JournalScan

Edited by Jonathan Wyatt; this scan coordinated by Fiona Beech

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Rapid extrication from car wreckage ► Prehospital emergency services are constantly striving to remove injured patients from car crash wreckage as quickly as possible. This Norwegian study focused upon extrication from frontal/oblique impact collisions. Standard extrication techniques are based upon cutting the pillars around the windows, removing the roof, and spreading the wreckage. The authors propose a new extrication technique that is based on attempting to reverse the forces of the original crash: the rear of the car is anchored and the steering wheel and the front of the car are pulled forwards in a controlled fashion. Car crashes were simulated in a range of vehicles and rescue teams were randomised to use standard procedures or the new proposed procedure. The time to extrication was significantly shorter with the new method and no additional uncontrolled movements were encountered. The authors do acknowledge some practical problems, such as the need for a certain amount of space around the wreckage, but they are optimistic about the future role of this technique. Clinical trials may provide the answer.

▲ Wik L, Hansen TB, Kjensli K, et al. Rapid extrication from a car wreck. *Injury* 2004;35:739-45.

Death by prehospital hyperventilation ► It has been observed that professional rescuers in out of hospital cardiac arrest consistently hyperventilate their patients. It is postulated that this raises intrathoracic pressure, with resultant reduced cardiac output and coronary perfusion. Other possible adverse effects include cerebral vasoconstriction and a shift of the oxygen-haemoglobin dissociation curve to the left. This paper set out to investigate this clinically and to test whether hyperventilation has a negative effect on outcome after cardiac arrest in an animal model. Using a portable pressure monitor, the rate of ventilation of 13 consecutive US adult patients by the emergency medical services was found to be 30 ± 3.2 breaths per minute. This was not changed by re-training. This rate resulted in an average 47% of time in which a positive pressure was recorded in the lungs. Having established that prehospital hyperventilation does occur, the clinical relevance of this was investigated using pigs in cardiac arrest ventilated at different rates (12, 20, and 30 per minute). Mean tracheal pressure increased and coronary perfusion pressure decreased as ventilation rate increased. Survival rates were 6/7 for a ventilation rate of 12 and 1/7 for a ventilation rate of 30 even if supplementary carbon dioxide was used to prevent hypocapnoea. The authors call for urgent education of cardiopulmonary resuscitation providers to prevent hyperventilation.

▲ Aufderheide TP, Lurie KG. Death by hyperventilation: a common and life-threatening problem during cardiopulmonary resuscitation. *Crit Care Med* 2004;32:S345-51.

Vasopressin during cardiac arrest ► This literature review examined the evidence for the use of vasopressin in cardiac arrest. It has been noted that patients surviving cardiac arrest have higher levels of circulating endogenous vasopressin than those who died. A recent European multicentre trial of intravenous vasopressin use in out of hospital cardiac arrest suggested that vasopressin was superior to adrenaline (epinephrine) in asystole and refractory cardiac arrest.

▲ Krismer AC. Vasopressin during cardiopulmonary resuscitation: a progress report. *Crit Care Med* 2004;32:S432-5.

Clearing the neck ► The problems of long term collar use are well reported. Difficulties in clearing the cervical spine of an obtunded trauma patient continue. The authors of this Canadian

study propose a protocol involving both plain radiographs and computed tomography but acknowledge that further work is required.

▲ Widder S, Doig C, Burrows P, et al. Prospective evaluation of computed tomographic scanning for the spinal clearance of obtunded trauma patients: preliminary results. *J Trauma* 2004;56:1179-84.

Weber B fracture ► Weber B ankle fractures can be stable or unstable depending on medial (deltoid) ligament competence. This study examined the idea that stable Weber B fractures do not need serial radiographs and follow up in fracture clinic. Fifty three patients with fibular fractures at the syndesmosis without medial instability or mortice incongruity were followed up. None showed any change in position or required manipulation or internal fixation. Each patient had an average of six radiographs and 4.3 clinic reviews. The author questions whether these patients need review at fracture clinic and suggest that there could be significant savings of time and money. The potential impact upon the emergency department of not formally following up these patients (in terms of additional unscheduled returns) has not been considered.

▲ Martin AG. Weber B ankle fracture: an unnecessary fracture clinic burden. *Injury* 2004;35:805-8.

Mediastinal width and blunt aortic injury ► This comparatively small retrospective study of the role of chest radiographs in predicting blunt aortic injury underlines the difficulty of diagnosing blunt aortic injury from plain radiographs. The authors suggest that left mediastinal width and left mediastinal width ratio are better indicators of underlying aortic injury than the traditional general mediastinal width.

