

USE OF A NEW ACTIVATED CLOTTING TIME (MAX-ACT) IN PATIENTS UNDERGOING EXTRACORPOREAL CIRCULATION

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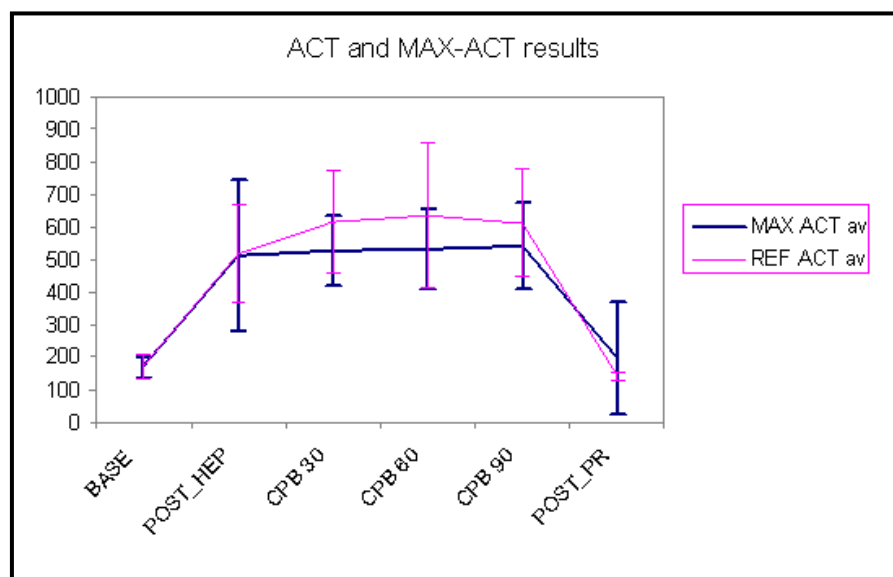
Introduction. Activated clotting time (ACT) is a test used in the operating room for monitoring heparin effect. However, ACT is not felt to reflect heparin levels due to poor correlation with heparin level during hypothermia and hemodilution on cardiopulmonary bypass (CPB)*. A modified clotting test (Actalyke MAX-ACT, Array Medical, Somerville, NJ) employing maximal factor XII activation may be more closely related to heparin level. We compared MAX-ACT with ACT in patients undergoing CPB.

Method. In 24 patients we measured ACT, MAX-ACT, temperature and hematocrit at 6 time points: baseline, post-heparin, on CPB 30, 60, 90 min and post-protamine. Additionally we assessed heparin level by anti-Factor Xa.

Results. At baseline, post-heparin and post-protamine ACT and Max-ACT did not differ. With institution of CPB MAX-ACT was unchanged (472 \pm 132 sec to 522 \pm 92 sec; p=NS). However, ACT significantly increased (509 \pm 147 sec to 588 \pm 132 sec; p<0.01). Concomitant heparin levels were also unchanged (0.91 \pm 0.1 U/ml to 0.81 \pm 0.25 U/ml; p=0.065) (Fig.1)

Conclusion. ACT increases during hypothermia and hemodilution on CPB even though heparin levels do not increase. MAX-ACT did not increase possibly indicating a closer relationship to heparin levels on CPB. MAX-ACT requires further evaluation as a more accurate test of heparin's anticoagulant effect than ACT.

* Culliford AT, Gitel SN, Starr N, et al. Lack of correlation between activated clotting time and plasma heparin during cardiopulmonary bypass. *Ann Surg* 1981; 193:105-111.



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