

Is there a link between the MMR vaccine and the increasing number of cases of autism?

By Peter Rooney

In 1988 the MMR vaccine was introduced to the UK. In this year there were 26,222 cases of measles and 16 deaths, more than 20,000 cases of mumps and approximately 25,000 cases of rubella. Ten years later and it was being hailed as a “wonder” vaccine as in 1998 there were just 112 cases of measles, 94 cases of mumps and 122 cases of rubella. What had caused its rapid decrease in popularity from its peak in 1996 when the percentage of MMR vaccine take-up in children was 92% to its fall of 10% in 2002 to 82%? Parents were being faced with the dilemma to either listen to the reassurances from the government and most scientists that the vaccine was safe, or to listen to the allegations made by Wakefield et al that the vaccine caused autism.

Measles, mumps and rubella all have serious complications. Measles can cause respiratory problems, ear infections and meningitis. Mumps can cause deafness and before the MMR vaccine it was the biggest cause of viral meningitis in children. Rubella can cause inflammation of the brain and can affect blood clotting. In pregnant women it can cause disastrous consequences such as a miscarriage or health problems for the child such as heart problems or brain damage.

In 1998 claims were made by Wakefield and his colleagues that there was a link between the increase in cases of autism and the widespread use of the MMR vaccine. They reviewed reports of children with bowel disease and regressive development disorders mainly autism. The researchers suggested that the MMR vaccine led to intestinal abnormalities, resulting in impaired intestinal function and developmental regression within 24 hours to a few weeks of the vaccination.

Autism is a term that refers to a collection of neurologically based developmental disorders in which individuals have impairments in social interaction and communication skills, along with a tendency to have repetitive behaviors or interests. A variety of factors could be associated with forms of autism including infectious, metabolic, genetic, neurological, and environmental factors. Genetic factors and brain abnormalities at birth are the most recognised causes of autism.

A number of studies have been carried out to investigate the relationship between vaccine and autism. Madsen et al conducted a study in Denmark in 2002. The participants in the study were children born in Denmark between January 1991 and December 1998. There were a total of 537,303 participants of which 440,655 were vaccinated and 96,648 were not vaccinated. The results of their investigation showed that there wasn't a higher incidence of autism with the vaccinated participants. Although there were many more vaccinated participants in the study than unvaccinated participants the group was large enough to provide more statistical power than other MMR-autism studies. Therefore this study provides strong evidence that there is no causal link between the MMR vaccine and autism.

The MMR-autism relationship theory is based on the idea that intestinal problems e.g. Crohn's disease, are the result of a viral infection and can contribute to the development of autism.

The MMR and autism debate was at its peak in 1998 when Wakefield published his study in Lancet. Their hypothesis claimed that the vaccine led to intestinal abnormalities, resulting in impaired intestinal function and developmental regression within 24 hours to a few weeks of the vaccine. The report issued in the Lancet stated "Rubella virus is associated with autism and the combined measles mumps and rubella vaccine has also been implicated. Funderburg noted that for 15 out of 20 autistic children, the first symptoms developed within a week of vaccination. Gupta commented on the striking association between the MMR vaccine and the onset of behavioral symptoms in all children that he had investigated for regressive autism." The Lancet · Vol. 351 · February 28, 1998.

This hypothesis was based on a study of 12 children, 9 of which the child's parents or pediatrician had speculated that the MMR vaccine had caused the autism. It is for this reason and many others that this study is considered to be unreliable. The study size (number of participants) was simply too small to make generalizations about the causes of autism. Also the cases were forwarded to the researcher and therefore may not be truly representative of cases of autism. In at least 4 out of the 12 cases, behavioral problems appeared before the onset of symptoms of bowel disease; that is the effect preceded the supposed cause. It is unlikely therefore that bowel disease or the MMR vaccine triggered the autism.

An interesting question, which has arisen as a result of Wakefield's study, is would it be safer to separate the vaccine into its original components i.e. a separate vaccine for measles, mumps and rubella. There is no scientific research or data to indicate that there is any benefit in splitting the vaccine. Although three separate doses would cause more discomfort due to the additional injections and would also leave the children exposed to potentially life threatening diseases. If the rubella vaccine was separated and delayed, millions of children would be susceptible to rubella for an additional time period than necessary. This means that if a pregnant woman were to contract "wild" rubella from an unvaccinated child, the child she was carrying could develop autism. As the "wild" rubella virus is one of the few known causes of autism. Therefore, ironically the MMR vaccine actually helps to prevent cases of autism.

The MMR-autism debate is a very emotive topic and we must be careful whilst reviewing it not to get too caught up with all the media attention that surrounds the argument. We must acknowledge that there never was a scientific basis for asserting a link between MMR and autism. Furthermore, epidemiological studies have consistently failed to find any correlation between the MMR vaccine and the rise in autism diagnosis. The MMR scare was based on superstition and not science.