▲ Wong YC, Ng CJ, Wang LJ, et al. Left mediastinal width and mediastinal width ratio are better radiographic criteria than general mediastinal width for predicting blunt aortic injury. *J Trauma* 2004;57:88-94.

Atrial fibrillation cardioversion ► This study looked retrospectively at 388 consecutive patients cardioverted from atrial fibrillation (AF) in four US emergency departments. The vast majority had a duration of AF of less than 48 hours (99%) and 86% were successfully cardioverted. Complications were mainly related to sedation (for example, oxygen saturations decreasing below 90% and the requirement for bag-valve-mask ventilation). Most patients (86%) were discharged home from the emergency department. The authors conclude that cardioversion of selected patients in the emergency department is both safe and effective. However, they acknowledge recent research that suggests rhythm control is not superior to rate control, so that decisions need to be taken on an individual patient basis.

▲ Burton J, Vinson DR, Drummond K, et al. Electrical cardioversion of emergency department patients with atrial fibrillation. *Ann Emerg Med* 2004;44:20-30.

Driving while plastered ► Here is another survey of professionals who are asked their views as to whether or not it is safe for patients to drive while immobilised in various plaster casts. The professionals surveyed were orthopaedic surgeons, insurance company workers, and police officers, but sadly no emergency department specialists were included. Advice was predictably inconsistent, at times worryingly so, with no universal agreement that a patient with a right below knee cast would be unfit to drive. The authors' suggestion that the Driver and Vehicle Licensing Agency should publish guidelines on this seems eminently reasonable, except that there is little evidence upon which to base any guidance.

▲ Von Arx OA, Langdown AJ, et al. Driving whilst plastered: is it safe, is it legal? *Injury* 2004;35:883-7.

Predicting serious head injury in children ► The aim of this meta-analysis was to identify which symptoms, signs, and plain imaging could predict intracranial abnormality in minor head injury in children. It is no surprise that the results identified four factors that showed statistically significant correlation with intracranial haemorrhage: skull fracture, Glasgow coma scale of less than 15, focal neurology, and loss of consciousness. Neither headache nor vomiting was predictive. The authors note three large studies are

underway at present that will hopefully clarify other predictor variables and may allow guidelines to be further developed.

▲ **Dunning J**, Batchelor J, Stratford-Smith P, *et al*. A meta-analysis of variables that predict significant intracranial injury in minor head trauma. *Arch Dis Child* 2004;**89**:653–9.

NICE head injury guidelines for children ► Recently published National Institute of Clinical Excellence (NICE) guidelines for management of paediatric head injury differ considerably from previous guidelines from the Royal College of Surgeons, particularly with respect to the use of computed tomography (CT). This study looked at the management of more than 10 000 children with head injury. It compared actual management to that which would have occurred had either the NICE or Royal College of Surgeons guidelines been followed. The authors conclude that the NICE guidelines would significantly increase the number of CT scans requested and would move management away from the observation ward.

▲ **Dunning J**, Daly JP, Malhotra R, *et al*. The implications of NICE guidelines on the management of children presenting with head injury. *Arch Dis Child* 2004;**89**:763–7.

Patterns in paediatric spinal trauma ► Researchers used the large database of the UK Trauma Audit and Research Network to study spinal trauma in children. Analysis of the database confirmed a low prevalence. Of 19 538 injured children, 2.7% of children had spinal column fracture/dislocation, with only a few (16.5%) of these having associated cord injury. Spinal cord injury without radiological abnormality was present in 30 (0.15%) of all injured

children. Spinal cord injury was more common in younger children (aged less than 8 years), those with reduced conscious level, head injury, and chest injury.

▲ **Martin BW**, Dykes E, Lecky FE. Patterns and risks in spinal trauma. *Arch Dis Child* 2004;**89**:860–5.

Out of hospital paediatric cardiac arrest ► This study reported the epidemiological features, survival rates, and neurological outcomes of 601 paediatric cardiac arrests in California between 1994 and 1997. It is the largest population based prospective study of out of hospital cardiac arrest. Fifty four per cent of the children were aged less than 12 months: the most prevalent causes of cardiac arrest being sudden infant death syndrome and trauma. Return of spontaneous circulation was achieved in 29%, with only 8.6% surviving to hospital discharge. The results suggest that prolonged resuscitation or the administration of more than three doses of adrenaline (epinephrine) is futile.

▲ **Young KD**, Gausehe-Hill M, McClung CD, *et al*. A prospective, population-based study of the epidemiology and outcome of out-of-hospital pediatric cardiopulmonary arrest. *Pediatrics* 2004;**114**:157.

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