chronic kidney disease. The discussion will end with a discussion of future directions to determine if combination strategies beyond inhibition of the renin-angiotensin-aldosterone system are effective in reducing risk for CKD progression.

Brain haemodynamics in obstructive sleep apnoea

Dr Pawel Winklewski, Institute of Human Physiology, Medical University of Gdansk, Gdansk, Poland

Recent years brought dramatic advancements in our knowledge about structure and function of central nervous system in obstructive sleep apnea (OSA) subjects. Our understanding of physiological brain perfusion regulation substantially evolved from relatively simple pressure-flow paradigm toward highly complex cardiovascular mechanisms including baroreceptors input, changes in elastic vessels (Windkessel) properties, or intracranial pressure swings, to name a few. The pathophysiology of cerebral perfusion in OSA will be discussed. Furthermore, the central mechanisms governing sympathetic discharge in OSA, the relationship between structural and functional brain impairments and possible future directions in OSA research will be outlined.

Poster Presentation Abstracts

Poster abstracts will be finalised weeks before the event

PATHOGENESIS OF PREECLAMPSIA: IMPLICATIONS OF APOPTOTIC MARKERS AND OXIDATIVE STRESS

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Abstract

This study aimed to investigate the implication of some apoptotic and lipid peroxidation markers in preeclampsia (PE). Twenty five women with PE and 25 age and parity matched normal pregnant women were enrolled in this study. The malondialdehyde (MDA), caspase-9 activity and the percentage of DNA fragmentation were significantly higher in placentas of PE than in control women. The serum MDA level was significantly elevated in PE women delivered by cesarean section (C.S.) than vaginally delivered PE women. In vitro study demonstrated that the addition of 0.5 mM Fe²⁺, 0.1 mM ascorbate caused higher production of MDA level in PE than normal placentas and vitamin E (100 µM) caused lower inhibition of in vitro lipid peroxidation in PE placentas compared with normal. The caspase-9 activity and percentage of DNA fragmentation were associated with the severity of the PE and both could differentiate between PE and control women with 88%, 100% sensitivity and 96%, 100% specificity, respectively. Caspases-8 and/ or -9 activities were positively correlated with the maternal age but only caspase-8 was negatively correlated with neonatal birth weight and placental weight. In conclusion, the elevations of MDA, caspase-9 activity and the percentage of DNA fragmentation in the placentas of PE women implicate the involvement of lipid peroxidation and apoptosis in PE. The placenta represents a considerable source of the elevated circulating MDA in preeclampsia.

Key words: Preeclampsia; apoptosis; lipid peroxidation; MDA; caspases; DNA fragmentation.

A NOVEL ROLE FOR SIRT-1 IN L-ARGININE PROTECTION AGAINST STZ- INDUCED LEFT VENTRICULAR FIBROSIS IN RATS

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Abstract

Background: L-arginine (L-ARG) effectively protects against diabetic impediments. In addition, silent information regulator (SIRT-1) activators are emerging as a new clinical concept in treating diabetic complications. Accordingly, this study aimed at delineating a role for SIRT-1 in mediating L-ARG protection against streptozotocin (STZ)-induced left ventricular fibrosis. Methods: Male Wistar rats were allocated into five groups; (i) normal control rats received 0.1 M sodium citrate buffer (pH 4.5); (ii) STZ at the dose of 60 mg/kg dissolved in 0.1 M sodium citrate buffer (pH 4.5); (iii) STZ + sirtinol (Stnl; specific inhibitor of SIRT-1; 2 mg/Kg, i.p.); (iv) STZ + L-ARG given in drinking water (2.25%) or (v) STZ + L-ARG + Stnl. Results: L-ARG increased myocardial SIRT-1 expression as well as its protein content. The former finding was paralleled by L-ARG induced reduction in myocardial fibrotic area compared to STZ animals evidenced histopathologically. The reduction in the fibrotic area was accompanied by a decline in fibrotic markers as evident by a decrease in expression of collagen-1 along with reductions in myocardial TGF- β , fibronectin, CTGF and BNP expression together with a decrease in TGF- β and hydroxyproline contents. Moreover, L-ARG increased MMP-2 expression in addition to its protein content while decreasing expression of PAI-1. Finally, L-ARG protected against myocardial cellular death by reduction in NF- κ B mRNA as well as TNF- α level in association with decline in Casp-3 and FAS expressions and Casp-3 protein content in addition to reduction of FAS positive cells. However, co-administration of L-ARG and Stnl diminished the protective effect of L-ARG against STZ induced myocardial fibrosis.

