

Common ear, nose, and throat issues in pre-schoolers may be linked to later autism risk

Early identification and treatment of these conditions may improve their quality of life

Young children with common ear, nose, and throat (ENT) issues may be at subsequent risk of autism or high levels of demonstrable autism traits, suggests research published online in the open access journal **BMJ Open**.

Early identification and treatment of ENT conditions may improve these children's quality of life and potentially help shed light on some of the origins of autism, say the researchers.

The causes of autism are likely to involve an interplay of genetic, environmental, and biological factors, and the origins of each autistic trait may also differ, note the researchers.

Previous research suggests that ENT conditions, such as ear infections, 'glue ear', and sleep disordered breathing, may have a role in the development of autism. But most of this evidence is based on health records, which may have biased these findings, because parents of children with suspected autism may be more likely than other parents to seek medical help for their offspring, explain the researchers.

To avoid this, the researchers drew on participants in the long term Children of the 90s study, also known as the Avon Longitudinal Study of Parents and Children (ALSPAC). This has tracked the health of more than 14,000 children since birth and that of their parents from the early 1990s onwards.

The current study is based on comprehensive data for more than 10,000 young children who were closely monitored throughout their first 4 years.

Their mothers completed 3 questionnaires when their children were aged 18, 30, and 42 months, which were designed to record the frequency of 9 different signs and symptoms relating to the ear, nose, and throat as well as any hearing problems.

They also completed 3 questionnaires when their children were just over 3, nearly 6, and 9 years old. These were designed to pinpoint speech coherence, social and communication issues, repetitive and abnormal behaviours, and sociability, traits which are characteristic of autism. A diagnosis of autism was confirmed from educational records and parental feedback, among other sources.

Adjustments were made for 10 potentially influential 'environmental' factors: early or late birth; sex; number of mother's previous pregnancies resulting in a live or stillbirth; breast feeding; postnatal depression; mother's educational achievements; mother's smoking at 18 weeks of pregnancy; mother's belief in her own agency; child's exposure to environmental tobacco smoke at 15 months; child's attendance at a crèche/other daycare by the age of 30 months.

In all, 177 children had a probable diagnosis of autism: 139 boys and 38 girls. Those with autism traits were defined as the 10% of the sample with the highest trait scores.

Early evidence of breathing through the mouth, snoring, ear pulling or poking, reddened and sore ears, worse hearing during a cold, and rarely listening were all more commonly associated with high scores on each of the 4 autism traits, and with a diagnosis of autism.

Pus or sticky discharge from the ears was also associated with autism and with poor coherent speech.

Among the different ages tested, strong associations were particularly observed when the child was aged 30 and 42 months. Children with high scores on autistic traits at 30 months had more ENT signs. Autism itself was significantly associated with all signs except for symptoms of sleep apnoea (interrupted breathing during sleep).

Factoring in the 10 environmental features made little difference to the results. For example, children with discharge from their ears were more than 3 times as likely to have autism, while those with impaired hearing during a cold were more than twice as likely to do so. And children who failed to react to nearby noise were more than 6 times as likely to have autism at this age.

However, the researchers point out: ** “These ENT signs and symptoms are very common in childhood and most children who experience them do not go on to be diagnosed with autism. For example, of the group of around 1700 children who snored at age 30 months, most (1660) weren’t diagnosed with autism later on.”

The researchers acknowledge various limitations, including the loss of some children to subsequent monitoring, as is the case with any long term study, and the lack of ethnic diversity among the Children of the 90s participants, limiting the wider applicability of the findings.

What’s more, the children weren’t examined consistently to determine a diagnosis of autism; rather, a strategy to assess the probability of a diagnosis using a variety of different sources was used instead.

But they nevertheless conclude that the associations they found “may be important because (1) these ear and respiratory signs may be early markers of increased risk of autism, (2) they may inform the origins of autism, or (3) they may highlight co-occurring conditions that if treated may lead to a better quality of life for children with autism.”

They add: “This study adds to the evidence that, compared with a typical population of the same age, early ear and upper respiratory symptoms are more common in those subsequently diagnosed with autism or with extreme levels of autistic traits.”

But they caution: “It is not possible to determine whether these ENT conditions have a causal role in the development of autistic traits or are related to an unmeasured factor.

“One possibility, for example, could be the consequence of the increased prevalence of minor physical anomalies in individuals with autism, including anatomical differences in the structure and/or positioning of the ear, with such differences in ear morphology increasing the risk of ENT conditions.”