

Gene testing asthmatic children could lead to better treatment

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(Medical Xpress)—Testing asthmatic children for a specific gene could prevent their condition worsening, according to new research by scientists in Dundee and Brighton.

The arginine-16 genotype of the beta-2 receptor is carried by one in seven sufferers and the research found their condition could be aggravated by the use of the long-term controller medicine, Salmeterol, a long acting beta-receptor [stimulant](#), which is administered through an inhaler.

Testing [children](#) for the genotype would identify those who might react poorly to Salmeterol and means their [asthma control](#) may improve with the use of alternative medicines.

The research was carried out by Professor Brian Lipworth and genetics expert Professor Colin Palmer, both from the University of Dundee, and Professor Somnath Mukhopadhyay from the Brighton and Sussex Medical School (BSMS) which is run jointly by Brighton and Sussex universities.

They carried out the first genotyped study comparing additional treatments given to [asthmatic children](#) who continue to experience symptoms despite use of their prescribed inhaled steroid preventer.

More than a million UK children have asthma and over 150,000 are affected by this [genetic change](#), making them less likely to respond to

Salmeterol. The researchers tested 62 children with the susceptible arginine-16 [genotype](#). They had all missed school or had treatment at hospital or out-of-hours GP surgeries as a result of their asthma, despite being treated with regular inhaled steroids.

While continuing with their usual preventer, the children were randomly assigned to two treatment groups for the period of a year - Montelukast or Salmeterol.

The research found they responded better to an alternative anti-inflammatory medicine, Montelukast. They experienced an improved quality of life, wheezed and coughed much less, and were less likely to experience worsening of their symptoms and needing more 'reliever' treatment, compared to the Salmeterol users.

At the start of the research, 36 per cent of these children tested needed to use their relievers every day. But by the end of the year-long study, the number of children needing daily reliever use had halved in the group using Montelukast. In contrast, there was no improvement for the children in the Salmeterol group. This is despite the fact that Salmeterol is currently the preferred drug for children with asthma who are not controlled with [inhaled steroids](#).

The researchers have warned that many children with serious asthma respond poorly to Salmeterol and may be suffering needlessly from asthma, regularly missing out on sports and recording low school attendances during long-term treatment with this medicine. They said their [treatment](#) may be made more effective with the help of a simple relatively inexpensive gene test.

The researchers said their results are "a step towards personalised and tailored medicine for asthma".

The research is published today (8 January) by the journal *Clinical Science* (Volume 124, pp 521-528).

Provided by University of Dundee

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