Reviewer's report

**Title:** Value of Adenosine Infusion for Infarct Size Determination Using Real-Time Myocardial Contrast Echocardiography

**Version:** 1  **Date:** 23 December 2005

**Reviewer:** Fabian Knebel

**Reviewer's report:**

**General**
This is an interesting article on the determination of infarct size by contrast echocardiography. Infarct size assessment by MCE is not new, as the authors have mentioned. Many animal studies have been performed concerning MCE and infarct size. The new aspect of this study is the open-chest canine model using vasodilation by adenosine and performing real-time contrast echo.

**Major Compulsory Revisions**
(That the author must respond to before a decision on publication can be reached)

**Discussion:**
The time point of adenosine infusion was 30 minutes after reperfusion of the occluded LAD. The authors should discuss this short time interval. Why have they chosen 30 minutes? This should include a critical comment on the optimal time after reperfusion to perform MCE.

In the section “clinical implications” the authors state, that adenosine is not necessary in every examination to analyze infarct size. Even without a vasodilator, IS can be assessed. This striking finding should be discussed because literature by Kaul (Kaul S, Heart 1999, 81:2-5) suggests that a vasodilator is inevitable to accurately assess IS: Furthermore, it would be interesting to discuss the literature concerning infarct size assessment by the use of cardiac MRI and peri-infarct ischemia (e.g. late enhancement). Recently, echocardiographic strain rate analysis was suggested as a method to assess myocardial viability (Zhang Y J Am Coll Cardiol. 2005 46(5):864-71). The authors should discuss the methodological aspects. And compare the pro’s and con’s of each method.

**Minor Essential Revisions**

The following smaller spelling mistakes should be corrected:
Page 4, line 2: “coronary isquemia”
Page 4 line 15 “a result of with reduced” (?)
Page 4 line 16 “it possible is the ideal tool”
Page 12 line 9, “should be determined”
Page 12, line 25, “benefits of vasodilator use”
Page 13 line 1: “better estimative of myocardial perfusion”
Page 14, line 7 “present in an hemodynamically unstable period”
Table 1, Row “LAD flow”: To me it’s not clear if significance (<0.001) relates to Reperfusion vs. Baseline or Reperfusion+adenosine vs. baseline.

**Introduction:**
In lines 10-12, the concept of the vasodilator adenosine in infarct size assessment is introduced. However, the authors do quote literature. This should be added.
Methods:
The manufacturer of PESDA contrast agent should be named.

**What next?:** Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I declare that I have no competing interests