Reviewer’s report

Title: What Parameters Affect Left Ventricular Diastolic Flow Propagation Velocity? In Vitro Studies Using Color M-Mode Doppler Echocardiography

Version: 1 Date: 3 May 2005

Reviewer: Tomas Palecek

Reviewer’s report:

General
This manuscript deals with an interesting issue regarding the influence of various hemodynamic parameters on left ventricular (LV) flow propagation velocity (Vp) as studied in in vitro conditions using mechanical LV model. Experimental studies like this are needed as there are still controversies about Vp load dependency and its real usefulness in the assessment of LV diastolic function. However, I have found several important issues that should be addressed by authors.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
1. In study limitations the authors mentioned that the position and size of the mitral annulus were fixed during LV filling in their model- in my opinion this fact represents not only study limitation but it is totally different from normal LV filling conditions when mitral annular motion towards the stationary apex is one of the main factors influencing early diastolic filling period. Based on this fact, the model of LV as described by authors cannot be used for studies regarding LV filling. The authors should resolve this important and very significant limitation of their LV model, if possible.
2. It is not clear from the methods and results sections under which conditions the investigated parameters were actually studied. More specifically, the hemodynamic variables that were investigated are well described in methods, however the results section is rather short and the relationships between all parameters and conditions are not straightforward. Namely, it is not obvious what exactly were the baseline conditions: was it transmitral waveform type or LV compliance? Regarding this the results are inexplicit and the authors should explain this in more detail.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1. In abstract, line 4- Vp should be written instead of Up.
2. Page 3, line 10- a mistake in grammar: "allowed no to" should be replaced by "did not allow to".
3. Page 4- the authors describe that porcine bioprosthesis were used for aortic position, however there are no informations about valves in mitral position.
4. The number of correlation coefficient is missing in Figure 5D.

Discretionary Revisions (which the author can choose to ignore)

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: Acceptable
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