

SCA 55

**INFLUENCE OF APROTININ ON A CELITE-ACTIVATED HEPARIN MANAGEMENT TEST (RAPIDPOINT)**

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**Introduction:** Aprotinin is a non-specific plasma protease inhibitor whose presence alters the results of some activated clotting time (ACT) tests when combined with heparin (1). The purpose of this study was to determine if the RapidPoint heparin management test (HMT), a celite-activated clotting time measurement is affected by the presence of aprotinin.

**Methods:** Using the RapidPoint (Bayer Diagnostics™), a baseline HMT and the calculated heparin concentration were measured in blood drawn from patients who had received heparin prior to cardiopulmonary bypass. The kaolin ACT and the whole blood heparin concentration reported by the HMS machine (Medtronic™) were used as a control. Aprotinin was added to ex-vivo blood samples to achieve an in-vitro concentration of 400KIU/ml. The aprotinin-treated blood sample was compared to the untreated sample to determine if the HMT or heparin concentrations had changed. Data are expressed as mean±SEM and analysis was with repeat measures ANOVA and t-tests where appropriate. P<0.05 was significant.

**Results:** The heparin concentrations without aprotinin did not differ between the RapidPoint HMT and Hepcon HMS machines (P=0.18). The addition of aprotinin to the sample resulted in a significant prolongation of the HMT relative to without aprotinin (P=0.015). (Table) The heparin concentration calculated by this machine also increased significantly at all time points with aprotinin (P<0.0004). (Figure)

**Conclusion:** These data suggest the RapidPoint HMT and heparin concentration are increased by the in-vitro addition of clinically achieved concentrations of aprotinin to the blood of patients who are fully heparinized. A recent abstract (2) suggests that the results of the RapidPoint HMT were not affected by the presence of clinical concentrations of aprotinin when combined with heparin. We conclude that heparin monitoring using the RapidPoint HMT in aprotinin-treated patients should take into account this prolongation of clotting time.

**References:**

1. *JECT*. 2002;34 41-78
2. *Anes. Ana. Suppl.* 2003;Vol 96(2S)S54

N=3	ACT	HMT	HMT + Aprotinin
CPB 1	563 +/- 102	486 +/- 32	670 +/- 56
CPB 2	587 +/- 154	520 +/- 53	684 +/- 70
CPB 3	523 +/- 140	521 +/- 49	679 +/- 88
			Avg. Rise in HMT w/ Aprotinin: 169

