Reviewer’s report

Title: Myocardial Contractile Function after Cardiopulmonary Bypass in Survived Neonatal Piglets

Version: 1 Date: 30 September 2010

Reviewer: Michael Beyer

Reviewer’s report:

Dear Vipin Zamvar,
Thank you for the honor to review the manuscript

Myocardial Contractile Function after Cardiopulmonary Bypass in Survived Neonatal Piglets by T. Tirilomis et al.

The aim to investigate myocardial contractility in neonates is very interesting and good results in this field are highly qualified to be published. The authors use an animal model to investigate this objective. The main problem in this study is the low number of piglets. So the first question to the authors should be whether the sample size estimation is able to prove their hypothesis. And secondly the manuscript should be more detailed in methods and results. If the manuscript is revised in this respect and the statistics are alright this manuscript could be published.

Major Compulsory Revision

1) The authors stress the problem of depressed hemodynamic function after cardiac surgery with CPB in neonates. Therefore the authors use an animal model (piglets). One major problem in this study is the very low number of animals.

The experimental protocol was approved by the Animal Care and Use Committees of the University of Göttingen and the Government of the District of Braunschweig. For the application of this approval a sample size estimation is needed. It would be helpful to approve the number of animals by showing this estimation.

2) The lack of significant results in this study is most probably to do with the low number of animals (4 vs. 3) in the control and verum groups. But there is also some information about the protocol withheld. For an interpretation of the results it is necessary to know about the blood circulation in the neonatal piglets (apparent foramen ovale or ductus Botalli), anaesthesia, weight and hemodynamic parameters (LA, CVP MAP, CI). The revised manuscript should contain these parameters. Some of these parameters are published in another article (ref. 3). Reading and interpreting of such complex studies is not made easy by dividing the results in different articles.

Another problem in this study is that it is not clear whether, in the control group, the animals received the same amount of volume and electrolytes (priming and
cardioplegia) as in the CPB group. This additional volume could lead to an increased myocardial contractility (Frank-Starling mechanism). The hypothesis of regional hypercontractility causing the increase in myocardial contractility should be proved by echocardiography (e.g. Tissue Doppler).

I give my consent for publication of this review.

Best wishes
Prof. Dr. Dr. h.c. M. Beyer

**Level of interest:** An article of importance in its field

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

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.