MARK TWAIN AND EXPERT EVIDENCE

By David Hirsch

When assessing statistical evidence used by experts, a Mark Twain quote comes immediately to mind: 'Most people use statistics like a drunk uses a lamppost: more for support than illumination.'

In a previous column,[1] I criticised Professor Alastair MacLennan's thesis that it could never be proven scientifically that cerebral palsy (CP) was preventable and, thus, that all litigation against obstetricians was vexatious and should be stopped.[2]

This article led to an invitation from the Royal Australian and New Zealand College of Obstetricians and Gynaecologists to debate the issue of CP and medical negligence litigation with Professor MacLennan at its annual scientific meeting.

Professor MacLennan spoke first. As I listened to his arguments, Mark Twain's observations on statistics came to mind.

First, Professor MacLennan said that in the last 40 years the rates of CP (about 2.0-2.5 per 1,000 live births) had not changed, despite improvements in obstetric care. It followed, he argued, that CP is not preventable because, if it was, then CP rates should have fallen dramatically with the improvements in obstetric care.

But the same study[3] also found that, during the study period, stillbirth and neonatal death rates had fallen significantly. Furthermore, improved obstetric care had resulted in an *iatrogenic CP group* made up of very low birth weight and very premature infants who were being kept alive, but at the expense of a host of medical problems, including CP.

The fact that overall CP rates have not changed does not prove that CP is not preventable. Properly understood, the evidence shows that CP *is* preventable through better care in the older gestational age babies but is actually *caused* (in an indirect way) by better care given to very low birth weight and very premature babies.[4]

Next, Professor MacLennan questioned the utility of CTG monitoring as a means of preventing CP. In a study regularly referred to in his expert reports, it was found that, in 99.8% of cases, foetal heart rate abnormalities were false positives. Performing caesarean deliveries in every case of heart rate abnormalities, as he claimed plaintiffs' experts advocate, would lead to over 500 unnecessary caesarean deliveries potentially to reduce the risk of CP in one baby.

But the study he relied on looked at only two foetal heart rate abnormalities – prolonged late decelerations and reduced variability.[5] It showed that in 27% of the CP cases – but also in 9% of the control group (who did not end up with CP) – these abnormalities were found.[6]

Remarkably, the study did not involve review of any CTG strips – only hospital records. Nor did the study consider prolonged bradycardia – even though this is the only foetal heart rate abnormality that is recognised by the Consensus Statement[7] as being associated with CP caused by an acute intrapartum hypoxic event. The study also did not explain what happened to the 9% of the controls that did not end up with CP despite the CTG abnormalities; they may have been promptly delivered because of those abnormalities and this may explain why CP was avoided!

Finally, Professor MacLennan cited his own study into 'decision to delivery times' for 'urgent' caesarean deliveries.[8] His findings were that it takes roughly an hour from when a decision for urgent delivery is made to when it is achieved.[9]

The purpose of the study was to 'debunk the myth' promoted by 'rogue plaintiff experts' that an urgent caesarean delivery can and therefore should be achieved within 30 minutes of the decision being made.

But Professor MacLennan's study defined 'urgent' to include not just unquestionably urgent situations like cord prolapse and cord compression, but also cases of questionable urgency like the vaguely defined 'non-reassuring foetal heart rate'. As it turned out 75% of the 'urgent' caesarean deliveries in his study were for 'non-reassuring foetal heart rate', and the average median decision to delivery time for those cases was around 56 minutes. But for truly urgent cases like cord prolapse and cord compression the average median decision to delivery time was just 22 minutes. Far from undermining the '30 minute rule', this study vindicated it!

The purpose of expert evidence is to illuminate facts for the court rather than support a particular party's position in the litigation. Experts whose arguments rely on statistics can sometimes cross the line from expertise into advocacy. When this happens, lawyers should be aware of Mark Twain's observation about drunks and lampposts. ■

Notes: **1** 'Cerebral Palsy Is Not Preventable!' *Precedent*, No. 77, November/December 2006, p50. **2** MacLennan AH, 'Only an expert witness can prevent cerebral palsy!', *Obstetrics & Gynaecology*, Vol. 8, No. 1 Autumn 2006. **3** Stanley FJ and Watson L, 'Trends in perinatal mortality and cerebral palsy in Western Australia 1967 to 1985', *BMJ*. 1992 June 27; 304(6843): 1658–63. **4** Dr Eve Blair, who has studied the epidemiology of cerebral palsy, also spoke at the RANZCOG conference and made this point – and that cerebral palsy was preventable by better obstetric care in about 10% of cases.**5** Nelson K, 'Uncertain value of electronic foetal heart monitoring in predicting cerebral palsy', *NEJM*, 1996;334(10):613-19. **6** Extrapolating for a whole population, this yielded the result that for 99.8% of the time, these CTG abnormalities are false positives. **7** MacLednnan AH, 'A template for defining a causal relation between acute intrapartum events and cerebral palsy: international consensus statement', *BMJ*, 1999;319:1054-9 (16 October). **8** Spencer MK, MacLennan AH, 'How long does it take to deliver a baby by emergency Caesarean section?', *Aust N Z J Obstet Gynaecol*, 2001 Feb;41(1):7-11. **9** The actual times were 69, 54 and 43 minutes for Level 1, 2 and 3 hospitals respectively.

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