

- [3] Hindler K, Shaw AD, Samuels J, Fulton S, Collard CD, Riedel B. Improved postoperative outcomes associated with preoperative statin therapy. *Anesthesiology* 2006;105:1260–72.
- [4] Poldermans D, Bax JJ, Kertai MD, Krenning B, Westerhout CM, Schinkel AF. Statins are associated with a reduced incidence of perioperative mortality in patients undergoing major noncardiac vascular surgery. *Circulation* 2003;107:1848–51.
- [5] Joint British recommendations on prevention of coronary heart disease in clinical practice. British Cardiac Society, British Hyperlipidemia Association, British Hypertension Society, endorsed by the British Diabetic Association. *Heart* 1998;80:21–9.

\* Corresponding author. Tel.: +385 1 46 40 774; fax: +385 1 38 62 292.  
E-mail address: narcis.hudorovic@zg.htnet.hr.

doi:10.1016/j.ejcts.2008.01.043

## Reply to the Letter to the Editor

### Reply to Hudorovic

#### Would a randomized controlled trial testing the effects of statins on patients undergoing cardiothoracic surgery be ethical?

Kosmas I. Paraskevas<sup>a,b,\*</sup>

<sup>a</sup>Department of Clinical Biochemistry  
(Vascular Disease Prevention Clinics),  
Royal Free Hospital, London, UK

<sup>b</sup>Department of Vascular Surgery, Red Cross Hospital, Athens, Greece

Received 22 January 2008; accepted 25 January 2008; Available online  
4 March 2008

**Keywords:** Statins; Cardiothoracic surgery; Perioperative mortality

Unfortunately, the comments by Dr Hudorovic [1] are inaccurate and incorrect. Dr Hudorovic states that 'there are a number of recent studies, unfortunately the author cited only one, that suggest statin therapy may reduce the risk of perioperative complications [2–4]'. This statement is not true; of the 'recent studies' he mentions [2–4], two [2,3] are actually cited in my article [5]; one is reference number 183 [2] and the other is reference number 17 [3]. The third 'recent' reference he mentions [4], is not so 'recent' (5 years old); instead of this, two more recent, comprehensive reviews by the same group are cited (references 20 and 21).

Regarding the part when Dr Hudorovic mentions that 'unfortunately, the author cited only one (study)', it may be of interest that the 'study' cited, is actually an extensive review we published on the effects of statin therapy on perioperative (and long-term) morbidity and mortality rates in patients undergoing non-cardiac vascular surgery (reference number 184). Two of the 'recent' studies mentioned by Dr Hudorovic [2,3] are also cited in this review; the third [4] could not be cited, as it was published 6 months after our article.

The next comment by Dr Hudorovic is also incorrect ('statin therapy is a preventive measure of subclinical atherosclerosis, but in the same time it is not a predictive factor of postoperative cardiovascular events.'). For example, in reference number 181 of my article [5], statin use was associated with a 2.5-fold reduction in the risk of all-cause mortality and a more than three-fold reduction in the risk of

long-term cardiovascular mortality in 510 patients undergoing abdominal aortic aneurysm repair after a median follow-up of 4.7 (range: 2.7–7.3) years.

Dr Hudorovic claims 'no definitive evidence has been proved and this conclusion needs to be confirmed by a multicenter, prospective randomized trial'; this statement is correct. However, due to the uniform positive results of observational studies, there may now be ethical restrictions when designing double-blind placebo-controlled trials to assess the effects of statins on patients undergoing cardiothoracic surgery. It may also be difficult for an ethical committee to approve of such a randomized controlled trial due to the reported benefits of statin therapy [2–5]. In light of the current evidence [2–5], would Dr Hudorovic prefer his patients to quit taking their statin preoperatively? I doubt any surgeon would!

## References

- [1] Hudorovic N. Statins and perioperative management of patients undergoing cardiovascular surgery. *Eur J Cardiothorac Surg* 2008;33:947–8.
- [2] Durazzo AF, Machado FS, Ikeoka DT, De Bernoche C, Monachini MC, Puech-Leao P, Caramelli B. Reduction in cardiovascular events after vascular surgery with atorvastatin: a randomized trial. *J Vasc Surg* 2004;39:967–75.
- [3] Hindler K, Shaw AD, Samuels J, Fulton S, Collard CD, Riedel B. Improved postoperative outcomes associated with preoperative statin therapy. *Anesthesiology* 2006;105:1260–72.
- [4] Poldermans D, Bax JJ, Kertai MD, Krenning B, Westerhout CM, Schinkel AF. Statins are associated with a reduced incidence of perioperative mortality in patients undergoing major noncardiac vascular surgery. *Circulation* 2003;107:1848–51.
- [5] Paraskevas KI. Applications of statins in cardiothoracic surgery: more than just lipid-lowering. *Eur J Cardiothorac Surg* 2008;33:377–90.

\* Corresponding author. Address: Department of Clinical Biochemistry (Vascular Disease Prevention Clinics), Royal Free Hospital, Pond Street, London NW3 2QG, UK. Tel.: +44 20 7830 2258; fax: +44 20 7830 2235.  
E-mail address: paraskevask@hotmail.com.

doi:10.1016/j.ejcts.2008.01.044

## Letter to the Editor

### Injury to the circumflex coronary artery following mitral valve repair: a rather opposite strategy<sup>†</sup>

Walter J. Gomes<sup>\*</sup>  
Pirajussara General Hospital,  
Cardiovascular Surgery,  
Federal University of São Paulo,  
São Paulo, Brazil

Received 27 December 2007; accepted 1 February 2008; Available online  
7 March 2008

**Keywords:** Mitral valve repair; Annuloplasty; Circumflex coronary artery; Myocardial ischemia

The letter from Acar [1] on the management of circumflex artery injury after mitral valve repair, as well as the original report from Zegdi et al. [2], were both very instructive and definitely life-saving.

