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THROMBOELASTOGRAPHIC VARIABLES AND THEIR RESPONSIVENESS TO PLATELET BLOCKADE VARY IN HEALTHY VOLUNTEERS**

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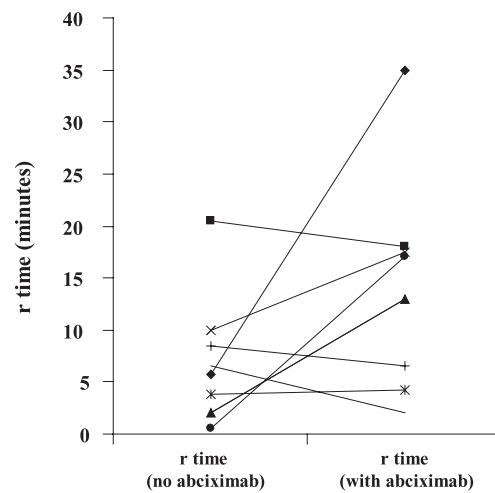
**Background:** Numerous studies have been performed in surgical patients to examine the effects of various interventions on coagulation reflected by thromboelastographic (TEG<sup>®</sup>) variables. TEG<sup>®</sup> has also been utilized to rationalize transfusion of blood and blood products during surgery. Little attention has focused on TEG<sup>®</sup> variables in healthy volunteers, presumably since their significance is unclear. However, TEG<sup>®</sup> data and the variability of TEG<sup>®</sup> values within and between healthy individuals are of interest. TEG<sup>®</sup> variables and their response to interventions may reflect predisposition to bleeding or thrombotic events. We present the results of a pilot study in healthy volunteers to assess variability in TEG<sup>®</sup> variables and in the responsiveness of clot formation to platelet blockade with abciximab.

**Methods:** IRB approval and consent were obtained. Venous blood samples were drawn from 8 healthy, fasting volunteers. TEG<sup>®</sup> (Haemosope Corp., Morton Grove IL.) was performed on celite-activated blood samples according to the manufacturer's instructions. The TEG<sup>®</sup> machine was calibrated and underwent frequent quality control testing. Abciximab (ReoPro<sup>®</sup>, Eli Lilly, Indianapolis, IN) is a platelet glycoprotein IIb/IIIa and inhibits the platelet contribution to clot formation. Abciximab modified TEG (AbTEG) permits the assessment of the relative contributions of platelets and other factors to clot formation. AbTEG was performed simultaneously with conventional TEG<sup>®</sup> on all samples. For AbTEG 5ml of abciximab was added to the TEG<sup>®</sup> cup. Recorded TEG<sup>®</sup> data included r time and MA.

**Results:** The r time and MA for each volunteer are shown in Figures 1 & 2. There was variability in control r time (range 0.5-20.5 minutes) and MA (range 55-85 mm). Abciximab was associated with a doubling of mean  $\pm$  SD r time from  $7.2 \pm 6.2$  minutes to  $14.3 \pm 10.5$  minutes (Figure 1). However, blockade of platelet function had highly variable effects on r time. The % change in r time with the performance of AbTEG ranged from -69% to 3300%. Abciximab decreased mean  $\pm$  SD MA from  $65.9 \pm 11.9$  mm to  $29.4 \pm 11$  mm ( $p=0.0004$ , figure 2). There was some variability in the response of MA to abciximab. The % change in MA ranged from 16% to 79%.

**Discussion:** The results of this pilot study demonstrate that there is large inter-individual variability in TEG<sup>®</sup> variables among healthy volunteers. There is also variability in the responsiveness of clotting to platelet inhibition with abciximab. R time is believed to be primarily influenced by the intrinsic coagulation system with platelets having little impact. In this study abciximab resulted in variable and large changes in r time. The MA was decreased by abciximab in all volunteers but the degree of change in MA varied between individuals. The results of this study indicate that coagulability and the response of blood clotting to therapeutic interventions vary widely between healthy individuals.

**Figure 1. R Time in Healthy Volunteers**



**Figure 2. MA in Healthy Volunteers**

