University News

Genes that 'switch-on' the reproductive system

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The factors that control the beginning of reproductive life in humans have remained a fundamental mystery of biology. While the age of menarche in girls is influenced by environmental factors such as nutrition and athletic training, it is also partly controlled by genes according to a study by The University of Western Australia researchers published this week in Nature Genetics.

The research, co-authored by UWA Molecular Geneticist Associate Professor Scott Wilson, analysed data from eight independent studies and identified for the first time, genes that are involved in determining the onset of menstruation in females.

The study of 17,510 women across eight different international populations included women of European descent. Their reported age of menarche ranged from 9 to 17 years.

Women were grouped according to the age they began menstruating. Using high tech 'gene chips', researchers were able to analyse DNA samples of the groups to look for similar gene codings and highlight the exact genes most likely accountable.

"The study contributes to an improved understanding of the processes involved in the onset of menstruation. In addition, knowledge about the mechanisms controlling this aspect of reproductive biology may also help inform us about disease of the reproductive system," A/Prof Wilson said.

Previous epidemiological studies have shown that early menstruation is linked to higher body fat and shorter stature. The effect on height is possibly due to earlier fusion of the epiphyses. In this latest research, A/Prof Wilson and colleagues, also found that of the 10 known genetic variants associated with Body Mass Index, five were also associated with an influence on the age of menarche.

"Another potential contribution of the research is improved understanding of the processes involved in adolescent growth and weight regulation," A/Prof Wilson said.

Commenting on the research, Professor Bronwyn Stuckey, Medical Director of the Keogh Institute in Perth, said, "The study identifies genes previously unknown to be associated with the age of menarche. Now physicians and scientists can better understand how processes like menstruation are initiated and can begin to examine the genetic versus the environmental factors involved. This research also opens the possibility of finding genetic influences on other aspects of the regulation of female reproductive cycles which affect fertility. "

Media referces

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