

New test to deduce diabetes risk in polycystic ovary syndrome sufferers

March 24 2014

Scientists at the University of Birmingham have uncovered a new method to identify and test women with polycystic ovary syndrome who are at high risk of going onto develop diabetes.

The findings will pave the way for a more personalised approach to the treatment and management of PCOS, with women who have the risk factors for developing type 2 [diabetes](#) being selectively tested for the disease and offered early therapeutic interventions to reduce long-term health risks.

Polycystic ovary syndrome (PCOS) is the leading cause of female factor infertility in the Western world, and affects between five and ten per cent of women of reproductive age. It is associated with an increased future risk of diabetes and heart disease.

Women with PCOS often have elevated levels of male pattern hormones, called androgens, which includes testosterone. The researchers have shown that higher levels of androgens in women with PCOS (hyperandrogenemia) is associated with increased resistance to insulin, which could eventually lead to developing diabetes.

But the study, supervised by Professors Wiebke Arlt and Jeremy Tomlinson at the University of Birmingham's Centre for Endocrinology, Diabetes and Metabolism (CEDAM), also found that androstenedione – a hormone which a precursor to testosterone - is elevated in more situations than testosterone, and correlates better with [insulin resistance](#).

This provides clinicians with a more robust test for diabetes risk in PCOS sufferers, as androstenedione is much easier to detect in female serum than testosterone.

The study recruited 86 PCOS patients and compared their [androgen levels](#) and metabolic risk with 43 control patients.

Lead author Dr Michael O'Reilly, from the School of Clinical and Experimental Medicine at the University said: "This work confirms what we have suspected clinically for some time – that the androgen precursor hormone androstenedione is a more sensitive marker of PCOS-related androgen excess than testosterone, which has been measured traditionally.

"In addition, we now know that those patients with co-elevations of both androstenedione and [testosterone](#) represent a group with the greatest degree of insulin resistance, and therefore at highest risk of progressing to type 2 diabetes. This is a relatively inexpensive and convenient method to identify those at risk of [type 2 diabetes](#), who will require close clinical and biochemical monitoring now and in the future."

More information: "Hyperandrogenemia predicts metabolic phenotype in polycystic ovary syndrome: the utility of serum androstenedione." O'Reilly MW, Taylor AE, Crabtree NJ, Hughes BA, Capper F, Crowley RK, Stewart PM, Tomlinson JW, Arlt W. *J Clin Endocrinol Metab.* 2014 Jan 1;jc20133399. [Epub ahead of print]

Provided by University of Birmingham

Citation: New test to deduce diabetes risk in polycystic ovary syndrome sufferers (2014, March 24) retrieved 14 January 2023 from <https://medicalxpress.com/news/2014-03-deduce-diabetes->

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