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Need to know - Autism

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Professor Simon Baron-Cohen answers questions from GP Dr Linden Ruckert.

1. What features might alert a GP to the possibility of autism in a child?

A GP should be looking for difficulties in social behaviour (the child is either too withdrawn or over-friendly but in an inappropriate way), communication (the child is either not talking much or is using language in a one-sided way, rather than taking interest in the other person), and has strong narrow interests (eg, he or she pursues one topic to the exclusion of all else) and repetitive behaviour (eg, the child loves to spin objects or line them up in an order systematic fashion). We don't know if severity of a child's autism affects the risk of having another affected child but we do know that if there is one child with autism in the family, the risk to the other sibling(s) is about 25 per cent for having related difficulties such as dyslexia and dyspraxia.

2. Autism is more common in males than females. Why is this, and what part does genetics have to play in the development of autism when compared with other, environmental, factors?

Autism may be more common in males than in females for three reasons:

- Genetic factors: it may turn out the genes for autism are sex-linked or sex-limited in some way. This is not yet known. What is known is that autism runs in families and has a strong genetic component. Twin studies suggest heritability is as high as 90 per cent.

- Hormonal factors: it has been shown that fetal testosterone (FT) levels measured in the womb (in amniotic fluid, in studies of women who had amniocentesis during pregnancy) are related to the child's social and language development postnatally. Since male fetuses produce at least twice as much testosterone as females (since males produce it from their testes, whereas females only produce it from their adrenal glands), and since we know from animal studies that FT is known to affect brain development and later behaviour, this factor may turn out to play an important role in the cause of autism. FT may be both the result of genetic factors, and itself serve as an environmental factor (in the womb).

- Diagnostic factors: it may be that girls are better at masking their autistic traits by imitation of a peer, just enough to not get noticed or

raise concern among parents or teachers, so that girls are referred less often to clinics for a diagnosis. Even when girls are seen in clinics, their learnt social behaviour is judged to be good and their 'symptoms' may therefore be judged not to be severe enough to warrant a diagnosis.

Some evidence for this is that those females who do receive a diagnosis tend to have more severe traits, suggesting they may only come to a professional's attention when their behaviour is strikingly atypical.

3. Parents of children with behavioural difficulties occasionally raise the question about how they can have their child tested for autism.

In a hard-pressed NHS it is often difficult to find an appropriate body to carry out such an assessment, especially when the child may be borderline. Often these assessments seem to be available only through private educational psychologists and their fees may be prohibitive. Is there any likelihood of a nationally agreed approach to assessing such cases in the future?

It is hoped there will be a nationally agreed approach to assessment in the future, but few states or countries if any have yet implemented a national screening programme for autism, either because of the cost implications and/or because of the lack of consensus on which interventions would be provided.

4. What are the indications for using Ritalin?

The only indication for using Ritalin is if the child not only has autism but also has ADHD (attention deficit and hyperactivity disorder), since Ritalin has some benefits for ADHD. It is not a medication for autism per se. Indeed, there is no agreed pharmacological intervention for autism so the preferred approach is early, intensive, and structured behavioural interventions, such as applied behaviour analysis, social skills training, speech therapy, and allied approaches (music therapy). Special schools play a big role, because class sizes are smaller so the child's social anxiety may be reduced. Because such schools are highly structured (systematic), they cater for the child's strong systemising learning style.

5. What is the prognosis in autism?

Prognosis is best predicted by the child's initial level of language and IQ, and can be excellent, with the right support. In the AS subgroup, it is not unusual to meet patients who as adults have achieved high levels of educational and occupational success. Sheltered employment schemes and sheltered housing can also increase quality of life, even for the less able individuals on the autistic spectrum.

6. Many parents remain wary about giving their children the MMR vaccine in the wake of previous adverse publicity. What's the latest?

The evidence for a link between autism and MMR vaccinations is not strong. Perhaps the clearest evidence against a link comes from a large Danish population study (New England J Med 2002, Nov 7th, 347, 1477-82).

Some 537,303 children born between 1991 and 1998 were surveyed, 82 per cent of whom had not had the MMR vaccination. Rates of autism among the vaccinated and the non-vaccinated populations were not significantly different. Given the size of this study, it becomes increasingly untenable to argue that the MMR vaccination is a significant risk factor for autism.

7. Why has there been a rise in the prevalence of autism in recent years?

Autism is likely to have been present throughout history. The rise in its prevalence in recent years undoubtedly reflects five key factors:

- Better recognition and awareness, fuelled by...
- The growth of services (such as specialist clinics)
- Better training of frontline professionals
- The inclusion of the new subgroup of Asperger syndrome (AS)
- Recognition that autism is a spectrum

AS is now seen as part of the 'spectrum' of autistic conditions and this has added a whole new category of children into the prevalence rates for autism spectrum conditions, broadly construed. AS was only officially recognised by the American Psychiatric Association in 1994, and much of the increase in prevalence stems from the 1990s.

AS is different to classic autism because although both share the features of social and communication difficulties and narrow interests, 'obsessions' and unusually repetitive behaviour, in AS there is no history of language delay (the child spoke on time) whereas in classic autism the child is typically late to talk (late means not producing single words by two years old, or phrases by three).

In addition, in AS the child's IQ is in the average or above-average range, whereas in classic autism the child may have an IQ anywhere on the scale (including the below-average range). The big clue that the rise in autism prevalence is linked to the inclusion of AS is that whereas in 1978 it was said that 75 per cent of children with autism had below-average IQ, today some studies are suggesting the exact opposite (75 per cent have average IQ or above).

Before 1988 autism was argued (vociferously, by child psychiatrist Professor Michael Rutter in London) to be a categorical diagnosis, meaning you either had it or you didn't. The spectrum view was the alternative, argued equally vociferously by child psychiatrist Dr Lorna Wing, also working in London.

Today the consensus is that Wing's view is correct. Interestingly, in her studies as far back as 1978, she suggested that if you take the spectrum view, the rates

of autism are at least 20 per 10,000 children, whereas Rutter said if you take the categorical view, the rates were only 4 per 10,000. In the January issue of Archives of Diseases in Childhood 2006, my paper proposed the idea that autism is caused by the genetic combination of two parents who are both strong systemisers.

Systemisers are people who have very exact minds, such as people with excellent memory for small details such as dates, or names of songs or names of plants, and who have a strong preference for systems such as computers, lists, accounting, machines, or collections. Assortative mating is a term from genetics that simply means 'like is sexually attracted to like'.

The idea is that today, strong systemisers are enjoying unprecedented employment opportunities because their mind and their skills are suited to the digital age, and economic status is linked to fertility. Strong systemisers can meet each other more easily because of global travel; strong systemisers end up in shared environments (such as science departments in universities) in a way that was rarely possible in the past (since women were not admitted to many such science departments by universities before the 1970s, in great numbers).

Areas of many countries (such as Silicon Valley in the US, Silicon Fen in the UK, etc) may be attracting more strong systemisers for work, who end up meeting each other.

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