JOURNAL SCAN

Journal scan

Edited by Jonathan Wyatt; this scan coordinated by Kash Auja

Effect of carvedilol on survival in severe chronic heart failure

M Packer, A J S Coats, M B Fowler, *et al*

N Engl J Med 2001;344:1651-8

Objectives—To determine the effect of the β blocker carvedilol on the survival and hospitalisation of patients with severe heart failure.

Method—A double blinded, randomised controlled trial comparing carvedilol and placebo. A total of 2289 patients with symptoms of heart failure (New York Health Association class IV) were treated for a mean of 10.4 months (1156 with carvedilol versus 1133 with placebo). Standard therapy for heart failure was also continued during this period.

Results—The trial was terminated early because of the significant benefits seen in the carvedilol group during interim analysis. A total of 190 patients died in the placebo group and 130 in the carvedilol group, resulting in a 35% decrease in risk of death with carvedilol (95% CI 19%, 48%, $p = 0.00013$). Altogether 507 patients died or were hospitalised in the placebo group and 425 in the carvedilol group, resulting in a 24% reduction in the combined end point with carvedilol (95% CI 13%, 33%, $p < 0.001$). These results were valid regardless of sex, age, cause of heart failure, ejection fractions and recent frequent hospitalisations.

Conclusions—There are long term benefits in patients with severe chronic heart failure treated with carvedilol.

Critique—Many emergency physicians were trained during an era when β blockers were contraindicated in heart failure. This is yet another study showing favourable effects of β blockers in heart failure. Appraisal of this paper in terms of internal validity reveals insufficient details about the randomisation process. The paper is double blinded but bias may have inevitably occurred as patients in the carvedilol group will have had slower pulse rates. Calculations were performed with intention to treat analysis, which took into account the drop outs from the study. There is a power calculation but the trial ended early, which suggests either poor estimations of difference or a very effective drug. The paper's external validity is questionable as inclusion criteria include patients without basal crepitations and/or ascites. Exclusion of patients with very severe heart failure devalues the concluding statement. This is an important paper, but its applicability is very specific. It does not seem to have significant implications for the immediate management of patients presenting to the emergency

department with heart failure requiring hospitalisation.

Chest radiographs of limited utility in the diagnosis of blunt traumatic aortic laceration

A D Cook, J S Klein, F B Rogers, *et al*

J Trauma 2001;50:843-7

Objective—To investigate the value of portable chest radiography in the detection of blunt traumatic aortic laceration.

Method—A retrospective case review was performed of all patients who had sustained blunt trauma and who underwent portable chest radiography and thoracic aortography. The presence of 15 distinct criteria used to assess aortic disruption on chest radiography was assessed by a single radiologist (blinded to final diagnosis).

Results—188 patients were identified as having had both chest radiography and thoracic aortography. Ten patients were confirmed to have an aortic injury. A widened mediastinum (more than 8 cm), a mediastinum: cardiac ratio exceeding 0.25 and opacification of aortopulmonary window were the most sensitive chest radiographic signs, but had low specificity. Fractured thoracic spine, fractured first rib, depression of the left main bronchus, right deviation of the nasogastric tube and widened paraspinal lines were the most specific, but not very sensitive.

Conclusions—No individual sign or collection of signs on chest radiography are sensitive enough to diagnose aortic injury. Non-invasive techniques (particularly spiral computed tomography) seem to be emerging as preferred investigations, but results from larger trials are awaited.

Critique—The authors do acknowledge that the widened mediastinal effect of a supine chest radiograph because of the position of the x ray cassette had not been corrected in an attempt to improve specificity. Blunt traumatic aortic rupture associated with survival to hospital is relatively uncommon, which mostly accounts for the relatively small numbers of patients in this study. However, the retrospective nature of the study and the identification process used seem to have been responsible for some patients being excluded (including a significant number whose chest radiographs had been "lost"). The findings of this study do little to increase the role of the portable chest radiograph in the diagnosis of this elusive but important condition.

