Reviewer's report

Title: Polyglycolic acid sheet with fibrin glue potentiates the effect of a fibrin-based haemostat in cardiac surgery

Version: 1
Date: 22 March 2014

Reviewer: Claudia Romagnoni

Reviewer's report:

The authors present a study comparing the use of the TachoComb with and without polyglycolic acid sheet and fibrin glue for the left ventricular bleeding. In order to do this they conducted two types of experiments analysing the adhesive properties of these two types of solutions.

Major revisions:

1. Have the authors checked the normality of the data with the Shapiro Wilk test? If yes, they should add this information in the text.

2. The sample size is low, especially in consideration of the fact that this is an in vitro study, not an in vivo one. Are the authors sure that the small amount of data is sufficient to achieve a good statistical power?

3. The authors state that “one heart was used for each group” in the second experiment. Does it mean that a heart was always tested with TachoComb and one always with TachoComb, polyglycolic acid sheet and fibrin glue? If so, this may lead to a bias. It would be better if the tests were conducted on six different hearts, each one treated with both solutions.

4. In the section “Results”, concerning the second experiment, the authors affirm that “the adhesive strength of the PGA sheet and fibrin glue combined with a TC sheet for porcine pericardium was significantly higher than that for rabbit skin”. Rabbit skin was used in the first experiment. Are the authors sure that these two informations are comparable? The test used was different. To enable this statement they should conduct the same kind of experiment (evaluation of the burst pressure with the circuit made with digital pressure gauge, syringe and pressure hardened plastic tank or evaluation of the peel-off pressure by means of the elevation of the suture loop) both on rabbit skin and porcine hearts.

5. In the discussion authors state that “one sheet may not have wide enough margins to be attached firmly to the ventricular surface and suppress active bleeding” so they add the PGA sheet. Being the contact surface with the healthy wall the key point for a good adhesion, they can affirm that we would not obtain the same results using, as already done in vivo by other colleagues, a pericardial patch (instead of the PGA) fixed with the glue?

6. In the section “discussion” authors say “the study showed that TC alone might be adequate for patching the myocardium, since the burst pressure of 140 mmHg”. Wasn’t the burst pressure 111.6?
Minor revisions:
1. In Figures 2 and 3 it would be better to show the whole standard deviation, not only the positive value.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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