

Reaction Time Prolongation on TEG in Parturients with Antiphospholipid Syndrome after discontinuation of Heparin

Mohammed Idris MD, John J. Kowalczyk MD, Yunping Li MD, Philip E. Hess MD

Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA

Introduction

- Antiphospholipid Syndrome (APLS): Presence of lupus anticoagulant and anticardiolipin antibodies (antibodies against phospholipids).
- Risk of recurrent venous and arterial thrombosis (up to 3%)
- APLS accentuates the hypercoagulable state of pregnancy.
- ACOG recommends APLS parturients receive anti-thrombotic treatment.
- Monitoring difficulty: These antibodies prevent the assessment of anticoagulation by interfering with assembly of prothrombinase complex on phospholipids in the aPTT assay leading to a FALSE prolongation^{1,2}.
- TEG: Assesses³ the effect of heparin by comparing coagulation with and without heparinase, thereby bypassing this error.

Case 1

29 yo G2P0 at 27 weeks, scheduled for Cesarean delivery due to severe fetal growth restriction, abnormal dopplers, and fetal decelerations

Medical History: APLS, DVT/PE, epilepsy and preeclampsia with severe features

Heparin: Heparin infusion was stopped 14 hrs prior.

Labs: Baseline aPTT prolonged

TEG 6s: Global cartridge used

Findings on TEG 6s: Reaction time (R) of 11.2 min, R with heparinase of 9.1 min. All other TEG values were normal. Her TEG values normalized 22 hrs after discontinuation of the infusion.

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Case 2

A 36 yo G2P0 at 37 weeks in early labor

Medical History: APLS, SLE and h/o Deep Venous Thrombosis (DVT) and Pulmonary Embolus (PE)

Med: Heparin 7,500 U subcutaneous BID

Heparin: last dose 6 hours prior.

Labs: Baseline aPTT prolonged

TEG 6s: Global cartridge w/ heparinase used.

Findings on TEG: Several of the initial TEG values were outside the reportable range with Reaction time >17.0 min, Reaction time with heparinase of 11.6 min, Kinetic Time>5.0 min, Alpha Angle<43.8°. Her TEG was repeated four additional times and normalized after 27 hrs (Figure 1).

Both patients received neuraxial analgesia/anesthesia safely.

