Pertussis, MMR, and the COVID-19 vaccine: lessons not learned

Hopes for a resolution of the current COVID-19 pandemic focus on the development and widespread acceptance of an effective vaccine. Child neurologists are sadly familiar with controversies relating to vaccination. Unfortunately, such lessons of the past have not been learnt, and history seems to be repeating itself.

In his book *The Doctor Who Fooled the World*, Brian Deer details the well-known events surrounding Andrew Wakefield and the MMR vaccine. He also discusses the controversy around ‘vaccine damage’ attributed to pertussis immunization in the 1970s and 1980s. The seminal paper was accepted as evidence of causation, although a case series can only ever suggest association. The paper was later shown to have included patients with alternate diagnoses and two children who had not been vaccinated at the time of reporting. It is disappointing that it fell to the judiciary rather than the scientific community to arbitrate. The scientific and political rivalries that are apparent in the current pandemic are unfortunate echoes of this impasse.

The MMR-autism story also illustrates a failure of the peer review process. In the original Wakefield study, autism was diagnosed without standardized assessments, rather by hearsay. There was clearly selective reporting and fabrication of data. Additionally, conflicts of interest went undeclared and there was unwillingness by other scientists to openly question the ethics and veracity of data, even in the presence of unequivocal evidence to the contrary. One hopes this could not happen with today’s research and information governance; but now, as then, pressure to produce and publish remains significant in academia. Transgressions may be ignored if a high impact factor is reached. Unfortunately, during the COVID-19 pandemic, interpretation of data has escaped into the hands of politicians, and scientific competition, rather than collaboration, continues to be the norm.

At the time of the Wakefield study, the media became a legitimate and primary public information source; the massed voices of science were considered less credible, perhaps because of past unwitting medical errors such as the thalidomide debacle. Today, the democratization of access to information by the internet has blurred the boundary between fact and fiction. Social media is rife with conspiracy theorists, so even if the truth is known it is difficult to identify it confidently.

Parents of children with neurological and/or developmental impairments are desperate for an explanation and a solution; the power of this need is attested to by the significant numbers of people (including a former US President) who continue to believe in Wakefield’s discredited hypothesis. A recent opinion poll found that a third of Americans thought that vaccines probably or definitely caused autism. Another, and critical, untoward effect of both of these episodes is the aforementioned vaccine fear. This is a very real fear, and epidemics of pertussis and measles respectively followed reduction in uptake of those immunizations. Meaningful protection from COVID-19 depends not only on the development of a safe and effective vaccine, but on its wide uptake in the population, probably by at least 70%. ‘Herd immunity’ became a highly loaded phrase when mass exposure was proposed as a means of controlling COVID-19, but ‘vaccine fear’ has the potential to curtail the achievement of this goal. A recent international study found that willingness to take up vaccination against COVID-19 ranged from 55% to 90% and this remains an ongoing issue. A further recurring theme is the absence of evidence-based information and letting Google become the ultimate oracle. Rather than sheltering in our bunkers of questionable certainty, we should reflect on these past scandals and insist on transparency and a strong, clear scientific voice, which must be key to overcoming this type of fear.

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