

Inaugural NHMRC Centre of Research Excellence
in Primary Aldosteronism Symposium

Practice Pearls and Clinical Updates in Primary Aldosteronism

Wednesday 13th November 2024, 1:00pm – 5:05pm (AEDT)

Adelaide Convention Centre, Australia

Co-conveners



Professor Peter Fuller

Head, Endocrinology Unit,
Monash Health and Centre
of Endocrinology and
Metabolism, Hudson Institute
of Medical Research, Victoria



Associate Professor Jun Yang

Head, Endocrinology
Hypertension Group,
Hudson Institute of Medical
Research, Victoria



Professor Michael Stowasser

Director, Endocrine
Hypertension Research Centre,
University of Queensland Frazer
Institute, Queensland

PACE
Primary Aldosteronism
Centre of Excellence

Acknowledgement of Country

Adelaide is located on the traditional Country of the Kaurna people. We acknowledge the traditional Country of the Kaurna people of the Adelaide Plains and pay respect to Elders past and present.

Primary Aldosteronism Centre of Excellence (PACE)

The Primary Aldosteronism Centre of Excellence (PACE) is a national collaboration funded by the National Health and Medical Research Council Centres of Research Excellence program, with the aim of advancing primary aldosteronism (PA) research in Australia.

This is being achieved by creating a sustainable research infrastructure fostering international collaborations, developing a multidisciplinary workforce in PA, and solidifying Australia's global leadership in addressing this public health challenge. Outcomes from PACE will inform policy and clinical practice, enhancing patient care through evidence-based guidelines, healthcare education and consumer advocacy.

This PA Symposium brings together experts in the field to share their practice pearls and clinical updates in the diagnosis and management of primary aldosteronism, the most common endocrine cause of hypertension.

PACE Chief Investigators

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2024 Primary Aldosteronism Symposium Travel Awards

On behalf of the Primary Aldosteronism Centre of Excellence, we wish to congratulate the following people on receiving 2024 Primary Aldosteronism Symposium Travel Awards:

- Dr Elisabeth Ng, Hudson Institute of Medical Research, Melbourne, VIC
- Dr Muthanna Abdul Halim, Princess Alexandra Hospital, Fraser Institute, QLD
- Dr Sonali Shah, Hudson Institute of Medical Research, Melbourne, VIC

Sponsors: We are pleased to acknowledge the financial support of our generous sponsors:

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Program

Wednesday 13th November 2024

1:00pm	Registration
1:00pm – 1:40pm	Lunch – sponsored by Servier Coffee Cart sponsored by DiaSorin
1:40pm – 1:50pm	Welcome and Introduction to PACE <i>Professor Peter Fuller</i>
Session 1: Primary Aldosteronism Practice Pearls <i>Chair: A/Professor Jun Yang</i>	
1:50pm	Dr Jimmy Shen (Monash Health, Clayton, VIC) Primary Aldosteronism Case Identification: who, when, how?
2:05pm	A/Professor Cherie Chiang (Royal Melbourne Hospital and University of Melbourne, Melbourne, VIC) Confirmatory testing: what to do with discordant results?
2:20pm	A/Professor Damon Bell (Royal Perth Hospital, Perth, WA) Outcome of Adrenal Vein Sampling in patients with discordant immunoassay and LC-MS/MS seated saline suppression results
2:35pm	Professor Michael Stowasser (University of Queensland Frazer Institute, Brisbane, QLD) Does everyone need Adrenal Vein Sampling?
2:50pm	Professor Gail Risbridger, Dr John Malios, Mr David Wyatt with A/Professor Jun Yang Living with Primary Aldosteronism - Understanding the patient's journey
3:05pm	Question and Answer Panel
3:15pm – 3:45pm	Afternoon Tea – sponsored by Servier Coffee Cart sponsored by DiaSorin
Session 2: Primary Aldosteronism Clinical Updates <i>Chair: Professor Michael Stowasser</i>	
3:45pm	Professor Andrea Rita Horvath (NSW Pathology and Prince of Wales Hospital, Sydney, NSW) Development of steroid profiling for Primary Aldosteronism diagnosis
4:00pm	Dr Renata Libianto (Hudson Institute of Medical Research, Clayton, VIC) Monitoring the outcomes of surgical and medical treatment
4:15pm	Dr Richard Carroll (Te Whatu Ora Health New Zealand Capital, Coast and Hutt Valley, Wellington, New Zealand) Metanephrines in Adrenal Venous Sampling
4:30pm	Professor Trevor Mori (University of Western Australia, Perth, WA) Aldosterone, renin and cardiovascular parameters in the Raine Study
4:45pm	Dr Moe Thuzar (Princess Alexandra Hospital, Brisbane, QLD) Cardiometabolic health in Primary Aldosteronism
5:00pm – 5:05pm	Closing Remarks <i>Professor Peter Fuller</i>
5:15pm	Canapes and drinks sponsored by Bayer (for invited speakers, award winners and research investigators)
Primary Aldosteronism Virtual Symposium sponsored by DiaSorin	

Abstracts



Primary Aldosteronism Case Identification: who, when, how?

