MMR vaccine

New evidence for a viral pathogenic mechanism for new variant inflammatory bowel disease and development disorder?

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We are all aware of the public unease about a potential link between vaccination with the triple vaccine MMR (mumps, measles, and rubella) and autism or bowel inflammatory conditions, with some hundreds of parents of afflicted children undertaking legal action against the manufacturers. There is no space to go into detail of the controversy over the link here (search the web using keywords "measles, MMR, vaccination, autism")—suffice it to say that reliable epidemiologists are content that there is no significant association between MMR and either autism or bowel inflammatory conditions. However, epidemiology is a pretty blunt tool and the studies done do not rule out the possibility that there may be "at risk" groups where a real link between MMR and autism/bowel inflammatory conditions exists.

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In 1998, Wakefield and colleagues reported colitis and ileal lymphoid nodular hyperplasia in children with developmental disorders such as autism, and suggested a possible link between MMR vaccination and a chronic enterocolitis associated with neuropsychiatric dysfunction in these children.[1] In 2000, a further study by the same group supported the association of developmental disorders with a distinct form of inflammatory bowel disease—new variant inflammatory bowel disease.[2]

In this present paper,[3] the authors report the association of this condition with the persistence of at least fragments of the measles virus genome within the follicular dendritic cells and lymphocytes of areas of lymphoid nodular hyperplasia. The technique used (reverse transcriptase polymerase chain reaction) could not indicate whether whole virus was present, or whether it was replicating, but for the moment we can go along with the notion that the virus is persisting in some form in these patients.

The interpretation of this finding is difficult. It would be entirely wrong to jump to the conclusion that the measles component of MMR "causes" the colitis or the developmental disorder in these particular (or any other) children. Causation is rarely simple and never pure: most if not all diseases are multifactorial in nature, and the data here could equally well be interpreted as indicating that the colitis or the developmental disorder "cause" the persistence of the measles. The measles virus persistence could reflect the inability of patients with a developmental disorder to clear the virus. The enterocolitis may cause failure of viral clearance. And in no way can the data presented here be used to support the generalisation that MMR causes all autism and/or inflammatory diseases of the bowel.

There is evidence that developmental disorders are associated with a functional disturbance of the brain–gut axis. Neurogenerative disorders such as Parkinson's disease and functional bowel diseases, such as the irritable bowel syndrome, are associated with abdominal pain, bloating, and diarrhoea. Functional magnetic imaging has demonstrated striking differences in cortical activation following colonic distension in patients with irritable bowel syndrome compared with normal controls, suggesting that a disturbance in perception in the absence of obvious pathological changes may lead to abdominal pain, bloating, and diarrhoea. Thus, the symptoms present in the patients with developmental disorders may result from pathological modulation of the functional interface between the immune and sensory motor systems of the gut. Hence, disturbance of the brain–gut axis might lead to alterations in local neurotransmitters and mediators of inflammation—and so failure to clear virus infections efficiently.

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The data presented here are unquestionably interesting but beg a string of further questions: Is replicating whole virus present? Is it identical to the vaccine strain? Are other viruses—mumps or rubella—present? What about the nature of immunity to measles and other pathogens in these children? These questions come immediately to mind. Doubtless the present (and other) authors are pursuing these (and many other) questions: we look forward to answers.

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