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ANNOTATION

THE TREATMENT OF THE MULTIPLY INJURED PATIENT IN THE UNITED KINGDOM

The recent report from the Royal College of Surgeons of England on the 'Management of Patients with Multiple Injuries' makes disturbing reading. Deaths and injuries following accidental trauma have now reached epidemic proportions, accounting for approximately 14 500 deaths and 545 000 hospital admissions each year. Trauma is the commonest cause of death in people aged 35 years or less; it is remarkable that the problem has received such little attention from government, media or the medical profession.

The Royal College working party commissioned a retrospective study of 1 000 deaths following injury and concluded that 43% of deaths not related to the central nervous system and 7% of those related to it were potentially avoidable. Even more disturbing was the fact that although 61% of patients with potentially preventable deaths had injuries amenable to surgical management, 49% either had inadequate surgery or none at all.

Tempting as it is to believe that such results only occur in 'other centres' I think we must accept that they are representative of many countries, including the United Kingdom as a whole. Regrettably there is no good prospective documentation of the results of the management of multiply injured patients in the United Kingdom, but a recent retrospective survey from Edinburgh (Court-Brown 1989) confirms the findings of the working party. In this survey the case records of 79 patients who died in the Royal Infirmary of Edinburgh between 1983 and 1986 after road traffic accidents, were examined. All these patients had survived the early critical phase after an accident and had been admitted to the surgical wards of the hospital from the casualty

department. The level of injury was assessed using the injury severity score (ISS) (Baker et al 1974; Greenspan, McLellan and Greig 1985) and the probability of survival calculated using Bull's probit analysis of the ISS (Bull 1975). This permits the calculation of a patient's LD_{50} , given their age and level of injury. The LD_{50} is defined as a severity of injury that is lethal for 50% of the patients so injured. In the Edinburgh series the mean ISS at death was 25; 69.6% of the patients had an ISS of less than their LD_{50} .

The inadequacy of our treatment is highlighted by comparing these results with the available figures from North America, where hospitals are divided into three categories depending on their ability to handle major trauma. Designated level one trauma centres in North America are able to save much more severely injured patients. In the Ontario Trauma Centre the mean ISS at death is 53 and only 5.8% of patients die with an ISS of less than their LD_{50} (Wright, McMurtry and Pickard 1984). It is of interest that the mean ISS at death in other Toronto hospitals of a similar standard, but lacking a cohesive trauma policy and trauma team system, was 33, with 53% of patients dying with an ISS of less than their LD_{50} .

The Edinburgh study also examined the problems inherent in taking multiply injured patients to a peripheral hospital for initial management. Of the 26 patients transferred to the Royal Infirmary of Edinburgh from peripheral hospitals, 50% were either misdiagnosed or inadequately treated prior to transfer.

A common misconception held by many surgeons is that trauma management is straightforward and requires no particular expertise. This, combined with the fact that trauma victims frequently arrive at unsocial hours, means that the patients are often treated by a surgeon in training with little knowledge of the techniques of trauma surgery. The Royal College working party showed that 71% of the

initial consultations about multiply injured patients were at senior house officer level and only 8% of the patients were seen by a consultant on the day of the accident. In only 6% of cases was a consultant surgeon present during surgery.

Traditionally, in the United Kingdom, orthopaedic surgeons have assumed a secondary role in the management of trauma, it being commonly assumed that death follows injury to other body systems and that consultants are not required to erect traction or apply plasters. There is, however, ample evidence that early fixation of long bone fractures not only dramatically increases the patient's chances of survival but decreases the incidence of later respiratory complications (Goris et al 1982; Meek, Vivoda and Pirani 1986). In addition, there is a greater awareness that musculoskeletal injuries can result in fatal haemorrhage, and that fixation of pelvic and other major fractures may reduce the associated mortality.

The Edinburgh survey showed that the incidence of significant orthopaedic injuries in the multiply injured was 78%, approximately equalling the incidence of head injury. The incidence was twice that of significant thoracic injury and four times that of intra-abdominal injury. This highlights the important role of the orthopaedic surgeon.

The Edinburgh figures strongly support the contention of the Royal College working party that patients with multiple injuries should be treated in designated trauma centres staffed by trained doctors. These centres should be supplied with adequate resuscitative, investigative and therapeutic facilities, including dedicated trauma theatres and sufficient numbers of both intensive care and high-dependency beds. There is also a need for

the accurate, prospective auditing of results; surgeons should be encouraged to employ objective methods such as the ISS or TRISS systems (Boyd, Tolson and Copes 1987).

It is obvious that the financial implications of improving our management of the multiply injured are considerable. However, unless we are prepared to finance a system of trauma centres, the carnage of our young population will continue.

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