

Immunisation: Myths and Realities supplement
Measles, mumps, rubella vaccine, inflammatory bowel disease and autism

What is Inflammatory Bowel Disease?

Inflammatory Bowel Disease (IBD) is a group of chronic inflammatory disorders of the small and large bowel, the most common being ulcerative colitis and Crohn's disease. The cause of IBD is not understood, but likely causes are an immune mechanism as well as a genetic predisposition. IBD is relatively rare, and usually occurs in people aged between 15 to 30 years, but can also occur in children. Common symptoms include diarrhoea, fever, stomach pain and weight loss.

What is autism?

Autism is a developmental disorder that is usually identified between 18 months and three years of age. Autism is four times more common in boys than girls and occurs in all racial and social groups. Children and adults with autism typically have difficulties in verbal and non-verbal communication, social interactions, and leisure or play activities. A single cause of autism has not been identified, but current research links it to neuro-developmental, genetic and environmental factors. Many children have some of the features of autism but do not fulfil all the diagnostic criteria. Because of this, terms such as 'Pervasive Developmental Disorder' (PDD) and 'Autism Spectrum Disorder' are sometimes used.

What is measles, mumps, rubella vaccine?

Measles, mumps, rubella (MMR) vaccine is a live virus vaccine, which protects against these three diseases through use of modified types of measles, mumps and rubella viruses. They protect against natural infection without causing disease themselves. The National Health and Medical Research Council (NHMRC) recommends MMR vaccine for all children at 12 months of age and again at 4 years of age.

Does vaccination with MMR cause IBD and/or autism?

In 1993, a group of researchers led by Dr Wakefield at the Royal Free Hospital, London, suggested an association between both the natural and vaccine types of measles virus and IBD. This finding was based on a study of 25 children with Crohn's disease (compared to 22 well children). In 1998, researchers from the same group reported the occurrence of an apparently new syndrome of an unusual type of IBD in association with developmental disorders such as autism. The researchers suggested that MMR vaccine caused IBD, which then resulted in decreased absorption of essential vitamins and nutrients through the intestinal tract. They suggested that this resulted in developmental disorders, such as autism.

Reviews of these studies have found the suggested associations to be weak and the studies to have several flaws. Primarily the Royal Free Hospital studies have been conducted on very selective patients, all referred to the hospital for gastrointestinal ailments. Such a study is unable to determine causal links. In addition, there was no report of detection of vaccine viruses in the bowel or brain tissues of any of the patients. Furthermore, the association between vaccine and autism was primarily based on parental recall. Parents are likely to have linked changes in behaviour with memorable events such as vaccination. The onset of autism and MMR vaccination may coincidentally appear associated in time because the average age at which parents report concerns about child development is 18 to 19 months, and over 90% of children receive MMR vaccine before their second birthday in the UK.

What do other studies show?

More thorough, (large epidemiological) studies, including an English population based study of the vaccination status of 498 children with autism, and rates of IBD and autism among 6100 French school-aged children, have found no evidence of an association.

Laboratory studies (by Iizuka et al. and Haga et al. in Japan), using a similar methodology to Wakefield et al. did not find any measles virus in patients with IBD. Other groups using more sensitive testing methods have not found any evidence of measles virus in the gastrointestinal tract of patients with Crohn's disease or ulcerative colitis. Recently Wakefield and John O'Leary presented data of selected cases of autistic children suggesting that they may have isolated measles virus from some children. These data have not been published in the scientific literature, and no other laboratory has been able to reproduce these findings.

What do the experts conclude?

Reviews by Canadian and World Health Organization experts have concluded that 'current scientific data do not permit a causal link to be drawn between the measles virus and IBD'. In 1998 Sir Kenneth Calman, British Chief Medical Officer, convened a meeting of the Medical Research Council and a group of national and international experts, including the World Health Organization, to review the work of Wakefield and the Royal Free Hospital IBD study group. The meeting concluded that based on current evidence 'there is no link between measles, measles vaccine, and either Crohn's Disease or autism'.

Is there any benefit in giving the component vaccines separately?

There is no evidence that giving the vaccine components of MMR separately is of any benefit. In fact, giving them separately may even be harmful because children and their contacts may be exposed to serious diseases over a longer period of time.

For information on the Immunise

Australia program:

Phone the Immunisation Infoline on 1800 671 811

Visit the Immunise Australia Website on

<http://immunise.health.gov.au>

Further reading

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- Inflammatory Bowel Disease (IBD) and vaccines
<http://www.cdc.gov/nip/vacsafe/concerns/IBD.htm>