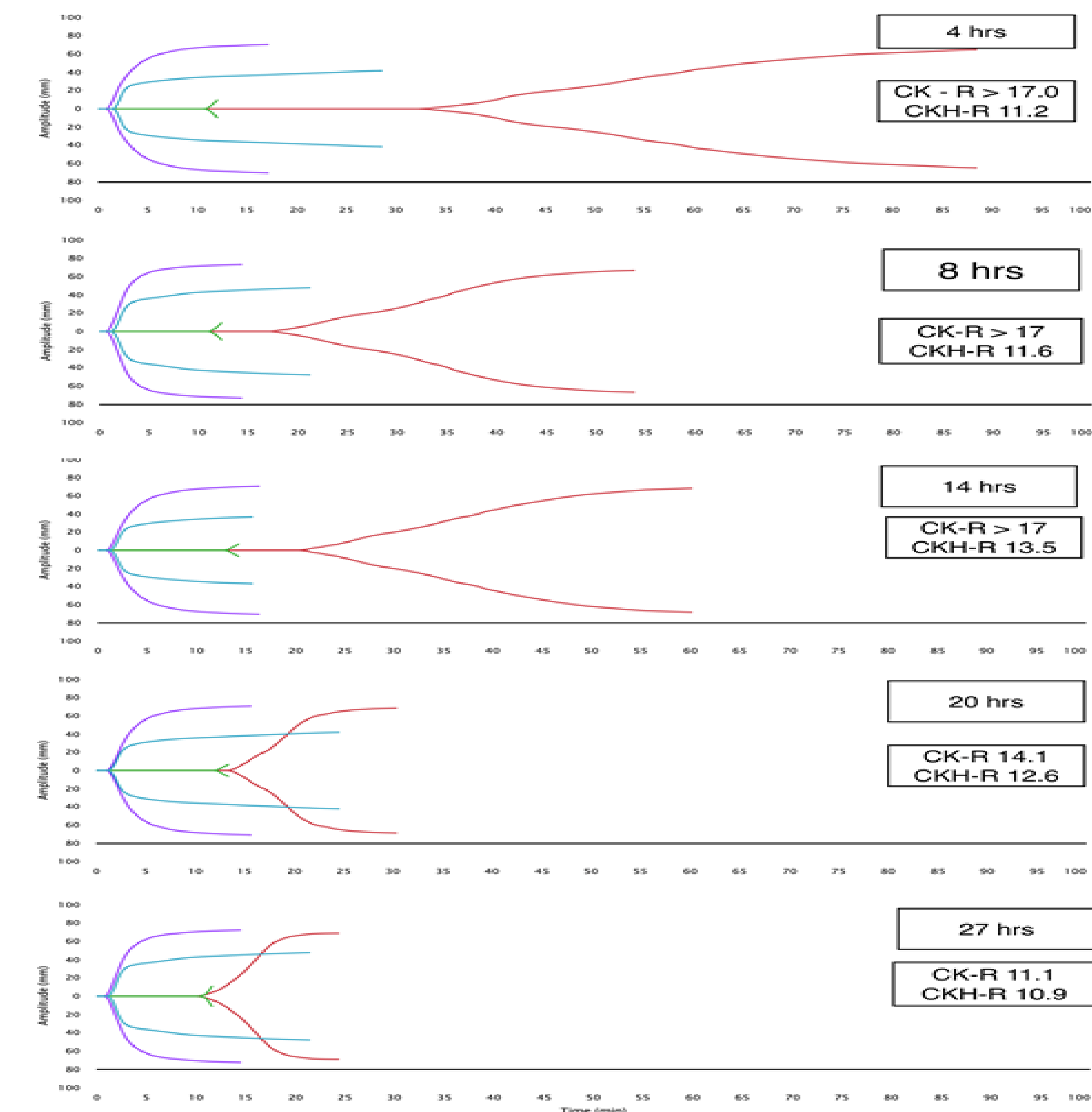


Figure 1: TEG 6s Global Cartridge with heparinase of Patient 2 at 4, 8, 14, 20 and 27 hours.

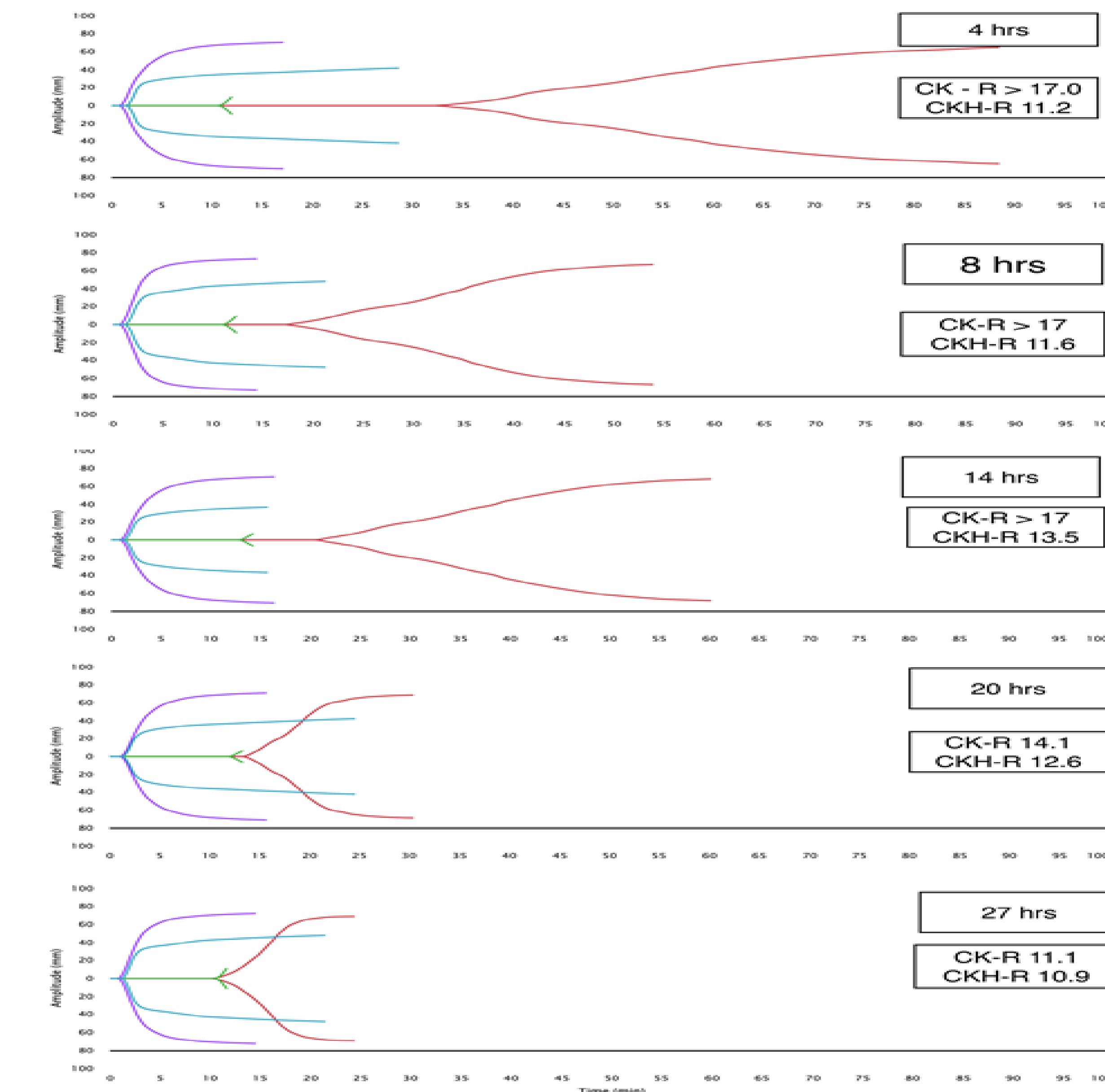
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Discussion

- Management is complicated in APLS due to heparin administration and baseline prolonged aPTT.
- Both patients had abnormally prolonged R values for about 22-27 hrs after their last dose of heparin and significantly longer than the current recommendations.
- R Values only partially corrected in the heparinase channel of TEG 6s.
- It may represent prolonged activity of heparin or an unknown artifact affecting the TEG 6s assay. The normalization of these values over time would argue against the latter.
- Additional studies should be performed to better characterize these findings and their implications on the safe care of parturients with APLS.



References

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