Unexplained death in fit young people

EDITOR,—M J Davies's editorial outlines the difficulties faced by coroners' pathologists in establishing the correct cause of death in fit young people.¹ Though I concur with the main thrust of the arguments, I am not wholly in accord with Davies's conclusion as to how the problem should be solved.

Davies welcomes the fact that some coroners and pathologists have arrived at a mutually agreeable conclusion that, in cases in which the cause of death cannot be diagnosed with confidence after exhaustive investigation, it should be described as "natural—but cause unknown"; in other words, that there should be an adult version of the sudden infant death syndrome. With unexplained infant deaths the entity the sudden infant death syndrome is obviously needed—among other reasons, to reassure parents or guardians who think that they are in some way to blame for the death of a child who was in their care, as well as to obviate the need for an inquest. In adult deaths, however, the question of guilt in that sense is not as relevant.

Though I appreciate the parallels drawn with the sudden infant death syndrome and the comfort that such a categorisation would give to relatives, I am worried as to the outcome if this became universally accepted practice. In 18 years as a forensic pathologist I have seen cases that would fall into this category and that were given a convenient label (rather than simply labelled "cause unascertained") because the circumstances fitted; later, however, when further information became available, it became clear that they were unnatural deaths or due to foul play.

I believe that the greater good is served by leaving the cause of death as unascertained and by the coroner bringing in an open verdict at the inquest. Relatives can still be counselled effectively on the basis that a natural cause was the most likely but that the results of necropsy were not conclusive. This approach is preferable to accepting a diagnosis of "natural death—cause unascertained," which may have to be reviewed later, to the embarrassment of all concerned.

P VANEZIS

Department of Forensic Medicine and Toxicology,
Charing Cross and Westminster Medical School,
London W6 8RF

1 Davies MJ. Unexplained death in fit young people. *BMJ* 1992;305:538-9. (5 September.)

EDITOR,—M J Davies draws attention to our lack of knowledge of why some deaths occur, particularly unexpected deaths in adolescents and young people¹; this has been known for many years.²⁻⁵ A total population study carried out in Sweden in the 1960s showed that unexpected deaths occurred at all ages and that over 10% of deaths were still unexplained after necropsy.⁶

Davies suggests that the current practice of registering deaths as unexplained should be replaced by a category of deaths in adults on the same lines as the sudden infant death syndrome in unexpected deaths in infants. Davies states that this has helped many families in their grief and has helped research and suggests that a registrable category for natural death should be made for

Advice to authors

Priority will be given to letters that are less than 400 words long and are typed with double spacing. All authors should sign the letter. Please enclose a stamped addressed envelope for acknowledgment.

adults, presumably "unexpected adult death syndrome." I disagree with this suggestion.

Though many believe from anecdotal evidence that the diagnosis of sudden infant death syndrome has helped parents in their grief, there is no scientific evidence to support this but much to suggest that in many cases it does the reverse and ensures that grief and guilt are resurrected each time a new theory or "breakthrough" is publicised—as has happened several times a year during the past 20 years.

In infants the sudden infant death syndrome is a too facile diagnosis. Several critical studies have shown that other natural causes of death can be found in about half of such registered deaths on further study,⁷ homicide being only a small proportion of these.

Davies states that such a diagnosis would produce money for, and stimulate, research, leading to a rapid solution. That was the belief of those, 30 years ago, who introduced the diagnostic rubric of sudden infant death syndrome. It certainly produced money and activity but has been remarkably unproductive in getting a solution; only in the past few years, when there has been a movement to abolish use of this diagnostic label and to go back to looking for diseases in these infants, has progress seemed to be taking place.

For the benefit of relatives and to promote the identification of causes of these deaths, I hope that Davies's suggestion is not followed. Pathologists and others should look more closely at each death rather than put them all into a diagnostic ragbag of negative findings.

JOHN L EMERY

Department of Paediatrics,
Sheffield University,
Children's Hospital,
Sheffield S10 2TH

- 1 Davies MJ. Unexplained death in fit young people. *BMJ* 1992;305:538-9. (5 September.)
- 2 Murphy GK. Sudden death in adolescence. *Pediatrics* 1978;61:206-10.
- 3 Medical Society of London. Unexpected death following operation. *Lancet* 1951;i:151-2.
- 4 Kennedy HL, Whitlock JA. Sudden death in young persons—an urban study. *J Am Coll Cardiol* 1984;3:485.
- 5 Staraj S. Sudden and unexpected natural death in males under the age of 40 years. *Pathology* 1983;15:340.
- 6 Bekker C, Grunfeld K. Epidemiology of sudden unexpected death in Denmark. *Dan Med Bull* 1976;23:28-34.
- 7 Emery JL. Is sudden infant death syndrome a diagnosis? *BMJ* 1989;299:1240.

