Letter to the Editor

Neurocognitive deficit following mitral valve surgery

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Received 24 April 2003; accepted 11 June 2003

Keywords: Neurocognitive function; Mitral valve surgery

We read with interest the article by Grimm and colleagues on neurocognitive deficit following mitral valve surgery [1]. At the outset, the authors have failed to define their original hypothesis. Was the original hypothesis that mitral valve repair results in less cerebral damage than replacement, or was a comparison performed merely to detect a difference? Considering that both groups of patients underwent open heart procedures using the same cardiopulmonary bypass technique, it is difficult to understand the primary question of this study. Ten of the 20 patients who underwent mitral valve replacement had mitral stenosis or mixed mitral valve disease, and it thus might be that calcific valve disease made these patients more susceptible to embolic mediated cerebral injury. However, none of the patients in the repair group had either stenosis or mixed mitral valve disease. Therefore, it is not plausible to conclude that mitral valve repair is superior to replacement in borderline cases.

Significant data regarding the patient characteristics are missing, for example level of education and blood pressure, which are important determinants of cognitive function [2,3].

We are sceptical of their use of P300 auditory evoked potentials, Mini Mental State Examination and Trailmaking Test part A as a measure of neurocognitive function. Most studies investigating cognitive function after cardiac surgery have used a battery of neurocognitive tests as outlined in the consensus statement by Murkin et al. [4]. Moreover, previous work has shown that Mini Mental State Examination is of limited value in this setting as it covers a narrow cognitive domain and is not sensitive [5]. It is therefore not surprising that all patients had normal Mini Mental State scores pre- and postoperatively. In addition, a group mean analysis was applied to the Trailmaking Test part A scores. This method of analysis has its limitations. A group mean analysis includes those patients who may perform better as a result of practice and those who may fair worse due to cerebral injury. Therefore this would result in an overall false small change. This was demonstrated by the small change which occurred in the mitral valve repair group in Grimm and colleagues’ study. An alternative method would be to obtain postoperative scores adjusted for the preoperative scores, and then compare the resultant postoperative scores between the two groups by analysis of covariance.

References


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