Author's response to reviews

Title: Predictors of In-hospital Mortality after Mitral Valve Surgery for Post-Myocardial Infarction Papillary Muscle Rupture

Authors:

Wobbe Bouma (w.bouma@umcg.nl)
Inez J. Wijdh-den Hamer (i.j.den.hamer@umcg.nl)
Bart M. Koene (b.m.j.a.koene@umcg.nl)
Michiel Kuijpers (m.kuijpers@umcg.nl)
Ehsan Natour (e.natour@umcg.nl)
Michiel E. Erasmus (m.e.erasmus@umcg.nl)
Iwan C.C. van der Horst (i.c.c.van.der.horst@umcg.nl)
Joseph H. Gorman III (gormanj@uphs.upenn.edu)
Robert C. Gorman (gormanr@uphs.upenn.edu)
Massimo A. Mariani (m.mariani@umcg.nl)

Version: 2
Date: 25 September 2014

Author's response to reviews: see over
Predictors of In-Hospital Mortality after Mitral Valve Surgery for Post-Myocardial Infarction Papillary Muscle Rupture

Point-by-point response to reviewers:

Reviewer's report

Title: Predictors of In-hospital Mortality after Mitral Valve Surgery for Post-Myocardial Infarction Papillary Muscle Rupture

Version: 1 Date: 19 August 2014

Reviewer: Gianclaudio Mecozzi

Reviewer's report:
Major Compulsory Revisions: none
Minor Essential Revisions: none

Discretionary Revision: I would like the authors to give some more information about the 12 patients undergone preoperative PCI. What was the reason? Was it because the PMR was not yet known at the time of PCI? In my opinion doing a PCI before such a major surgery has not of any certain benefit and may introduce even more bleeding problems due to antiplatelet therapy in this high risk group of patients (incidence of revision for bleeding was 11% in this paper)

PMR was confirmed by TTE and/or TEE in 9 of the 12 PCI patients before the procedure. This means that the exact mechanism of MR was unknown in 3 PCI patients. Patients with post-MI PMR frequently have single vessel CAD (48% in our study). Of the 12 PCI patients in this study 4 had single vessel CAD and 6 had two vessel CAD.

Potential benefits of CABG over PCI and potential bleeding complications of additional antiplatelet therapy after PCI in the setting of mitral valve surgery for post-MI PMR have to be weighed against the consequences of prolonging the duration of cardiopulmonary bypass. Therefore, in some of these patients PCI was chosen as an alternative method of coronary revascularization, especially if there was only single (or two vessel) CAD. Regarding the bleeding issues, we have to keep in mind that acute MI patients are usually already on double antiplatelet therapy irrespective of a possible PCI.

PCI and hybrid approaches in the setting of post-MI PMR are extensively discussed in paragraph 6 of the discussion section. As we mention in that section, a hybrid approach with mitral valve surgery followed by PCI, if required, or preoperative PCI of the infarct-related artery (culprit lesion) followed by mitral valve surgery might be useful alternative strategies. Especially because the percentage of patients with single vessel CAD is high in this population; 48% in our study and 23-44% in other studies. Randomized studies would have to identify whether such hybrid approaches are superior to concomitant CABG in the setting of post-MI PMR.

Level of interest: An article of limited interest
Reviewer's report

Title: Predictors of In-hospital Mortality after Mitral Valve Surgery for Post-Myocardial Infarction Papillary Muscle Rupture

Version: 1 Date: 5 September 2014

Reviewer: thomas de kroon

Reviewer's report: Discretionary revisions

1. The fact that complete PMR is a strong independent risk factor of mortality can hardly aid in surgical decision making, because of the fact that in only 24 patients (50%) the diagnosis of PMR was confirmed preoperatively. This is incorrect. As stated in the methods section TTE accurately revealed the diagnosis of PMR in 18 patients. The diagnosis was suspected in the remaining 30 patients and confirmed with TEE in 24 patients. In 6 patients the exact mechanism of MR remained inconclusive. So in 42 patients (88%) the diagnosis was confirmed preoperatively !!!!

2. The authors state that the power of the logistic Euroscore has declined and give some probably reasons for this decline. Maybe they could give a reference to a paper with proof of this statement.

The decline in the predictive power of the Logistic EuroSCORE is shown in the paper of “Siregar S et al. Eur J Cardiothorac Surg 2012;41:746-54”. We added this paper to our reference list. We added a reference to this paper after our statement about the declined predictive power of the Logistic EuroSCORE in our revised manuscript.

3. The authors state that the Logistic Euroscore (optimal cutoff > 40%); Euroscore II (optimal cutoff > 25%), complete papillary muscle (PMR) rupture en intra-operative IABP are strong independent predictors of mortality in patients undergoing surgery for post–MI PMR and that these predictors may aid in surgical decision making. Maybe the authors can respond to the question how it helps them in their practise. Is there a Euroscore cutoff for rejecting the patient for surgery?

There is no EuroSCORE cutoff for rejecting a patient for surgery. However, as we state in our paper, due to the high risk some surgeons may be reluctant to operate these patients, while others are willing to accept the high risk. At this point it is not entirely clear which patients are at highest risk. In this study we sought to identify these predictors of in-hospital mortality. In daily practice identification of these predictors may aid in the surgical decision making process and it may help improve the quality of informed consent. When these predictors are present in a post-MI PMR patient it is now more clear (than ever before) to all health care professionals that the risk is extremely high, that mitral valve surgery in this patient should be regarded as a
salvage procedure, and that it is very likely that the patient will die during or shortly after surgery. This can also be reliably communicated to the family (i.e. it improves the quality of informed consent) and prevents unrealistic expectations.

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 interest.

All our changes are highlighted in yellow and red in the revised manuscript.

Sincerely,

Wobbe Bouma, M.D.

Department of Cardiothoracic Surgery,
University Medical Center Groningen,
P.O. Box 30001,
9700 RB Groningen,
The Netherlands.
Tel.: +31 50 3613 238;
Fax: +31 50 3611 347.
E-mail address: w.bouma@umcg.nl