Medicolegal

Judge "not satisfied" that whooping cough vaccine causes permanent brain damage

CLARE DYER

The link between pertussis vaccine and permanent brain damage has been a heated medical controversy for the past two decades. About £6 million has been paid out to children who have been accepted as having brain damage due to whooping cough vaccine since the government's no fault scheme was set up under the Vaccine Damage Payments Act in 1978. Awards of £10 000 each (£20 000 to those who applied after 18 June 1985) have been made to over 500 children whose parents have proved on the balance of probabilities—the same standard of proof that applies in the civil courts—that the vaccine caused the handicap. The national childhood encephalopathy study, a three year case-control study set up to resolve the controversy over whether the vaccine can cause permanent brain damage, concluded in 1982 that it can do so in rare cases—at an incidence of 1 in 300 000 doses of the vaccine. Nevertheless, in the test case of 17 year old Susan Loveday Lord Justice Stuart Smith declared himself not satisfied that the vaccine caused permanent brain damage. Unless it is overturned on appeal—the plaintiff's lawyers have been given six weeks to decide whether to take the case further—last month's ruling will bring to a halt more than 200 other claims pending over handicaps allegedly caused by the vaccine.

Case falls at first of three hurdles

Susan Loveday sued Dr George Benton, the general practitioner who gave her the vaccine, alleging negligence because he had given the second and third doses despite reactions to the earlier dose. The manufacturer was not named as a defendant—indeed, there was no evidence as to which manufacturer's vaccine was given to Susan Loveday—but the defence was conducted by the Wellcome Foundation, which joined as a defendant at its own request, being the sole remaining British manufacturer of the vaccine.

The four month trial, which ended last month, simply considered the preliminary issue of whether or not the vaccine can cause brain damage. Had that question been decided in Susan Loveday's favour she would still have faced two substantial hurdles proving that pertussis vaccine caused her particular plight and that Dr Benton was negligent in giving it.

Her legal bills so far have totalled about £1 million, making the case the most expensive ever financed by legal aid. Wellcome's costs are probably even higher, added to which the company spent £500 000 defending an earlier test case before it collapsed in 1986.

The teams for and against

The plaintiff called nine expert witnesses: Dr Herbert Barrie, consultant paediatrician at St Teresa's Hospital, Wimbledon; Dr Annette Dolphin, lecturer in pharmacology at St George's Hospital Medical School, London; Professor Wolfgang Ehrengut of Hamburg; Professor David Kerridge, professor of statistics at the University of Aberdeen; Professor John Menkes, professor of paediatrics and neurology at the University of California at Los Angeles; Professor David Miller of the Middlesex Hospital, London, director of the national childhood encephalopathy study; Dr Richard Newton, consultant paediatric neurologist, Royal Manchester Children's Hospital, Manchester; Dr Lawrence Steinman, paediatric neurologist, Stanford University, California; and Dr John Wilson, senior consultant neurologist, Hospital for Sick Children, Great Ormond Street. Lord Justice Stuart Smith said, however, that he found himself "more impressed by the cogency and quality of the evidence and reasoning" of the 10 experts called by Wellcome: Professor Michael Bradbury, professor of physiology, King's College, London; Professor James Ferrendelli, professor of clinical neuropharmacology, Washington University School of Medicine, St Louis; James Forfar, emeritus professor of child life and health, Edinburgh; Dr Arlwyn Griffith, former deputy director of research for Wellcome; Dr K D MacRae, reader in medical statistics, Charing Cross and Westminster Medical School; Dr Thomas Pollock, former director, Epidemiological Research Laboratory, Public Health Laboratory Service; Dr Keith Redhead, Home Office microbiologist; Dr Richard Robinson, consultant in paediatric neurology, Guy's Hospital; Dr John Stephenson, consultant in paediatric neurology, Royal Hospital for Sick Children, Glasgow; and Professor Alistair Wardlaw, professor of microbiology, Glasgow.

Judgment

In a huge 300 page judgment, divided into 14 chapters with references and appendices, Lord Justice Stuart Smith said that warnings given to doctors about contraindications to vaccination were inadmissible as evidence that the vaccine caused permanent brain damage, and in any event the conclusion did not follow from the fact that the advice was published. Reports of cases in which the illness occurred shortly after vaccination raised a hypothesis of a causal link but did not prove the hypothesis or even raise a *prima facie* case because encephalopathy occurred fairly commonly among young children who had not been recently vaccinated. Such reports did not take account of events occurring by chance, for which no explanation could be found. No clinical syndrome specific to pertussis vaccine or a specific disease process peculiar to deaths after pertussis vaccination had been identified. Furthermore, no animal experiments had shown encephalopathy leading to permanent brain damage within 72 hours after an injection of pertussis vaccine.

The plaintiffs put forward four suggested biological mechanisms,

none of which, they conceded, could be established on the balance of probabilities; febrile convulsions, anaphylactic shock, neurotoxic effects, and adjuvant effects. Lord Justice Stuart Smith said that in his judgment all four suggested mechanisms were improbable.

Importance of national child encephalopathy study

Turning to the epidemiological evidence, he said that the national childhood encephalopathy study was unique because it was the only case-control study that had attempted to answer the question before the court. If the results could be accepted, he said, they provided some (albeit fragile) evidence that children vaccinated with pertussis vaccine who developed a neurological illness within seven days after vaccination suffered permanent brain damage more commonly than could be expected by chance. But examination of the data relating to follow up tables had led him to conclude that the results could not be justified and could not be relied on as a measure of brain damage.

