

The Women's Health Research Program

Health Bulletin
June 2014

New research findings and research awards

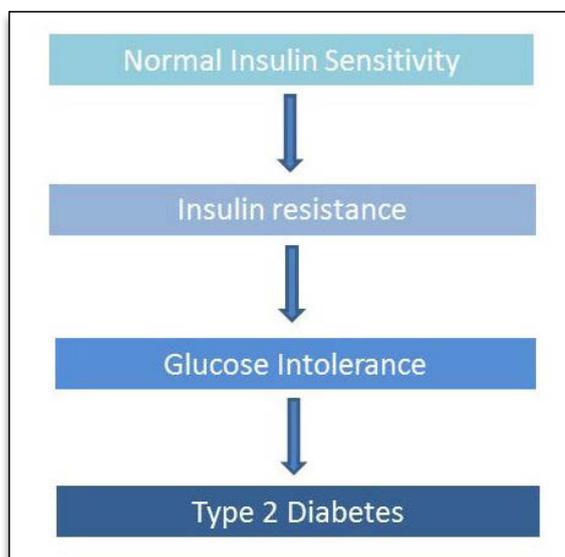
Findings from the study of metformin for the management of insulin resistance in overweight women at midlife

were presented by Dr Roisin Worsley at the 14th World Congress on the Menopause in Cancun, Mexico, May 2014.

The aim of this study was to determine if the drug metformin, which is commonly prescribed for the management of type 2 diabetes, would reduce insulin resistance, weight and waist circumference and improve cholesterol levels in obese, but not morbidly obese, nondiabetic women.

For this study, women with obesity (body mass index 30 to 40 kg/m² and/or waist circumference greater than 88cm), aged 35-65 were randomly allocated to treatment with metformin 850mg, or an identical placebo, twice daily for 26 weeks.

100 women, mean age 53 years, who participated in the study provided data for the analyses. Metformin treatment resulted in statistically significant improvements in insulin resistance and body mass index compared with placebo, and an average weight loss of 2.7 kg over the 26 week study period.



These findings are important for women at midlife. Obesity and insulin resistance precede the development of glucose intolerance and type 2 diabetes and are associated with breast cancer and uterine cancer, cardiovascular disease, non-alcoholic fatty liver disease and dementia

By improving insulin sensitivity in obese women at midlife, these outcomes may be prevented. Further studies are needed to determine whether the effects we observed over 6 months are sustainable and if it is possible to profile the women most likely to benefit.

Dr Worsley was awarded the Robert

Greenblatt Young Investigator's Clinical Award of the International Menopause Society for her presentation at the Congress. This study was supported by the Bupa Health Foundation, Australia.

Dr Berihun Zeleke, recipient of the International Menopause Society Young Investigator Research Bursary 2014-2016 for the study of "Menopausal Symptoms; prevalence and impact on the health and wellbeing of older women".

Older women have been described as 'marginalised' and 'invisible'. When they report persistent menopausal hot flushes

and sweats (vasomotor symptoms) they are, for the most part, ignored. Vaginal dryness, urinary incontinence and sexual health for older women are topics most doctors are uncomfortable to explore and are not a public health priority. But as the ageing population retains good health, and older women increasingly participate in paid or unpaid employment, debilitating oestrogen deficiency symptoms that persist well beyond menopause need to be addressed.

Recent small studies suggest that as many as 15-20% of women continue to experience moderate to severe ▶



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hot flushes and sweats due to their loss of oestrogen production well into their 80s. Urogenital atrophy symptoms (vaginal dryness, dyspareunia, urinary tract infections, and urinary urgency) due to oestrogen deficiency persist for life unless treated. Observational studies of menopausal symptoms conducted to date, that have included older women, have been small such that the extent of these problems in older women has never been comprehensively investigated.

In this study Dr Zeleke will document, for the first time, the impact of vasomotor symptoms and urogenital atrophy on wellbeing, personal and workplace functioning, the extent to which highly symptomatic older women are suffering and the use of a range of approved and unapproved therapies. This study will demonstrate which symptoms most adversely affect health and social/work

function such that specific gaps in health care for older women can be targeted. Although this work will be undertaken exclusively within Australia, it will have applicability to a range of other developed countries. Although not directly translatable to the developing world, this project will provide valuable reference data for future studies in other communities.

Will exercise or yoga reduce hot flushes?

It has been suggested that by reducing the automatic nervous system responses, yoga might alleviate hot flushes and night sweats. It has also been proposed that women who exercise more have fewer hot flushes. In a recent study, published in the journal *Menopause* ^(1,2) 249 postmenopausal women were randomised to 12 weeks of yoga (one 90 minute class per week and daily home practice), exercise (3 aerobic

sessions /week) and usual activity. Neither yoga nor exercise resulted in a significant reduction in hot flushes compared with placebo. Both treatments did, however, result in less insomnia, although the effect was small. Thus although both yoga and aerobic exercise contribute to positive health and wellbeing they are not effective treatments for menopausal hot flushes.

1. Newton KM, Reed SD, Guthrie KA, Sherman KJ, Booth-LaForce C, Caan B, et al. Efficacy of yoga for vasomotor symptoms: a randomized controlled trial. *Menopause*. 2014;21(4):339-46. Epub 2013/09/21.
2. Sternfeld B, Guthrie KA, Ensrud KE, LaCroix AZ, Larson JC, Dunn AL, et al. Efficacy of exercise for menopausal symptoms: a randomized controlled trial. *Menopause*. 2014;21(4):330-8. Epub 2013/08/01.

Get involved in Research

Does anti-androgen therapy impair cognitive function in women with polycystic ovarian syndrome?

There is evidence that testosterone is important for normal brain function in women. If this is the case then blocking testosterone action might impair normal brain function. Women with a condition called polycystic ovarian syndrome (PCOS) tend to have elevated testosterone levels and are commonly treated with a medication (spironolactone) to lower their testosterone and block testosterone action.

The aim of this study is to determine whether spironolactone treatment of women with PCOS results in any change on the brain function assessed by sensitive tests of verbal and spatial learning and memory. The findings will not only inform us about the safety of this treatment in women with PCOS but also add to our understanding of the role of testosterone in brain function in women.

Our approach: PCOS is the most common hormonal disorder in women, affecting around 15% of women of reproductive age. Affected women commonly experience excessive facial and body hair and acne. The standard treatment for this is "anti-androgen" therapy (spironolactone) which blocks testosterone production and action.

We will recruit to this study 2 groups of women with PCOS:

Group 1 will be 25 premenopausal women with PCOS who have been taking the anti-androgen, spironolactone, 100mg daily for at least 3 months. Group 2 will be 25 premenopausal women with PCOS who are to commence spironolactone 100mg daily for excess hair growth/ acne. We will exclude women taking other medications that might confound the study outcome.

We will assess learning and memory using a highly sensitive computer based testing system called CogState that was developed in Australia to assess the cognitive function of healthy people. We have used this in several published studies.

The CogState battery assesses a range of brain functions including word learning and memory, visual attention, psychomotor function, visual learning and executive brain function. The primary study outcome will be the change in the word learning and memory score in group 2, compared to group 1, over 12 weeks. Other outcomes will be the change in the other CogState task score and in testosterone levels.

Anti-androgen therapy is used extensively in women with PCOS. We suspect that this therapy adversely affects verbal learning and memory – to date this has not been studied. This study will enable us to test our hypothesis. If we find that use of the anti-androgen impairs learning and memory, this study will provide information about the size of the effect for us to design a larger double blind, placebo-controlled randomised controlled trial to investigate this further.

If you are interested in receiving more information regarding this study please contact the Women's Health Research Program.

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