On the other hand, we would like to present our experience in the management of such complication, which was rather the opposite.

In two cases where reconstructive surgery of the mitral valve was attempted with implant of a flexible annuloplasty ring, persistent ST segment elevation in posterolateral leads was noticed shortly after aortic cross-clamp release, along with poor left ventricular contraction. Without delay, the patients were placed back on bypass and cross-clamp reapplied, the left atrium was reopened and the sutures and ring removed. In the first case (the one with moderate calcified annulus and leaflets), the valve was replaced by a xenograft bioprosthesis using buttressed sutures. In the second case, the annular sutures were relocated further away from the annulus, toward the leaflets and the ring replaced. In either case, following cross-clamp release, the ST segment returned to baseline, weaning off bypass was uneventful and both patients did well postoperatively.

This finding suggests that rather than direct injury to the coronary artery, the mechanism involved was coronary artery kinking, likely related to suture knot tying and annulus plication.

We extensively studied the relationship between the posterior mitral valve annulus and the surrounding coronary arteries, in a series of 85 explanted human hearts [3]. Right dominance was observed in 81.17% of the cases, balanced dominance in 16.47% and left dominance in 2.35%. Right dominant hearts showed that the shortest distance between the annulus and the coronary arteries occurred at the level of the anterior commissure, where the circumflex artery was distant to the annulus  $3.99 \pm 1.86$  mm (varying from 1.01 to 11.80 mm) while the longest distance was at the posterior commissure, measuring  $7.78 \pm 2.61$  mm.

After this study, we altered the operative technique by placing the annular sutures slightly away from the annulus inwards the leaflets, particularly at the region nearby the anterior commissure.

Therefore, a strategy of relocating the annular sutures in this setting proved to be feasible and effective. We commend again both authors for their fine contribution and reinforce that our procedure needs to be kept in mind should the need arise.

## References

- [1] Acar C. Re: Injury to the circumflex coronary artery following mitral valve repair. *Eur J Cardiothorac Surg* 2007;32:818.
- [2] Zegdi R, Jouan J, Fabiani JN, Deloche A. Injury to the circumflex coronary artery following mitral valve repair. *Eur J Cardiothorac Surg* 2007;31:740.
- [3] Pessa CJN, Gomes WJ, Catani R, Prates JC, Buffolo E. Anatomical relationship between the posterior mitral valve annulus and the coronary arteries. Implications to operative treatment. *Rev Bras Cir Cardiovasc* 2004;19:372–7 [free full-text available at [www.rbccv.org.br](http://www.rbccv.org.br)].

\* The authors of the original papers [1,2] were invited to comment on this Letter to the Editor but declined the offer.

\* Corresponding author. Address: Rua Borges Lagoa 1080 cj 608, São Paulo SP 04038-002, Brazil. Tel.: +55 11 5572 6309; fax: +55 11 5572 6309.

E-mail address: [wjgomes.dcir@epm.br](mailto:wjgomes.dcir@epm.br).

## Letter to the Editor

### Fibrin sealant in coronary artery surgery – the devil is always in the detail!

Joseph Patrick McGoldrick\*, Ralph W. White  
Department of Cardiothoracic Surgery, Yorkshire Heart Centre,  
Leeds General Infirmary, Leeds LS1 3EX, United Kingdom

Received 3 December 2007; accepted 7 February 2008

Keywords: Coronary artery surgery; Surgical sealants; Myocardial infarction

Lamm et al. [1] conclude 'the intraoperative use of fibrin sealant posed an increased risk of myocardial damage or death after coronary artery surgery'. The paper is thought provoking and flawed.

- Vital information is lacking on indications, timing and utilisation of Tissucol® Fibrin sealant. The authors state that 'in most cases' they had no idea how, where, why, or when a sealant was clinically employed nor how many patients exposed to sealant entered the analysis.
- There is no basis supporting their assertion of a causal relationship between sealant use and graft thrombosis.
- There was no equivalence between groups, no full risk stratification, or attempt at propensity scoring to reduce bias.

Lamm reports high mortality rates in both study groups. Groups were biased regarding patient age, cross-clamp time, and concomitant aortic/carotid surgery. What valid comparison can be drawn when one group has twice as many extended cross-clamp times? Longer cross-clamp/bypass times may reflect greater technical complexity or even surgical misadventure; scenarios guaranteeing higher morbidity and haemorrhage. Surgical sealant may predict, but not cause surgical mortality.

Our results contrast markedly with the Munich experience (the author using Tisseel® Sealant since 1986 in complex cardiac and aortic cases, and in all cases including CABGs since May 2002). Part of a broader study, we mention our CABG sealant experience (single surgeon to avoid bias) for two matched CABG groups for a period of five years before and after 'routine' sealant administration. Our results may inform this debate.

We apply a fine spray of Tisseel® (Tissucol® equivalent) as a prophylactic adjunct during cardiopulmonary bypass (CPB) to coronary anastomoses. Forty-five percent of our CABG cases were urgent/emergent (post-thrombolysis, aspirin, clopidogrel, etc.), and thus 'pre-selected' to bleed. The mortality was low in both groups, which were matched for age, sex, risk factors and isolated coronary surgery.

Blood loss 12 h postoperatively (Tisseel® group) was >35% lower, total blood loss 30% lower, and mediastinal drains were removed earlier. Blood transfusion rates fell by 45%, the amount transfused fell >60%. In those receiving a blood transfusion, the number of transfused units was >45% lower in the sealant group, with a dramatic fall in platelet/FFP use. Re-exploration rates were <1% in both groups.