26484 - FACTOR VII USE IN CABG PATIENTS

**Mark Johnson BSc, Michale Solylo, MD; Patricia Cruchley,
St. Mary's General Hospital, Kitchener, ONTARIO, Canada**

Introduction: Massive hemorrhage following complex cardiac surgery is a serious problem. Recombinant activated factor VII (rFVIIa) has been proposed for off-label use as a valuable adjunct in the management of active bleeding of a non-surgical source. We describe our experience over the last 2 years with the use of rFVIIa following complex cardiac surgery that included coronary artery bypass grafts (CABG) as concern has been expressed that the use of rFVIIa is associated with an increased incidence of graft thrombosis.

Methods: Retrospective chart review was conducted on all patients who received rFVIIa for two years. All patients signed a consent for the inclusion of their data into an institutional database. Blood product utilization pre- and post- rFVIIa was analyzed with a t-test, with significance set at $p < 0.05$

Results: Nine patients (total 1098 cases – 0.9%) received rFVIIa. One patient did not have CABG and is excluded from our analysis. The types of cases are presented in Table 1. Although rFVIIa was originally given without a protocol, all patients received at least 10units (u) platelets, 5u pRBCs and 10u cryoprecipitate prior to rFVIIa (see Table 1). Eight of the patients received rFVIIa in the CVOR. Two patients were re-explored again following the second (patient 1) or third (patient 2) dose of rFVIIa.

There were three deaths (63% survival), two from ongoing hemorrhage, and one of heart failure. Three of the patients underwent emergency surgery (38%), including two of the three who died.

There was no clinical, electrocardiographic or visual evidence of graft thrombosis following rFVIIa. Average red cell (pRBC) transfused prior to rFVIIa was 10.7 ± 3.0 . Average blood products given following rFVIIa were 2.9 ± 2.6 ($p < 0.0003$). There was a statistical significance with other blood products (data not shown).

Discussion: Wittenstein et al.¹ suggest that areas of endothelial damage maybe prone to thrombosis after rFVIIa. Butenas et al.² postulates that tissue factor is necessary for the formation of clot in the presence of rFVIIa. Although small our series suggests that this maybe less common than feared. A large multicentre review could help to quantify this concern.

Table #1.

Pt	Age	Sex	Procedure
1x	76	F	Bentall with freestyle aortic valve, complete arch, CABGx2
2x	74	M	Ascending & hemiarch replacement, AV replacement 19mm Mitroflow, CABG x4
3	76	M	Bentall #25 Freestyle mitronic bioprosthetic root – both L&R coronaries implanted, ascending aorta #28, hemiarch to freestyle root, CABGx2
4x	82	F	AVR-21mm Mitroflow, ascending aorta-24mm Dacron graft, PFO ASD closure, CABGx3
5	71	M	MVR-27mm Mosaic, CABGx3
6	45	M	MV-annuloplasty #28 Cosgrove, Edwards band, Bentall #23 Carboreal valved conduit with #26 conduit, CABGx5, IABP-R femoral artery
7	74	M	CABGx2-crash onto pump anaphylactic rxn to vanco
8	42	M	Bentall; ascending & proximal arch, CABGx3

Legend: x= pt deceased

DHCA= deep hypothermic circulatory arrest

References

1. Wittenstein, B., Ng, C., et al. Recombinant factor VII for severe bleeding during extracorporeal membrane oxygenation following open heart surgery. Soc of Crit Care Med and Wor Fed of Ped Int and Crit Car Soc 2005; 6:4:1-6.
2. Butenas, S., Brummel, K., et al. Influence of Factor VIIa and Phospholipids on Coagulation in "Acquired" Hemophilia. Atheroscler Thromb Vasc Biol. 2003; 23:123-129.