Obesity gene associated with susceptibility to polycystic ovary syndrome

March 17 2009

Researchers have shown that a gene implicated in the development of obesity is also associated with susceptibility to polycystic ovary syndrome (PCOS).

The FTO gene has recently been shown to influence a person's predisposition to obesity, and is now the first gene to be associated convincingly with susceptibility to PCOS(1). Carried out by Dr Tom Barber and colleagues from the Oxford Centre for Diabetes, Endocrinology and Metabolism, University of Oxford and Imperial College London, this research is the first evidence to show a genetic link between obesity and PCOS. The results are being presented at the annual Society for Endocrinology BES meeting in Harrogate.

PCOS is a common condition affecting up to 1 in 10 women of child-bearing age. PCOS affects the ovaries and is characterised by irregular periods, excessive hair growth and is a common cause of infertility. PCOS is strongly associated with obesity, and it is thought that the prevalence of PCOS will increase with rising levels of obesity. The FTO gene is known to influence weight. There are two versions of this gene, one of which is associated with increased weight gain and susceptibility to development of obesity(2).

Dr Tom Barber and colleagues are interested in working out the genetic causes of PCOS and its metabolic consequences. Given the association between PCOS and obesity, they investigated whether variants of the FTO gene also influence susceptibility to PCOS. To this end, they

analysed the type of FTO gene carried by 463 PCOS patients and 1336 female population controls. They found that the type of FTO gene a person carried significantly influenced their susceptibility to PCOS. In fact, the version of the gene which is associated with increased weight gain is also associated with PCOS. The data suggest that FTO variants influence PCOS-susceptibility via an effect on fat mass. This is the first gene to be associated convincingly with susceptibility to PCOS and provides genetic evidence to corroborate the well established link between PCOS and obesity.

Researcher Dr Tom Barber said:

"Polycystic ovary syndrome is an incredibly common condition affecting 1 in 10 women of reproductive age and is a leading cause of infertility. It is a genetic condition and one that is strongly associated with obesity; it is therefore of huge relevance for women given today's obesity epidemic. Our research shows that a variant of the FTO gene that has previously been shown to be associated with obesity also influences susceptibility to polycystic ovary syndrome. These data provide the first genetic evidence to corroborate the well documented association between these two conditions. Our future work will focus on elucidating the underlying mechanisms of polycystic ovary syndrome and its metabolic consequences with the hope of understanding how this common condition develops. This in turn will instruct future therapeutic developments for women who suffer from polycystic ovary syndrome."

Source: Society for Endocrinology