Dr Jimmy Shen

Monash Health, Clayton, VIC

Primary aldosteronism is the most common cause of secondary hypertension ranging at least 10-15% in those with hypertension. It is associated with significantly higher risk of cardiovascular complications and targeted therapy reverses this risk and confers mortality benefit. However, the current rate of screening and identification of primary aldosteronism remains dismal and many present with delayed diagnosis and presence of target organ damage. This presentation explores the issues of barriers to screening and the discussion of evolving strategies to promote identification of primary aldosteronism.



Confirmatory testing: what to do with discordant results?

Associate Professor Cherie Chiang

Royal Melbourne Hospital, Melbourne, VIC

Saline suppression test for Primary Aldosteronism can be performed using aldosterone results produced by immunoassay (IA), liquid chromatography mass spectrometry (LCMS) or both. While the cut-offs differ between the two analytical methods, discordant results have been reported with abnormal IA and normal LCMS aldosterone post saline infusion. This group of patients have a lower rate of lateralisation on adrenal venous sampling and therefore surgical cure. Approaches to discordant results will be discussed in this session.



Outcome of Adrenal Vein Sampling in patients with discordant immunoassay and LC-MS/MS seated saline suppression results

Associate Professor Damon Bell

Royal Perth Hospital, Perth, WA

This presentation will outline an audit of the dual reported seated saline suppression tests (SSST) with aldosterone reported by both immunoassay (IA; Liaison) and liquid chromatography tandem mass spectrometry (LCMSMS) from Perth, Western Australia. There were 151 SSST dual reported over a 12-month period included in the study; 49 (32.5%) were concordant confirming PA, 34 (22.5%) concordant excluding PA and 68 (45.0%) discordant. Of the 68 discordant SSSTs, 21 (30.9%) had equivocal LCMSMS aldosterone with confirmatory IA aldosterone, 10 of whom underwent adrenal vein sampling (AVS), 9 with interpretable results. There were 47 (69.1%) with negative LCMSMS aldosterone and a confirmatory IA aldosterone, 6 of whom underwent AVS, all with interpretable results. Of the 16 patients with discordant SSSTs who underwent AVS, 13 had lateralised aldosterone secretion, 9 had undergone adrenalectomy, 8 with non-classical histology (micronodular disease) and one with classical aldosterone producing adenoma.



Does everyone need Adrenal Vein Sampling?

Professor Michael Stowasser

Director, Endocrine Hypertension Research Centre, University of Queensland Frazer Institute, Brisbane, QLD

Adrenal vein sampling (AVS) is a key part of the diagnostic workup of primary aldosteronism, distinguishing unilateral from bilateral disease and determining treatment options. Although AVS is a well-established procedure, many aspects remain controversial, including optimal patient selection for the procedure and exactly how AVS is performed and interpreted. Despite the controversies, a growing body of evidence supports the use of AVS in most patients with primary aldosteronism, though some specific patient groups may be able to forego AVS and proceed directly to treatment. Although AVS remains a difficult procedure, success rates may be improved with the use of advanced CT imaging techniques and/or rapid cortisol assays. New advances in nuclear imaging and steroid profiling may also offer alternatives or adjuncts to AVS in the future.



Living with Primary Aldosteronism - Understanding the patient's journey

Professor Gail Risbridger, Dr John Malios, Mr David Wyatt

It is critical to raise awareness amongst health professionals that primary hyperaldosteronism is an underdiagnosed cause of hypertension. At present, patients' evaluations and diagnoses are delayed. When eventually diagnosed with hyperaldosteronism, it is important for patients to be informed of their treatment options, either medical therapy, or in selected circumstances, curative surgery. The purpose of this session is to offer a patient perspective at each of the following stages: diagnosis, therapy, and management, so that endocrinologists, and all medical practitioners, can better comprehend and appreciate the patient's point of view. Our goal is to enhance diagnostic and treatment management to improve outcomes for future patients with primary aldosteronism.



