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LUNG ALERT

β_2 adrenoceptor polymorphisms (*ADRB2* gene) are not strongly associated with asthma incidence or prevalence

▲ Hall IP, Blakey JD, Al Balushi KA, *et al*. β2-adrenoceptor polymorphisms and asthma from childhood to middle age in the British 1958 birth cohort: a genetic association study. *Lancet* 2006;**368**:771–79.

The aim of this study was to analyse any potential correlation between β_2 adrenoceptor (*ADRB2*) polymorphism and asthma risk and prognosis. The *ADRB2* gene contains polymorphic variants with high minor allele frequencies in the white population. The three coding regions, Arg16Gly, Gln27Glu and Thr164Ile, are shown to be functionally relevant. Previous meta analyses looking into the correlation between the genetic polymorphism and asthma risk have produced conflicting results.

In this study people born in the UK during one week in March 1958 were analysed by means of interviews (inquiring after symptoms of asthma, wheezy bronchitis and wheezing) and lung function tests at various ages. Those who had a history of significant wheezy bronchitis during childhood were examined at age 34–35 years by trained nurses and spirometry was performed. People who were still in contact with the study at age 42–45 years had DNA extraction for genotyping, measurement of immunoglobulin E levels and spirometry. A separate group of 41 individuals with severe asthma was recruited for specific genotyping.

Half of the cohort of 8018 individuals had some history of wheezing by the age of 42. No significant association of any one single nucleotide polymorphism was seen with lifetime prevalence or age of asthma onset. However, there was a small correlation between persistence of asthmatic symptoms from childhood to middle age and Arg16Gly and Gln27Glu gene polymorphism. Childhood wheezers who were homozygotes for the Arg16-Gln27 haplotype had five or more wheezing episodes in the past year at the age 42. The authors also did a further meta analysis including the results of previous studies and this did not show a significant correlation between gene polymorphism and prevalence or severity of asthma.

The results of this genetic association study in a British population do not confirm a significant correlation between β_2 adrenoceptor polymorphisms and asthma risk or prevalence. However, any potential correlation between such genetic findings and the prognosis of childhood wheezing needs to be determined with more specifically designed studies.

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