The management of cardiogenic shock: can anything be learnt from registries?

For most patients the management of acute myocardial infarction associated with ST segment elevation is clear, 30 day mortality is reduced by approximately 25% by early reperfusion\(^1\)-\(^3\). Unfortunately the management of patients who present with cardiogenic shock is much less clear. In this group of patients mortality is high and seemingly unaltered by thrombolysis\(^3\)-\(^5\). For example in GISSI-1, the 21 day mortality amongst those with shock at presentation was 69.9% in those randomized to streptokinase (n=146) and 70.1% in those randomized to placebo (n=134)\(^3\). A similarly high mortality occurs in those patients who develop cardiogenic shock later during the course of admission for myocardial infarction\(^4\),\(^5\). This high mortality, together with an incidence of 7%–10% in those admitted with myocardial infarction, means that cardiogenic shock is the most common cause of death pre-discharge\(^4\),\(^5\). There is therefore a clear and urgent need to optimize therapy.

Two recent reviews have highlighted the difficult issues surrounding the definition and treatment of cardiogenic shock complicating myocardial infarction\(^4\),\(^5\). Descriptive information from myocardial infarction registry data and data dredged from thrombolysis trials suggest that revascularization reduces the mortality of cardiogenic shock\(^4\),\(^5\). The difficulty is that these data are almost certainly skewed in favour of revascularization. Selection bias ensures that the fittest youngest patients without co-morbidity are those revascularized. What are required are trials where management strategies are randomly assigned. Recruitment to such trials is notoriously difficult\(^6\)-\(^7\). Hochman and colleagues are therefore to be congratulated in completing the first randomized prospective trial of revascularization vs medical therapy for cardiogenic shock in acute myocardial infarction: the SHould we emergently revascularize Occluded Coronaries for cardiogenic ShocK (SHOCK) trial\(^8\). This trial, which was published in August 1999, showed no difference (\(P=0.11\)) between strategies in the primary efficacy measure, mortality at 30 days\(^8\). However pre-defined secondary endpoints and subgroup analyses have provided a useful insight into the management of cardiogenic shock. The salient findings were that early revascularization reduced 6 month mortality in the whole population (50.3% vs 63.1%, \(P=0.027\))\(^8\), a benefit that still persisted at 1 year\(^9\). In addition, there was a significant interaction with age, the benefit of early revascularization being most marked in those aged <75 years\(^8\). In fact those aged \(\geq 75\) years tended to benefit most from medical therapy\(^8\). Given the Herculean task that running such a trial with very little inter-group crossover must have entailed, is there anything more that can be learnt from related Registry data?

Within this issue chelated data from the SHOCK Trial pre-study Registry and the SHOCK trial Registry are presented by Cardendaran et al\(^{10}\). The pre-study Registry documented the characteristics of patients presenting with cardiogenic shock at 19 centres during 1992 and early 1993 prior to the start of the SHOCK trial (n=190). The SHOCK Trial Registry is comprised mainly of patients with cardiogenic shock who did not meet the entry criteria for the SHOCK Trial at the 36 participating centres (n=1190). Patients within the main study Registry have already been shown to differ from those randomized to the SHOCK trial in a number of respects. Registry patients were significantly older and more likely to die than those randomized\(^8\). In addition they were more likely to be white and had prior MI, congestive heart failure and/or surgical revascularization\(^9\). Not surprisingly they were less likely to be transfers to the tertiary centre\(^9\). Since there are three times as many patients in the Registry than in the randomized trial it is likely that the Registry population more closely represents patients presenting with, or developing, cardiogenic shock. Perhaps then there are valuable lessons to be learnt from the combined SHOCK Registries after all?

The principal finding within the combined SHOCK Registries is that in-hospital mortality fell significantly from 71% to 60% between the observation years 1992 to 1997. This was accompanied by a corresponding significant increase, in corresponding years, of the proportion of patients revascularized from 33% to 50% and revascularized within 2 h of the onset of shock from 23% to 35%. Although tempting, one has to avoid believing these changes represent effect and cause. Nonetheless these findings are entirely consistent with the subgroup analyses in the SHOCK trial which, apart from showing patients <75 years fared best with revascularization, also showed that the benefits of revascularization were
The 6-minute walk test and prognosis in chronic heart failure — the available evidence

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It is widely recognised that the prevalence of chronic heart failure is increasing. This has been attributed to improved survival in patients with coronary artery disease, the use of drug therapy prolonging life in patients with established chronic heart failure, and a strong correlation between chronic heart failure and age in populations with increasing longevity. Despite

References