Development of steroid profiling for primary aldosteronism diagnosis

Professor Andrea Rita Horvath

Kevin Mantik, New South Wales Health Pathology, Department of Chemical Pathology, Prince of Wales Hospital, Sydney

Current diagnostic pathways for primary hyperaldosteronism involve multiple biochemical tests and invasive adrenal venous sampling with both false positive and false negative results due to lack of a true gold standard for diagnosis. Previous studies have shown that steroid profiling combined with machine learning (ML) can aid in the diagnosis and stratification of patients for therapeutic intervention and offers promise to streamline what is currently a burdensome diagnostic process. As part of the PROSALDO study collaboration our laboratory in NSW Health Pathology at Prince of Wales Hospital in Sydney has developed and fully validated a liquid chromatography-tandem mass spectrometry (LC-MS/MS) steroid profile method, and externally validated new diagnostic algorithms by ML models, developed in Europe, in an independent Australian subset of patients. This talk will present the findings of the translation of research findings to clinical practice and the clinical utility of steroid profiling in the differential diagnosis of adrenal lesions. We will discuss the challenges associated with the application of artificial intelligence and ML models in the new regulatory era of medical devices and the need for carefully designed diagnostic accuracy studies and randomized trials to prove the effectiveness of such biomarker-coupled ML clinical decision aids.



Monitoring the outcomes of surgical and medical treatment

Dr Renata Libianto

Hudson Institute of Medical Research, Clayton, VIC

Untreated primary aldosteronism (PA) is associated with worse cardiovascular and renal prognosis compared to blood-pressure matched essential hypertension. Effective treatments are available with either unilateral adrenalectomy for unilateral disease, or mineralocorticoid receptor antagonist for bilateral disease or unilateral cases not suitable for surgery. However, the clinical and biochemical outcome following these treatments can vary and not all patients may achieve complete cure. The Primary Aldosteronism Surgical Outcome (PASO) consensus offers criteria to assess outcomes following surgery, while the recently published Primary Aldosteronism Medical Outcome (PAMO) consensus explores the response to medical treatment. The utility of these criteria including their application to clinical practice and their limitations will be discussed in this session.



Metanephrines in Adrenal Venous Sampling

Dr Richard Carroll

Te Whatu Ora Health New Zealand Capital, Coast and Hutt Valley, Wellington, New Zealand

Current adrenal venous sampling protocols utilise cortisol measurements to assess successful adrenal vein cannulation and determine lateralisation of aldosterone excess. In this talk, I will present data from our unit and others comparing the use of cortisol and plasma metanephrines for these calculations. The alternative use of metanephrine measurements may be of value when cortisol co-secretion by an aldosterone producing adenoma might limit the interpretation of cortisol based calculations.

Abstracts



Aldosterone, Renin and Cardiovascular Parameters in the Raine Study

Professor Trevor Mori

Medical School, Royal Perth Hospital Unit, University of Western Australia, Perth, WA

The Raine Study enrolled 2900 pregnant women from 1989-1991 in Perth, WA, as part of a trial to investigate the effect of ultrasound imaging on pregnancy outcomes and the role of early life events on subsequent childhood and adult health. The 2868 offspring (Generation2) have been prospectively followed up from birth to their current age of 34-yr with demographic, lifestyle, clinical and biochemical information collected at regular intervals. Recent data have shown a significant relationship between the aldosterone-to-renin ratio (ARR) and blood pressure in an age- and sex-dependent manner. Additionally, we have observed a positive association between left ventricular mass index (LVMI) and aldosterone in males and the ARR in females, suggesting subclinical aldosterone excess in young adulthood associates with abnormal left ventricular remodelling. These latter findings are likely clinically relevant given the association between increased LVMI and cardiovascular risk.



Cardiometabolic health in Primary Aldosteronism

Dr Moe Thuzar

Princess Alexandra Hospital, Brisbane, QLD

Primary aldosteronism (PA) increases cardiovascular risk independent of blood pressure (BP). Cumulating evidence demonstrates a higher prevalence of metabolic syndrome in individuals with PA and direct effects of aldosterone and overactivation of mineralocorticoid receptors (MR) on non-epithelial tissues such as cardiac tissue, adipose tissue and immune cells. This talk will discuss metabolic characteristics in PA, BP-independent effects of excess aldosterone and MR activation on cardiometabolic health and underlying mechanisms.

Notes