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Short term outcomes after acute treatment of pediatric asthma

M W Stevens, M H Gorelick
Pediatrics 2001;107:1357–62

This prospective cohort study involved 367 children who attended an A&E department with an acute asthma attack. They were followed up for persistence of symptoms, use of medication, functional disability and relapse rate in the two week period after discharge from A&E. “Poor” outcomes were defined in terms of: relapse to medical care, persistent symptoms and significant functional disability. The paper reports a surprisingly high level of morbidity in the two week period.

Comment—The study design may be criticised in that subjective outcome measures were used to assess level of morbidity by telephone. In addition, the nature of the inner city US population studied does raise questions about the general applicability of the findings. Poor communication with primary care services after discharge may explain the high morbidity in this population and support the authors’ concepts of poor motivation and education about the disease. Their suggestion that poor short-term outcomes may impact on chronic severity of the disease remains to be proven.

Hospital versus home management of children with buckle fractures of the distal radius

S Symons, M Rowsell, B Bhowal, *et al*
J Bone Joint Surg Br 2001;83-B:556–60

The authors set themselves the task of determining whether home management of buckle fractures of the distal radius is clinically safe and satisfactory. They performed a randomised controlled trial comparing standardised hospital treatment (control group of 47 children) with home management (study group of 40 children). Both groups were treated with below elbow “backslab plasters”. Patients in the control group were reviewed after removal of plaster in fracture clinic at three weeks. In contrast, children in the study group had plasters removed by their parents at home at three weeks. All patients were reviewed in clinic six weeks after injury and assessed clinically and radiologically. Analysis of the results failed to reveal any significant difference between the two groups in terms of: severity of injury, clinical tenderness, deformity, handwriting or ability to perform activities of daily living. Repeat radiographs were stopped after the first 33 patients showed good healing and no change in position of the fracture. More parents complained of problems in the control group. The authors concluded that parents would prefer a home management plan.

Comment—The study is fairly well conducted but the design raises several issues. Bias may have been introduced in the form of non-blinding, subjective outcome measures and motivated parent base. No power calculation is shown to estimate a difference the authors were looking for and this may explain the small numbers in the study. Lastly, the incomplete number of repeat radiographs for all the study

population does not properly permit comment about the radiographic findings.

Evaluation of the Oxford protocol for total spinal clearance in the unconscious trauma patient

R A Brooks, K M Willett
J Trauma 2001;50:862–7

This retrospective paper reviewed the use of a “spinal clearance protocol” (comprising full length radiography, computed tomography and dynamic screening of the cervical spine) aimed to rapidly exclude spinal injury at the earliest opportunity. Unsurprisingly, of the 210 unconscious trauma patients studied, only a small proportion of patients actually had spinal fractures or other significant spinal injuries. The authors claimed that the use of dynamic screening by experienced trauma surgeons improved detection of cervical spine injuries when combined with computed tomography and radiography. They argued that this permitted early and safe discontinuation of spinal immobilisation in unconscious patients, thereby avoiding complications of medium to long term immobilisation.

Comment—It was quite telling that the spinal clearance protocol was devised for use on the intensive care unit (rather than what is referred to in the paper as the hospital’s “casualty” unit). Given that the median time to total spinal clearance was one day after admission to intensive care, it is clear that there is still no easy solution for the resuscitating team in A&E to the problem of “clearing the spine”.

Reduction in motor vehicle collisions following treatment of sleep apnoea with nasal CPAP

C F P George
Thorax 2001;56:508–12

Continuous positive airways pressure (CPAP) may not have a high profile within the field of injury prevention, but this paper suggests that it may have a role in preventing the rate of road traffic collisions experienced by individuals suffering from obstructive sleep apnoea. It is already recognised that patients with obstructive sleep apnoea have more motor vehicle collisions compared with controls. Altogether 210 patients were studied before and after CPAP treatment and were compared with controls. Results showed a dramatic fall in the number of collisions after CPAP treatment (to the same level as controls).

Comment—This study has several limitations, including having: relatively small numbers of patients, self reporting of symptoms and limited information regarding the control group. Having acknowledged all of this, the study investigates an interesting issue worthy of further exploration.

