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Hip fracture audit: time for standards to be evidence-based

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Abstract Hip fractures are a common and increasing problem. Outcome varies considerably between hospitals. The reasons for this variability are complex. To reduce inequality in patient outcome, management guidelines should be evidence-based. In order to assess quality of care, audit methods and targets should also be evidence-based. Most hip fracture audit in the UK is based upon non evidence-based guidelines and uses parameters of process rather than outcome. Current audit tools are insufficiently sensitive to account for differences in demography between hospitals. This may produce misleading results. In the space of 5 years, only modest improvements have been made in the care of patients with hip fracture. Audit tools should look at pre-existing comorbidity and functional outcome as well as the process of care, mortality and length of hospital stay. Future guidelines should be evidence-based, concentrate on outcome measures, and account for variations in demography.

Résumé Les fractures fémorales proximales sont un problème commun et croissant. Les résultats changent considérablement entre les hôpitaux. Les raisons de cette variation sont complexes. Pour réduire les inégalités de traitements, les conseils devraient être basés sur des preuves. Afin d'évaluer la qualité du soin, les méthodes et les cibles de vérification devraient également être basées sur des preuves. La plupart des vérifications des fractures fémorales proximales au R-U ne sont pas basées sur des preuves mais utilisent des mesures de processus et pas des résultats. Actuellement, les outils de vérification ne sont pas suffisamment sensibles pour tenir compte des différences démographiques entre les hôpitaux. Ceci peut produire des résultats trompeurs. Depuis cinq ans, la qualité des soins aux patients victimes de fractures

fémorales proximales s'est seulement légèrement améliorée. Les outils de vérification devraient s'intéresser aux facteurs de risque préexistants et aux résultats fonctionnels aussi bien qu'aux processus de soins (les «protocoles»), à la mortalité et à la durée du séjour hospitalier. Les futurs conseils devraient être basés sur des preuves, se concentrer sur la mesure des résultats et tenir compte des variations démographiques.

Review

Each year, an increasing number of older people sustain hip fractures. In 1997–1998, 66,000 people were treated for hip fracture in England and Wales [2]. This figure could rise to 117,000 within 20 years [8]. Hip fracture results in considerable morbidity and mortality. Mortality rates are doubled and around 20% will die in the first year after hip fracture. Of the survivors, a quarter will not return home [10]. The financial costs are also great, with hospital care estimated at £5,000 per patient [5]. The cost rises to nearer £12,000 in the first year after fracture when social care is included [3].

The outcome following hip fracture varies considerably between hospitals. This may represent differences in case-mix but it may also reflect inequalities in care. In the East Anglian audit [11], mortality ranged from 5 to 24%. The patients were well matched in other respects and it was concluded that such inequalities probably reflected the overall package of care, rather than any single factor. By comparison, the mortality following elective hip replacement is less than 1%, suggesting that mortality is largely related to medical frailty rather than complications of surgical or anaesthetic techniques. Clinical audit can identify inequalities in care but cannot necessarily explain them.

To reduce inequality in patient outcome, management guidelines should be evidence-based. Previous recommendations for good practice were made in 1989 [8] and again in 1995 [1]. These recommendations were based on consensus of an expert committee but lacked good

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evidence in many key areas. Despite these drawbacks, the guidelines have become gold standards for audit in England. More recent guidelines from the Scottish Intercollegiate Guidelines Network (SIGN) grade the quality of the evidence and, therefore, the strength of the recommendations [9]. Very few recommendations were based on grade A evidence ("at least one randomised controlled trial as part of the body of literature of overall good quality and consistency"). The majority of the evidence was grade C ("absence of directly applicable clinical studies of good quality"). Examples of grade C recommendations include "early transfer to hospital and rapid transit through A&E" and "surgery performed within 24 h".

Waiting more than 1 h in casualty is a published standard [1,2] with the aim of reducing pressure sores. There is little evidence to show that reducing delay in casualty prevents pressure sores. More important is what happens to the patient whilst in casualty: If they are immediately assessed for pressure sore risk, placed on an appropriate pressure-relieving mattress, and kept moving and hydrated than the likelihood of developing a pressure sore will be minimised. If the patient is transferred to the ward more quickly the audit target is met, but perhaps at the expense of prompt assessment and management of problems. Routine collection of data on complications would better identify those units providing good care.

The Audit Commission recently reviewed the effect of its 1995 guidelines and found that improvements have been made in the last 5 years [2]. The majority of English hospitals now have fast-track policies but waiting times have not improved due to increased pressure on a reduced number of beds. There has been a modest reduction in patients waiting more than 48 h for surgery but 20% of operations were still cancelled for "unacceptable reasons" [2]. Many more operations were performed on routine lists by experienced staff. This demonstrates that audit can bring about better care. It is not known whether this has resulted in improved outcome.

A recent report, by the National Centre for Health Outcomes Development, goes some way towards facilitating audit of patient outcomes. This Department of Health body was set up to identify health outcomes that are measurable and valid as indicators [4]. This report also grades the available evidence in making its recommendations. The majority of recommendations were felt to lack grade A evidence. Only three outcome indicators were recommended for general implementation: Hospitalised incidence of fractured proximal femur, incidence of pressure sores, and a measure of the attainment of patient-specified outcome goals. The report did not set standards or targets for these outcome measures. We still do not know how low (or high) we should set our sights.

Even if there was agreement concerning outcome measures, it cannot be assumed that all patients are the same. The effect of case mix on outcome is easily appreciated but difficult to quantify. It has even been suggested that outcome after hip fracture may be completely explained by case mix alone [12]. This is difficult to prove

because the intrinsic factors that affect outcome are poorly understood. Mathematical modelling is beginning to allow cardiac surgeons to take case mix into account when comparing results [6]. Until a predictive model for patients with hip fracture is established, we cannot know whether a unit has poor outcome due to the quality of the service or the patients themselves.

Without good evidence on which to base our practice, we need larger observational studies before new guidelines are produced. Several such studies are underway at present, including the Standardised Audit of Hip Fractures in Europe (SAHFE) [7]. These studies will collect standardised data regarding case mix, management and outcome and will lead to better understanding of the factors influencing outcome following hip fracture. It should provide the information needed to set appropriate standards for audit in the future.

We would strongly recommend that departments managing patients with hip fractures should participate in multi-centre audits such as SAHFE. This requires no little input of resources and may not be possible for all units. In which case, we would recommend that the audit parameters should include measures of co-morbidity (such as mobility and mental test scores, previous medical problems and level of function) and outcome (including medical complications and measures of function as well as mortality and re-operation rates). Measures of process should continue to be collected as usual, but should not be considered in isolation. A complete list of recommended audit parameters is beyond the scope of this review but a good example may be found in the SIGN guidelines which may be accessed at <http://www.show.scot.nhs.uk/sign/pdf/sign15.pdf> (pp 39–48).

Some recommendations may be made for hip fracture audit in the future: The collection of data on each patient needs to be standardised and of higher quality. There needs to be an international consensus on evidence-based good practice. Where evidence is lacking, appropriate research should be initiated. Finally, there needs to be standardised outcome measures of mortality, morbidity and patient and carer satisfaction with which outcome may be measured. These improvements will not occur overnight. Until then, we can do worse than follow the existing guidelines but not, perhaps, without question.

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