Beware the injured child with a “normal” systolic blood pressure. A Consensus emergency training programmes such as the Advanced Paediatric Life Support (APLS) course teach that an abnormally low systolic blood pressure in combination with an abnormal heart rate represents decompensated hypovolaemia. The evidence for “normal” values in children and infants is, however, somewhat lacking. APLS provides “norms” for systolic blood pressure and pulse rate without confidence intervals or references. This retrospective study analysed data from 12,906 children who had suffered blunt injury and were entered onto the Trauma Audit and Research Network (TARN) database. The authors found that regardless of injury severity, injured children demonstrated a relative systolic hypertension. They concluded that systolic normotension in the injured infant or child may imply hypovolaemia and impending cardiovascular collapse.

The origin of accepted normal values has long been questioned. With no reliable alternative data, the status quo continues and many resuscitation decisions have been made on flimsy evidence. The authors of this paper have now provided some convincing evidence that systolic blood pressure is a very poor predictor of physiological status, and a “normal” blood pressure may indicate impending circulatory collapse. Hopefully, data from this study will be used to assist with future guidelines for the initial treatment of the injured child.

Is this the end of clinical resuscitation research? A This letter highlights a very real concern for emergency physicians and those involved in the care of critically ill patients following the recent directive by the European Union requiring informed consent before including patients in clinical studies of emergency resuscitation. This seems to be a short sighted and worrying development. It will affect emergency medicine more than other specialties. It is only right that issues of ethics and consent are discussed and closely considered, but to instigate a directive that would effectively terminate further research seems folly in itself.

Researchers in the US have faced similar problems in the past, which resulted in a temporary shift of some types of research to other parts of the world, notably Europe. Safar suggests that Europe should aim for a modification along the lines of that introduced by the National Institutes of Health and the Food and Drug Administration in the US. This modification comprises an agreed waiver of prospective informed consent for the inclusion of patients in resuscitation research, with the proviso that investigators inform the community about the study.

Prehospital analgesia with acupressure is effective for victims of minor trauma. A This randomised double blinded trial from Austria demonstrates that the use of acupressure by paramedics results in effective analgesia for victims of minor trauma. Acupressure is a traditional Chinese pain treatment based on specific points. Patients were enrolled into one of three groups: “true points”, “sham points”, and “no acupressure” and an independent observer, blinded to the treatment assignment, recorded physiological variables and visual analogue scores for pain and anxiety before and after treatment. Although particularly relevant in many other European countries, where drug administration is often restricted to physicians, this non-invasive method may be of interest to many practitioners in the UK. The results were highly significant: pain scores decreased by 45%, anxiety was significantly reduced in 68% of patients, and a significant reduction in heart rate was observed in 89%. Perhaps all emergency healthcare providers should be trained in this simple to use, “no cost” treatment!

Successful outcomes in recipients of kidneys harvested from donors without a heartbeat. A The shortage of suitable organs for transplantation is an ever increasing problem. The past few years have seen a change in the criteria used to assess donors. For example, there is now acceptance of elderly donors and those with certain types of treated sepsis, in an attempt to increase the available pool and thereby benefit more patients. Over a 15 year period, the authors prospectively enrolled 122 recipients of kidneys from donors without a heartbeat and matched them with 122 transplantsations of kidneys from donors with a heartbeat. Their results show that despite a significantly higher incidence of delayed graft function, there was no difference in long term outcome in terms of graft survival. It may well be that in the future we will be recruiting potential donors from the emergency department—currently a large untapped resource.

Lower mortality in post-myocardial infarction atrial fibrillation associated with use of class I antiarrhythmics or sotalol. A Why do we choose a particular antiarrhythmic agent in atrial fibrillation complicating myocardial infarction? This prospective sub-study from the GUSTO-III investigators looked at the effects of different early management of atrial fibrillation (AF) on 30 day and one year mortality rates. Altogether 1138 patients with AF were recruited of whom 12% received a class 1 antiarrhythmic (for example, procainamide, quinidine, flecanide), 5% received sotalol, 15% received amiodarone, and 10% received electrical cardioversion. There was a strong trend towards lower mortality associated with short-term early treatment using class I antiarrhythmics or sotalol, but not with amiodarone or electrical cardioversion. The authors call for a large randomised trial to test their hypothesis that some, but not all antiarrhythmic agents improve outcome.

Respiratory depression in the acute management of seizures in children. A This short report describes a retrospective audit of 40 children treated for a total of 56 seizures over the course of a year. After the administration of benzodiazepines, in particular, lorazepam, 14% developed respiratory depression. Respiratory depression was defined as a raised pCO2 in blood gas analysis, a significant decrease in respiratory rate or the need for positive pressure ventilation or intubation. Almost all of these children received doses at the lower end or below the recommended dose of lorazepam or diazepam. Despite several methodological flaws, this paper raises an important point: that the use of multiple small doses of lorazepam may increase the risk of respiratory depression in the management of prolonged seizures.