Conclusion: Collectively, these findings associate a role for SIRT-1 in L-ARG defense against diabetic cardiac fibrosis via equilibrating the balance between profibrotic and antifibrotic mediators.

Key words: Diabetes mellitus; L- argine; silent information regulator, left ventricular fibrosis

USE OF ACE INHIBITORS IS NOT ASSOCIATED WITH ACUTE KIDNEY INJURY AFTER CARDIAC SURGERY

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INTRODUCTION

Postoperative acute kidney injury (AKI) is a frequent and serious complication after cardiac surgery [1]. Age, hypertension, diabetes mellitus, ethnicity, New York Heart Association (NYHA) class 3 and 4, EuroSCORE, cardiopulmonary bypass (CPB) time and preoperative diuretics are known risk factors for AKI [2]. The impact of angiotensin converting enzyme (ACE) inhibitors on the AKI after cardiac surgery is still controversial. We tested the hypothesis that ACE inhibitors have an independent association with AKI amongst Asian patients undergoing cardiac surgery.

METHODS

Data from 3008 Asian patients who underwent cardiac surgery with CPB between July 2008 and August 2012 at the two main national heart centers of Singapore were extracted. 1227 patients were on long term ACE inhibitors. Patients with preoperative renal failure were excluded from analysis. The primary outcome was AKI, defined using the Acute Kidney Injury Network criteria

RESULTS

The incidence of postoperative AKI was 27%. Of these, 52% of the patients received preoperative ACE-inhibitors. Univariate analysis identified age, hypertension, higher EuroSCORE (logistic) as risk factors for the development of postoperative AKI. After adjusting for propensity score and covariates, the use of preoperative ACE-inhibitor did not have an independent association with AKI. Other factors which were independently associated with AKI include age, higher EuroSCORE (logistic), congestive cardiac failure and prolonged CPB time .

CONCLUSION

The impact of long term use of ACE inhibitors on AKI is inconclusive [3,4]. Our findings show that there is no independent association between ACE inhibitors and postoperative AKI. The use of the ACE inhibitors is best tailored to each individual patient.

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A PLACEBO CONTROLLED TRIAL OF ACUTE EFFECT OF DRINKING COLED HIBISCUS BEVERAGES ON BLOOD PRESSURE IN ADULT FEMALE

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Essential hypertension is one of the most common diseases all over the world. It is considered as a major risk factor of many serious outcomes including CVA , CHD and renal failure Therapeutic guidelines of hypertension stress on medical nutrition therapy that is best expressed by DASH (dietary approaches to prevent hypertension). Hibiscus is known in Middle EAST as an effective antihypertensive natural medicine.

Objectives: to test the acute effect of cold Hibiscus beverage on blood pressure and heart rate compared to boiled hibiscus and placebo beverages.

Method: This is a double blinded randomized control clinical trial was performed in Al Medina, Saudi Arabia which was conducted from September till december 2014. the sample size was 300 adult females aged 39.20 ± 8.71 years old . participant were randomized conveniently to receive one of the 3 beverages(a hundred participant for each beverage). We exclude participants who were on anti hypertensive medication . The primary outcome measure was the acute effect of the different beverages on the systolic, diastolic blood pressure (SBP, DBP) and heart rate (HR) in both setting and standing positions within 15 and 30 minutes.

Results: All 3 groups showed normal baseline blood pressure readings. Only in the cold Hibiscus group, with basal SBP (119.87 mmHg) dropped significantly to 114.29 mmHg after 15 minutes ($p=0.00$) and to 115.47 mmHg

after 30 minutes ($p=0.00$). In addition the basal DBP of cold hibiscus (77.27 mmHg) dropped significantly to 74.31 mmHg after 15 minutes ($p=0.00$) and to 74.48 mmHg after 30 minutes ($p=0.00$).

Conclusion: in adult females with normal baseline blood pressure readings cold but not boiled Hibiscus beverage lowers the blood pressure acutely and safely within 15 minutes.