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News & Comments

1 in 500 Men has an Extra Sex Chromosome

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Approximately one in 500 men have an extra sex chromosome, a genetic analysis of over 200,000 men indicates. The prevalence of diabetes and cardiovascular disease in this group has increased much more than previously thought.

Detailed health and genetic information of half a million participants is being tracked for years by the UK Biobank project. Using the Biobank database, researchers at Cambridge and Exeter Universities analyzed the genetic data of 200,000 men in search of the prevalence of extra chromosomes.

on average, a male carries a single XY sex chromosome, but among the study participants, 213 men carried an extra X chromosome and 143 had an extra Y. since the symptoms of extra Y chromosomes are very subtle, its diagnosis is rare too Among the XXY men, only 23% had been diagnosed with a chromosomal abnormality, and just 0.7% had been diagnosed with an XYY abnormality.

For the study team, the results were astonishing, because they thought it would be rare, but it was surprisingly very common.

In the Biobank volunteers' health data, the researchers reported that extra sex chromosomes are associated with an increased risk of certain health conditions.

Both XXY and XYY men had higher rates of type 2 diabetes, atherosclerosis, blood clots in the veins (venous thrombosis) and lung arteries (pulmonary embolisms), and chronic obstructive pulmonary disease, which obstructs the airflow, the study suggests.

The primary limitation of the study is that it contains samples of men aged 40-70 of European ancestry. The significance of our study lies in the fact that it is based on genetics, and it explores the potential health consequences of an extra sex chromosome in an older population, without being biased by testing only men with certain characteristics, as has been done in the past.

KEYWORDS

Cardiology, Cell Biology, Chromosomes, Heart, MRC Epidemiology Unit, Medical Research Council, Extra Chromosome, Heart Disease, XYY, Genetics, Chromosome, Diabetes, Thrombosis