Abdominal ultrasound examination in pregnant blunt trauma patients

H Goodwin, J F Holmes, D H Wisner
J Trauma 2001;50:689–94

This retrospective review attempted to investigate the ability of abdominal ultrasound to detect intraperitoneal fluid in pregnant blunt

trauma patients. The group of 127 patients who were studied had a scan within 30 minutes of arrival at hospital—seven patients (6%) had intra-abdominal injuries, of whom five had intraperitoneal fluid. Results showed good sensitivity and specificity particularly in hypotensive patients, but there were very small numbers in this group. The results were maintained throughout pregnancy. The authors conclude that results are similar to those in a non-pregnant population, but are not as sensitive as computed tomography. However, in the context of pregnancy, ultrasound has obvious advantages in terms of radiation exposure.

Sports doctors' resuscitation skills under examination: do they take it seriously?

M Lavis, J Rose, T Jenkinson

Br J Sports Med 2001;35:128–30

A consistent theme running through resuscitation literature in recent years has been the woeful resuscitation knowledge and skills exhibited by various different groups of doctors. This paper is no exception—64% of sports medicine doctors failed to show proficiency at basic life support and assessment/management of a seriously injured patient with a potential spinal injury. What was surprising about this finding was the fact that all of those tested had prior warning of the content of the test! The requirement of all doctors who are active within the field of sports medicine to have basic resuscitation knowledge and skills is obvious. The authors of this paper suggest, not unreasonably, that sports doctors have a professional responsibility to ensure that they achieve and maintain basic standards.

Assessing the true risk of abdominal solid organ injury in hospitalized rib fracture patients

E Shweiki, J Klena, G C Wood, *et al*

J Trauma 2001;50:684–8

This retrospective review from a single US hospital attempted to investigate the risk of solid organ injury in patients who are admitted to hospital with fractures of the lower ribs. Cynics would no doubt question the need to undertake this study and wonder the extent to which the authors were seeking a useful outlet for their large amount of collected data. In any case, trauma team leaders will not be too surprised to learn that the authors found that the risk of liver injury was increased by low right sided rib fractures and an increased Injury Severity Score. Similar findings applied

to left sided rib fractures and the risk of splenic injury. Some long accepted dogma is now evidence based!

Prehospital resuscitative thoracotomy for cardiac arrest after penetrating trauma: rationale and case series

T J Coats, S Keogh, H Clark, *et al*

J Trauma 2001;50:670–3

The authors review the experience of prehospital thoracotomy for cardiac arrest attributable to penetrating trauma of the London Helicopter Emergency Medical Service. Doctors performed 39 prehospital thoracotomies where the patients lost a pulse more than 10 minutes' travelling time to hospital. There were four survivors (three neurologically intact), all having cardiac tamponade associated with a single ventricular stab wound. Given that hard data to support advanced life support measures in the prehospital environment remain somewhat elusive, the authors present compelling evidence relating to a small but important group of patients.

Minor head injury: 13 is an unlucky number

S C Stein

J Trauma 2001;50:759–60

The author starts this paper by explaining that patients who present to hospital with a Glasgow Coma Scale of 13–15/15 are generally regarded as having sustained minor head injuries. This statement provides the background to this systematic review of patients with closed head injury and a GCS of 13/15. The aim was to determine the incidence of intracranial and surgical lesions in this population and to make a judgement as to whether the classification of "minor" head injury was justified. A review of 14 series found that 34% of patients had intracranial lesions; 11% of these needed emergency surgery. These high rates of complications were similar to those in the group with GCS of 9–12/15. Although not all of the studies were comparable, the evidence provides a strong case for considering head injured patients with GCS of 13/15 as falling into the "moderately head injured" group. This would bring the US into line with Scottish guidelines, which regard any patient with head injury with a GCS of less than 15/15 as being at least "moderately" head injured.¹

¹ Scottish Intercollegiate Guidelines Network. *The SIGN guidelines for the early management of patients with a head injury*. SIGN publication number 46. Edinburgh: Royal College of Physicians, August 2000.