

Hemostatic management in complex aortic surgery: a role for multiple electrode aggregometry and modified rotational thromboelastometry

Petričević, Mate; Biočina, Bojan; Miličić, Davor

Source / Izvornik: **Journal of Thoracic and Cardiovascular Surgery**, 2012, 144, 1534 - 5

Journal article, Accepted version

Rad u časopisu, Završna verzija rukopisa prihvaćena za objavljivanje (postprint)

<https://doi.org/10.1016/j.jtcvs.2012.06.062>

Permanent link / Trajna poveznica: <https://um.nsk.hr/um:nbn:hr:105:018692>

Rights / Prava: [In copyright](#) / [Zaštićeno autorskim pravom](#).

Download date / Datum preuzimanja: **2025-03-12**



Repository / Repozitorij:

[Dr Med - University of Zagreb School of Medicine
Digital Repository](#)





Središnja medicinska knjižnica

Petričević M., Biočina B., Miličić D. (2012) *Hemostatic management in complex aortic surgery: a role for multiple electrode aggregometry and modified rotational thromboelastometry*. Journal of Thoracic and Cardiovascular Surgery, 144 (6). pp. 1534-5. ISSN 0022-5223

<http://www.elsevier.com/locate/issn/00225223>

<http://www.sciencedirect.com/science/journal/00225223>

<http://dx.doi.org/10.1016/j.jtcvs.2012.06.062>

<http://medlib.mef.hr/2051>

University of Zagreb Medical School Repository

<http://medlib.mef.hr/>

Letter to the Editor

**„Haemostatic management in complex aortic surgery: a role of multiple electrode
aggregometry and modified rotational thromboelastometry“**

Mate Petricevic^a, Bojan Biocina^a, Davor Milicic^b

^a University of Zagreb School of Medicine, Department of Cardiac Surgery, University
Hospital Center Zagreb, Zagreb, Croatia

^b University of Zagreb School of Medicine, Department of Cardiovascular Diseases,
University Hospital Center Zagreb, Zagreb, Croatia

Correspondence:

Mate Petricevic, M.D.

Cardiac Surgery Department

School of Medicine; University of Zagreb, Croatia

Kispaticeva 12; 10000 Zagreb, Croatia

Tel: +38512367529 ; Fax: +38152367531

E-mail: petricevic.mate@gmail.com

Main text word count: 517

Keywords: rFVIIa; Factor VII; Hemorrhage; Re-exploration, multiple electrode
aggregometry, thromboelastometry

We read with a great interest the recently published retrospective propensity-matched analysis by Goksef D et al¹. The authors matched 58 patients: recombinant activated factor VII (rFVII)-treated group (n=29) and non-rFVII-treated group (n=29)¹. Patients were compared on re-exploration, mortality, bleeding-related events, use of blood and blood products, length of intensive care unit stay, duration of hospitalization, and thrombotic complications¹. We agree with authors' statement that strategies to prevent coagulopathic bleeding are essential for the successful management of patients undergoing complex aortic operations. However, we have few comments and suggestions for haemostatic management in such complex patients.

In our opinion, data regarding preoperative antiplatelet therapy management are lacking. We are interested whether matched patients were preoperatively exposed to antiplatelet therapy (*i.e.* aspirin). Was proportion of patients exposed to antiplatelet therapy different among the matched groups? There is an evidence that certain patients have an accentuated response to the usual doses of preoperative aspirin that may result in increased perioperative blood loss². Thus, the use of point-of-care suitable platelet function analyzers seem to be reasonable in this field. Such an approach in preoperative phase can detect patients with accentuated platelet inhibition and allow possibility for early discontinuation of antiplatelet drugs prior to surgery in patients with intensive platelet inhibition.

Furthermore, the results of study by Goksef et al¹ are not in line with recently published results by Chapman AJ et al³ who also compared cardiosurgical patient outcomes with respect to rFVII administration³. In study by Chapman AJ et al³, group of patients treated with rFVII did have significantly higher rate of re-operation for bleeding, a two fold increase in the use of blood products, and, more frequently, had pulmonary complications³. In addition to,

Hacquard et al⁴ reported 20% of patients with rFVII administration who continued to bleed severely despite rFVII therapy.

In our opinion, rFVII presents valuable therapeutic option in cases of intractable bleeding. However, rFVII should be administered after other useful treatment modalities are exhausted. For example, Spiess BD et al⁵ reported thromboelastography guided hemostatic management to significantly reduce incidence of overall transfusion and mediastinal re-exploration due to excessive bleeding⁵. In addition to, the preliminary results of our research project under ClinicalTrials.gov Identifier: NCT01281397 (data not published, manuscript under preparation) showed modified rotational thromboelastometry and multiple electrode aggregometry results as predictors of excessive bleeding after cardiac surgery procedures. Preoperative platelet function assessment and intraoperative hemostatic properties optimization guided by thromboelastometry can reduce proclivity to excessive bleeding, therefore, lead to diminished use of rFVII, with even better rFVII efficiency after functional hemostatic properties optimization prior to rFVII administration. Noteworthy, concomitant use of multiple electrode aggregometry and modified rotational thromboelastometry can help to define excessive bleeding as a surgical or a coagulopathic bleeding. rVII administration should follow previously mentioned pre- and intraoperative haemostatic optimization measures based on bedside suitable haemostatic monitoring devices with a short time frame from blood sampling to getting results. In our experience, such an algorithm can help in reducing both chest tube output and blood products transfusion requirements with only sporadically need for rFVII administration.

We congratulate the authors on their elegant and timely research.

REFERENCES

1. Goksedef D, Panagopoulos G, Nassiri N, Levine RL, Hountis PG, Plestis KA. Intraoperative use of recombinant activated factor VII during complex aortic surgery. *J Thorac Cardiovasc Surg.* 2012; 143(5): 1198-204.
2. Ferraris VA, Ferraris SP, Joseph O, Wehner P, Mentzer RM, Jr. Aspirin and postoperative bleeding after coronary artery bypass grafting. *Ann Surg.* 2002; 235(6): 820-7.
3. Chapman AJ, Blount AL, Davis AT, Hooker RL. Recombinant factor VIIa (NovoSeven RT) use in high risk cardiac surgery. *Eur J Cardiothorac Surg.* 2011; 40(6): 1314-8; discussion 8-9.
4. Hacquard M, Durand M, Lecompte T, Boini S, Briancon S, Carreaux JP. Off-label use of recombinant activated factor VII in intractable haemorrhage after cardiovascular surgery: an observational study of practices in 23 French cardiac centres (2005-7). *Eur J Cardiothorac Surg.* 2011; 40(6): 1320-7.
5. Spiess BD, Gillies BS, Chandler W, Verrier E. Changes in transfusion therapy and reexploration rate after institution of a blood management program in cardiac surgical patients. *J Cardiothorac Vasc Anesth.* 1995; 9(2): 168-73.