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(Accepted 6 March 1996)

Certification of cause of death in patients dying soon after proximal femoral fracture

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Certification of cause of death has been a legal obligation for medical practitioners since 1874¹ and has been central to our knowledge of the incidence of fatal diseases. To assess whether certified cause of death reflects the well documented high mortality after fracture of the proximal femur,² we reviewed the certification of cause of death in patients who died soon after such injuries. If a fracture is mentioned on the death certificate as contributory to death the registrar of deaths has a duty to report it to the coroner and the coroner must hold an inquest. We suspected that the need for an inquest might act as a barrier to doctors recording fractures on the death certificate.

Patients, methods, and results

We collected data prospectively in 1991-2 on patients admitted to Leicester Royal Infirmary with proximal femoral fractures who died within 28 days of admission to see what was recorded on their death certificate and whether or not a coroner's inquest was held. No calculation of sample size was performed because we had no idea of expected differences.

Ninety four of 1274 consecutive patients with fractures died within 28 days; the cause of death on the death certificate was obtained for 92 of these patients (98% follow up). An inquest was held in 22 of the 92 cases (23%); every case was checked with hospital data sources and referenced to the death certificate and information from the coroner's office. In each of these 22 cases the fracture was recorded on the death certificate as a contributory factor. In only one out of the 70 cases where an inquest was not held, however, was the fracture recorded on the death certificate (and in that case an inquest was not indicated because it was a pathological fracture). No certificate recorded the fracture as being the direct cause of death. The difference between the two groups in hip fracture appearing on the death certificate was highly significant ($P < 0.001$ by χ^2 test with Yates's correction; 95% confidence interval 0.00 to 0.01).

Comment

In most patients who die within 28 days of admission for hip fracture the fracture contributes significantly to death—for example, through problems related to immobility—even though the direct cause may be a medical problem such as bronchopneumonia. This judgment was the initial reason for choosing 28 days as the cut off point for this study and was supported by the coroner's finding in every case in which an inquest was held that the fracture had been contributory. There is no specified interval for the reporting of trauma related deaths to the coroner, but junior hospital staff often use 28 days or four weeks as a rule of thumb.

Twenty three per cent may seem a high proportion of proximal femoral fractures to necessitate an inquest, but these deaths are early in the period after injury. Deaths occurring later, when the importance of the fracture becomes less, will rarely involve the coroner, and the overall proportion will therefore be much lower. The inquest is a formality necessitated by the mention of the fracture on the death certificate and is in addition to the coroner's post mortem examination.

The practice of not mentioning the fracture on the death certificate to avoid an inquest may lead to considerable under certification of proximal femoral fracture as a predisposing cause of death—75% of cases were unreported in our series. This has been recognised before, and true mortality figures have to be estimated in an unsatisfactory empirical fashion.³ A legal facility to mention age related proximal femoral fractures on the death certificate without the mandatory need for an inquest may improve the accuracy of mortality figures.

Funding: Collection of data for this study was aided by funding from the Wishbone Trust.

Conflict of interest: None.

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(Accepted 2 February 1996)

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BMJ 1996;312:1515