EDITOR,—M J Davies's editorial on unexplained death in fit young people is characteristically forward looking.¹ These deaths may perhaps be better subdivided into two categories: those that occur at rest and those that occur immediately after or during physical activity. People who drop dead during, and in the resting phase after, activity^{2,3} are more likely to have experienced irregularities of cardiac rhythm produced by excessive release of catecholamine or by other potential biochemical

and electrolytic abnormalities during the exercise.⁴ Deaths due to anabolic steroids,⁵ cocaine,⁶ and amphetamine misuse⁷ are more likely during and after activity.

Sudden, unexplained deaths are known in Japan as *pokkuri* (sudden death) and in the Philippines as *bangungot* (nightmare); in South East Asia the term sudden unexplained nocturnal death syndrome was coined for these deaths. In countries with a large expatriate and refugee population from the Indian subcontinent, the Philippines, and South East Asia, such as the United States and in the Middle East, several such deaths occur each year.⁷⁻¹⁰

Official recognition of this condition as a specific, and hopefully registrable, entity would have several beneficial effects: the bereaved would be more able to accept the negative and apparently unsatisfactory outcome of the investigation into the death and of any subsequent inquest; more accurate and honest certification of death in such cases; better and wider acceptance of this condition by both legal and medical colleagues; easier flagging of these cases for epidemiological and geographical surveys; and constant monitoring of the incidence of such deaths locally and internationally.

In Britain all such cases could be referred by pathologists to a central register. These necropsy reports could form the core of a databank, which together with serological, microbiological, toxicological, and histological material would be available for multivariate statistical analysis and other research projects. Such a databank would also facilitate the setting up of an audit scheme to assess the overall adequacy of the necropsy and investigation carried out in such cases and to formulate and promulgate guidelines on best practice.

ANTHONY BUSUTTIL

Forensic Medicine Unit,
Edinburgh University,
Edinburgh EH8 9AG

- 1 Davies MJ. Unexplained death in fit young people. *BMJ* 1992;305:538-9. (5 September.)
- 2 Siscovick DS, Weiss NS, Fletcher RH, Lasky T. The incidence of primary cardiac arrest during vigorous exercise. *N Engl J Med* 1984;311:874-7.
- 3 Busuttil A. Is hyperkalaemia the cause of sudden death in young athletes? *Med Sci Law* 1990;30:341-4.
- 4 Melbo J, Sejorsted OM. Acid-base balance after exhausting exercise in endurance-trained and sprint-trained subjects. *Acta Physiol Scand* 1985;125:97-109.
- 5 Shapiro H. Running scared: the use of drugs in sport. *Br J Addict* 1991;86:865-8.
- 6 Isner J, Chokshi S. Cocaine and vasospasm. *N Engl J Med* 1989;321:1604-6.
- 7 Call T, Hartneck J, Dickinson WA, Hartman CW, Bartel AG. Acute cardiomyopathy secondary to intravenous amphetamine abuse. *Ann Intern Med* 1982;97:559-60.
- 8 Otto CM, Tauxe RV, Cobb LA, Greene HL, Gross BW, Werner JA, et al. Ventricular fibrillation causes sudden death in South East Asian immigrants. *Ann Intern Med* 1984;101:45-7.
- 9 Paulozzi LJ, Munger R. Sudden unexpected nocturnal deaths in Washington. *JAMA* 1985;253:2645.
- 10 Menger RG. Sudden death in sleep of Loatian-Hmong refugees in Thailand: a case control study. *JAMA* 1988;259:735.

EDITOR,—In his review on the causes of sudden death in fit young people, M J Davies points out that sudden death on exercise is strikingly associated with right ventricular dysplasia and argues that, in cases where the heart is anatomically normal, pre-existing electrophysiological abnormalities may be responsible for sudden death.¹ It is now known, however, that arterial plasma potassium rises to high levels during exercise in healthy subjects, commonly reaching concentrations of up to 8 mmol/l during exhaustive exercise.^{2,4} These