How well do doctors resuscitate patients with haemorrhagic shock?

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SUMMARY

Patients with haemorrhagic shock of all degrees present to accident and emergency (A&E) departments regularly. This study examined 43 such patients who presented to one department over a 14-week period. The adequacy of their fluid replacement was judged in comparison with Advanced Trauma Life Support (ATLS) recommendations according to the degree of shock they appeared to have on presentation. The study found that more training may be required on the appropriate recognition and treatment of haemorrhagic shock.

INTRODUCTION

It is well-established that prompt and effective fluid replacement for victims of haemorrhagic shock will increase the chances of survival of these patients both in the 'Golden Hour' of resuscitation, and, will decrease the chances of organ failure in the following days and weeks. The first step in the management of haemorrhagic shock should be a recognition of the degree of shock present. Haemorrhagic shock can be graded on a level from I to IV according to the various clinical observations of the patient including pulse, blood pressure, skin perfusion and conscious state (Committee On Trauma, 1988). These grades can give an indication of the proportion of the circulating blood volume lost by the patient.

Little research has been carried out on how well doctors resuscitate patients who have haemorrhagic shock. A paper from Belfast (Dearden & Rutherford, 1985) audited the care of 36 severely injured patients. Of these cases, errors relating to fluid replacement occurred in four (11%) of the patients. Evidence from a telephone questionnaire, involving 56 casualty officers in the North West of England, suggests

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that blood loss may be underestimated under certain circumstances (Shaw, 1990). Almost half (46%) of the doctors questioned underestimated the expected blood loss from a pelvic fracture.

The aim of this study was to examine using a prospective study whether doctors in an accident department give sufficient fluid to patients suffering from all forms of haemorrhagic shock.

METHODS

The location of the study was the A&E Department of Southampton General Hospital; a busy unit seeing some 57 000 new patients each year. The study ran from December 1991 over a period of 4 months although data was only collected over a total of 14 weeks. During this time the clinical notes for every admission through the department were checked. All patients that received intravenous fluids as a result of sustaining some degree of haemorrhagic shock were included in the study. The degree of shock that each patient had on arrival and on leaving the department was estimated using the vital signs together with any significant altering factors. The volume of fluid given during the period of stay within the Department was also recorded.

A judgement on whether any patient had inadequate management was based on any improvement of the vital signs of the patient while in the Department and on the quantity of fluid given to the patient in relation to ATLS guidelines for the degree of shock on presentation. Management was also considered inadequate if blood was not transfused in those patients in grade III or IV shock on arrival.

RESULTS

Some 43 patients with haemorrhagic shock sufficient to require fluid replacement were seen during the 14-week study period. Of these, 29 patients (68%) presented as a result of some form of trauma. All but one of the remaining patients presented following a haematemesis (the final patient presented with a diagnosis of a leaking aortic aneurysm). The mean age of patients in the traumatic group was 39 years (range 15–87 years), and, in the non-traumatic group was 60 years (range 34–86 years). Using the criteria discussed in the method, a total of seven trauma patients (24%) and three patients (21%) with haematemesis had inadequate management. One patient in each group received no blood when they were in grade III shock, all the rest had inadequate fluid given to them. Generally, the volume deficiencies were less than a litre from the accepted guidelines.

DISCUSSION

The results imply that a significant quantity of patients with haemorrhagic shock have inadequate fluid replacement. These inadequacies arise either as a result of an inability to recognize the degree of hypovolaemia or of a lack of knowledge of the fluid requirements necessary to correct a particular degree of shock. It is clear that A&E doctors need guidelines for the management of haemorrhagic shock. The ATLS course provides these and much more. Teaching the principles of the ATLS course and a regular system of evaluation of patient management and fluid replacement should improve the care of these patients, in addition, consideration of undergraduate training may also be appropriate. In Southampton Medical School we have just completed a pilot for a 1-day condensed version of the ATLS course for those of the third year and above. This has proved extremely popular and it is hoped will form part of the medical curriculum in years to come.

ACKNOWLEDGEMENTS

The authors would like to thank all the members of the Accident and Emergency department for their cooperation throughout the period of the study. Particular thanks are extended to Mrs Annette Drayton and all of the staff in the reception area.

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