The results of the national childhood encephalopathy study, both in the admission tables and the follow up tables, were biased towards overstating the risk. In part this occurred because cases associated with the vaccine had been included that did not or probably did not comply with the protocol and because of the effect of accidental biases, which could not be avoided in a case-control study. Even allowing for the effect of bias and other defects, a significant risk of serious neurological illness was likely within 72 hours to seven days after vaccination with diphtheria, tetanus, and pertussis vaccine. This was in large measure due to cases of febrile convulsions and supported the conclusion that diphtheria, tetanus, and pertussis vaccine sometimes caused febrile convulsions. It did not provide evidence that such convulsions after the vaccination caused permanent brain damage.

The judge said that he was conscious that it was the plaintiff's case that only children who were in some way vulnerable were affected. The vulnerabilities might explain why neurological events occasionally occurred soon after vaccination with diphtheria, tetanus, and pertussis vaccine, and indeed other vaccines, but did not show that any brain damage or epilepsy that ultimately resulted was due to the vaccine as opposed to the underlying condition.

Judge changed his opinion

Mr Justice Stuart Smith said that when he had embarked on the case he had been impressed by the case reports and the evidently widely held belief that the vaccine could, albeit rarely, cause

permanent brain damage. He had been ready to accept that this belief was well founded. But over the weeks that he had listened to and examined the evidence he had become increasingly doubtful. He had now come to the clear conclusion that the plaintiff had failed to satisfy him on the balance of probabilities that pertussis vaccine could cause permanent brain damage in young children. It was possible that it did; the contrary could not be proved. But the plaintiff's claim must fail.

The judge went on to say that even if he had found in Susan Loveday's favour on the preliminary issue she would face insuperable difficulties in establishing negligence on the part of the doctor or nurse who had given the vaccine. Such a claim would have to be based on the grounds that the vaccination had been given despite certain contraindications. But a respectable and responsible body of medical opinion believed that as there was insufficient evidence that the vaccine caused permanent brain damage the contraindications on this ground need not be observed. The defendant's experts took the view that a child who convulsed after one pertussis vaccination might well do so after another because of a low threshold to febrile convulsions or incipient epilepsy. Although this would cause no lasting harm, it might be a ground for observing the warning about contraindications because of the short term distress to parents. This disadvantage would be outweighed by the benefits of the vaccine but might, on the other hand, damage its reputation and be detrimental to a campaign in favour of vaccination.

In America, where laws on product liability favour the plaintiff, juries have made multimillion dollar awards against manufacturers of whooping cough vaccine. Three months ago one plaintiff was awarded \$18 million. A new vaccine damage compensation scheme has been funded to the tune of \$80 million a year.

Future of no fault scheme in question

In Britain future payments under the government's no fault scheme for vaccine related damage have been thrown into doubt by the High Court ruling, now being studied by the Department of Health and Social Security and the Treasury Solicitor. The Loveday case is the third case of alleged vaccine damage to reach court in Britain. Richard Bonthron, aged 9, lost his case in the Court of Session in Edinburgh in 1985 because the court was not satisfied that his condition had been caused by the vaccine. The first English test case, on behalf of 16 year old Johnnie Kinnear, collapsed in May 1986 when the legal aid certificate was discharged because his mother (in Lord Justice Stuart Smith's words) "was not telling the truth" about the date of onset of symptoms. Unless the Loveday ruling is set aside on appeal no further cases will even reach the courts.

MATERIA NON MEDICA

Bandits in the hills

My wife and I recently visited friends who were working in Bangladesh. We found it to be a place of great natural beauty, and met many friendly and creative people. We were pestered mercilessly in public places but treated with great hospitality in private houses. Our friends were based in Chittagong, the country's second city, which is full of colour and activity. Many buildings carry English signs; a bread shop claims, "We aim to make you happy!" and ramshackle buildings advertise Chinese eye drops and ultrasound tests. Everywhere there are bicycles converted to rickshaws with brightly coloured awnings, being pedalled furiously between the Morris 1000s and Toyotas. Chaotic scenes in the city centre are quietly observed by a traffic policeman who seems reluctant to intervene. A space between shops is filled with sweaty boys making wrought iron gates. Immaculately dressed businessmen with new brief cases and umbrellas stride past groups of scantily clad children. A hirsute gentleman stands naked in the middle of a roundabout, politely ignored by all the passers by. They seem to know him well.

We travelled into the hills between Chittagong and the borders with India

and Burma. Our destination was Rangamati, to visit a cotton mill and a rest house with beautiful views of a lake. Our journey was interrupted by a couple of soldiers who asked us to fill in forms giving all our personal details, including our next of kin. My wife was concerned.

"There are bandits in the hills, Madam," one of the soldiers explained. "If you do not return by nightfall we will raise the alarm." We asked if any tourists had run into trouble.

"Last week two were detained for some time, but they were not killed," he explained.

We continued our journey with some trepidation, and were relieved to reach Rangamati and lunch. After a meal of fish with cucumber salad we sat drinking coffee on the verandah, gazing at the surrounding countryside and the distant hills. The rest house had old leather sofas and a comfortable country house atmosphere. We could happily have stayed in this peaceful place for hours, and only the thought of our two soldiers glancing at their watches and shaking their heads encouraged us to leave.

Bangladesh is a place of great contrasts, not all of them pleasant, but I feel enriched by the experience, and full of admiration for the courage of its people.—HERVEY WILCOX, consultant chemical pathologist, Surrey.