Referring hospitals fail to give methylprednisolone to acute traumatic spinal cord injury patients. A Many criticisms have been made of the two National Acute Spinal Cord Injury Studies (NASCIS II and III) recommending methylprednisolone for acute spinal injuries. As the authors point out, however, 75% of delegates at the European Cervical Spine Research Society Meeting administer methylprednisolone according to the study
guidelines. In addition, Bracken [in his Cochrane review] recommended its use while calling for more randomised trials of pharmacological treatment. In this prospective audit of 100 patients only 25% of patients received the correct dose of methylprednisolone (30 mg/kg over 15 minutes + 5.4 mg/kg/h over 23 hours for patients seen within three hours; 30 mg/kg over 15 minutes + 5.4 mg/kg/h over 48 hours for patients seen between three and eight hours after injury) and 10 further patients were given methylprednisolone incorrectly. The evidence suggests we should be using methylprednisolone, but if the experience of Molloy and colleagues is repeated throughout the UK, we have plenty of scope for improvement.

SCIWORA: an injury pattern of adults

More results continue to emerge from the National Emergency X-Radiography Utilization Study (NEXUS) database. This prospective, observational study of patients with blunt injury to the neck enrolled 34 069 patients. It investigated the incidence and characteristics of Spinal Cord Injury Without Radiological Abnormality (SCIWORA), defined as spinal cord injury demonstrated by MRI in a patient who had a complete, technically adequate plain radiograph. Some 818 (2.4%) sustained a cervical spine injury, of whom just 27 (0.08%) had SCIWORA. MRI of these 27 patients revealed 11 (41%) to have spinal stenosis and 13 (48%) to have disc herniation. Perhaps this indicates that degenerative disease and spinal stenosis predispose certain patients to SCIWORA when they are injured. Interestingly, none of the 3000 children enrolled had SCIWORA, although 30 (1%) had cervical spine injury. This evidence contrasts with the traditional view that SCIWORA is a syndrome that occurs primarily in children.

Prehospital management of burns

This paper highlights the variability of prehospital burn care in the UK and makes the case for improved protocols and a UK-wide consensus on management. Although few data are available, burns account for an estimated 175 000 A&E attendances and 15 000 hospital admissions per year. This questionnaire survey assessed the current prehospital care given by the ambulance services and compared it with the opinions of plastic surgery and burns consultants. Response rates were predictably low, but results demonstrated wide variability in practice. Among the consultants although there was a broad consensus of opinion on certain aspects (such as the need to cool the burn, a preference for clingfilm as a dressing and morphine for analgesia), there was a wide spread of responses. For example, estimates for the length of time needed to cool the burn ranged from 0 to 120 minutes! As the author points out, paramedics care for a vast range of medical and trauma emergencies. They need simple, concise, easily followed protocols that are relevant to the needs of patients.

Changing the definition of myocardial infarction

A diagnosis of myocardial infarction has profound implications for the person concerned. Life insurance and occupation may be adversely affected in addition to psychological stress. However, underdiagnosis of myocardial infarction may deny patients access to monitoring and interventions of confirmed benefit. These two papers look at the problems of changing the classification.

Packham et al analysed data from a cohort of patients taken from the Nottingham Heart Attack Register (NHAR) and compared it with other epidemiological tools such as the MONICA project (monitoring trends and determinants in cardiovascular disease), OXIMIS (Oxford myocardial infarction study), and UKHAS (UK heart attack study). In these days of league tables it is important to compare like with like. It is therefore interesting that the measurement of 30 day mortality after myocardial infarction differs significantly between these classification systems. Indeed, these systems may not include or identify the same patients. So, patients with non-ST segment elevation, were identified as confirmed cases of myocardial infarction by NHAR in 35% of cases and by MONICA in 84% of cases.

Ferguson and colleagues carried out a prospective study to determine the percentage of patients that would be reclassified from angina to myocardial infarction using the new American College of Cardiology/European Society of Cardiology (ACC/ESC) criteria that incorporate the measurement of troponins. ACC/ESC defines acute myocardial infarction as a raised troponin (measurement exceeding the 99th centile of values obtained from a reference group) accompanied by one of the following: ischaemic symptoms, the development of pathological Q waves on the ECG, ischaemic ECG changes, or coronary artery intervention (for example, coronary angioplasty). Unfortunately, few current assays meet the strict criteria laid down by ACC/ESC, therefore a functional sensitivity must be determined as a clinical cut-off point. Altogether 80 patients with acute ischaemic chest pain, but non-diagnostic ECG changes were recruited. Using the WHO criteria, 23 (29%) were identified as suffering from an acute myocardial infarction, whereas 30 (37.5%) fulfilled the ACC/ESC guidelines. Using “functional sensitivity” 28 (35%) patients were identified: a significant increase in incidence.

The WHO criteria may miss milder coronary events, but they correlate well with the subsequent use of thrombolysis. However, a raised troponin increases the risk of an acute coronary event or death and these patients benefit from treatment with glycoprotein IIa/IIIb antagonists or low molecular weight heparin. There are important consequences in redefining myocardial infarction, both for the patient and the NHS as a whole.

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