

Letters to the Editor

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Cost-effectiveness of on-pump and off-pump bypass surgery

We read with great interest the comprehensive review by Murphy *et al.*¹ This review of the published literature critically examines the potential benefits of off-pump coronary artery bypass surgery (OPCAB) compared with conventional coronary artery bypass grafting (CABG). A number of important endpoints were examined, such as inflammatory and cellular responses. Their impact on organ dysfunctions was studied, namely myocardial, renal and neurological injuries. Clinical trials, carefully reviewed by Murphy *et al.*¹ have collectively indicated lower morbidity in patients undergoing OPCAB, compared with CABG, with equivalent mid-term outcome.

In addition, comparison of the cost-effectiveness of the two surgical techniques suggests significantly increased direct costs in patients undergoing CABG, compared with OPCAB, with a comparable increase in quality-adjusted years of life.^{2,3} Our group has previously reported on 102 patients undergoing either CABG or OPCAB.⁴ In keeping with previous results,^{2,3} we found that OPCAB was associated with a total reduction in direct and, importantly, non-direct (non-patient related) costs of 3.357€ per patient, compared with CABG. As in previous studies, this difference was due to significantly fewer post-operative complications and shorter hospital stay.

We feel that in the era of significant economic constraints, coupled with continuously escalating medical costs, analyses on cost-effectiveness ratios of various interventions become essential not only for medical practitioners, but also for governments and health-care policymakers.

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Utility and safety of diagnostic pericardiocentesis

We read with interest the 'Guidelines on the diagnosis and management of pericardial diseases' by Maisch *et al.*¹ for the Task Force on the Diagnosis and Management of Pericardial Diseases of the European Society of Cardiology.

In their paper, the authors discuss, among other topics, the indication to perform pericardiocentesis in effusions causing no haemodynamic compromise for diagnostic purposes even in small size effusions (Focus box 1).

Diagnostic pericardiocentesis is detailed in Focus box 3, which states that the analysis of pericardial effusion can establish the diagnosis of viral, bacterial, tuberculous, fungal, cholesterol, and malignant

pericarditis. In support of these statements the authors quote Spodick.² We note that the quoted paper states that pericardial drainage may be required for diagnosis only 'occasionally' and that pericardiocentesis by needle alone can be 'unrewarding diagnostically'. This author relies on two studies;^{3,4} both studies present a low diagnostic yield of the analysis of pericardial fluid.

It is also stated that PCR analysis for cardiotropic viruses can discriminate viral from autoreactive pericarditis, on the basis of a study by Maisch *et al.*⁵ We note that the goal of this study was to verify the safety of intrapericardial steroid treatment, and that it does not provide sensibility and specificity of PCR for cardiotropic viruses. Therefore, there is no certainty, in clinical practice, that a negative viral identification can exclude a viral etiology.

The text reports that cholesterol levels are higher in bacterial and malignant pericardial fluids, suggesting the role of cholesterol dosage as a diagnostic tool, on the basis of a study by Meyers *et al.*⁴ We note that the authors of this study found a higher cholesterol level in malignant and bacterial than in normal (open heart surgery) pericardial fluid, but no discrimination between pathologies on the basis of cholesterol has been observed. The authors, therefore, do not suggest to dose cholesterol in the pericardial fluid.

We agree with these recent observations from Permanyer-Miralda,⁶ 'There is not enough evidence in the literature to give hard and fast rules for the etiological diagnosis in all causes of acute pericardial disease'. We think that pericardiocentesis with a diagnostic purpose is not justified in the majority of cases for the following reasons: its low diagnostic power, the underlying pathology is often already known⁷ or identifiable by different non-invasive tests, viral pericarditis is usually self-limiting, and it only requires an anti-inflammatory treatment.

Since pericardiocentesis is an invasive procedure, not free from low but significant risks, we think that pericardiocentesis with only diagnostic purposes should be limited to very specific cases.⁶

Regarding risks of pericardiocentesis, echo-guided and fluoroscopy-guided techniques are presented to be equivalent in safety and complication rate. In reality, the quoted study of Duvernoy⁸ reports accidental cardiac perforations in 23 of 352 (6.5%) fluoroscopy-guided pericardiocentesis. The largest published series of echo-guided pericardiocentesis⁹ reports a 1.5% incidence of cardiac lacerations.

In conclusion, we believe that pericardiocentesis should be performed only on a strong clinical indication, by an experienced operator with the safest technique, which in our experience is the echo-guided approach.

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