

Efficacy of Hemoadsorption Therapy in the Dabigatran Removal: a case report

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Introduction

Dabigatran etexilate is a direct thrombin inhibitor that provides anticoagulant effects without requiring dose adjustments or periodic monitoring. Its half-life is dose-independent, estimated at 12–14 hours, with a distribution volume of 50–70 L, and approximately 80% is excreted renally.

Extracorporeal therapies combined with Cytosorb, the only adsorbent cartridge certified for whole-blood removal of bilirubin, cytokines, myoglobin, Ticagrelor, and Rivaroxaban, may be a useful approach also for Dabigatran removal.

Cytosorb is recommended by ESAIC guidelines for the removal of Ticagrelor and Rivaroxaban in anticoagulated patients undergoing emergency surgery.

Methods

An 85-year-old man on dabigatran 110 mg twice daily for one month due to permanent atrial fibrillation presented to the emergency department after a syncopal episode caused by acute anemia secondary to enterorrhagia.

On clinical examination, the patient presented with asthenia, BP 105/40 mmHg, HR 60 bpm, aPTT ratio 1.88. He was treated with Idarucizumab for suspected dabigatran overdose. While rectal bleeding appeared to cease, anuria persisted. Continuous veno-venous hemodiafiltration (CVVHDF) without heparin was initiated but led to circuit obstruction, requiring intermittent hemodialysis (BHD). Subsequently, massive rectal bleeding occurred; with an aPTT ratio of approximately 1, Idarucizumab was administered again.

The diluted thrombin time (dTT) was 102 ng/mL despite dabigatran discontinuation for three days.

Continuous renal replacement therapy (CRRT) with Cytosorb® was then initiated.

Results

After 24 hours of Cytosorb® therapy, dTT decreased to 20 ng/mL and aPTT ratio to 0.86. Treatment continued for 48 hours, after which dialysis was discontinued due to resumed diuresis. However, after 24 hours, Dabigatran levels rose again (dTT = 69 ng/mL) before spontaneously declining with renal function recovery.

Conclusion

The combination of Idarucizumab and Cytosorb® effectively reduced plasma Dabigatran levels. However, the drug's large volume of distribution may cause post-dialysis rebound. Cytosorb® efficiently removes Dabigatran, but complete clearance requires some days of treatment.

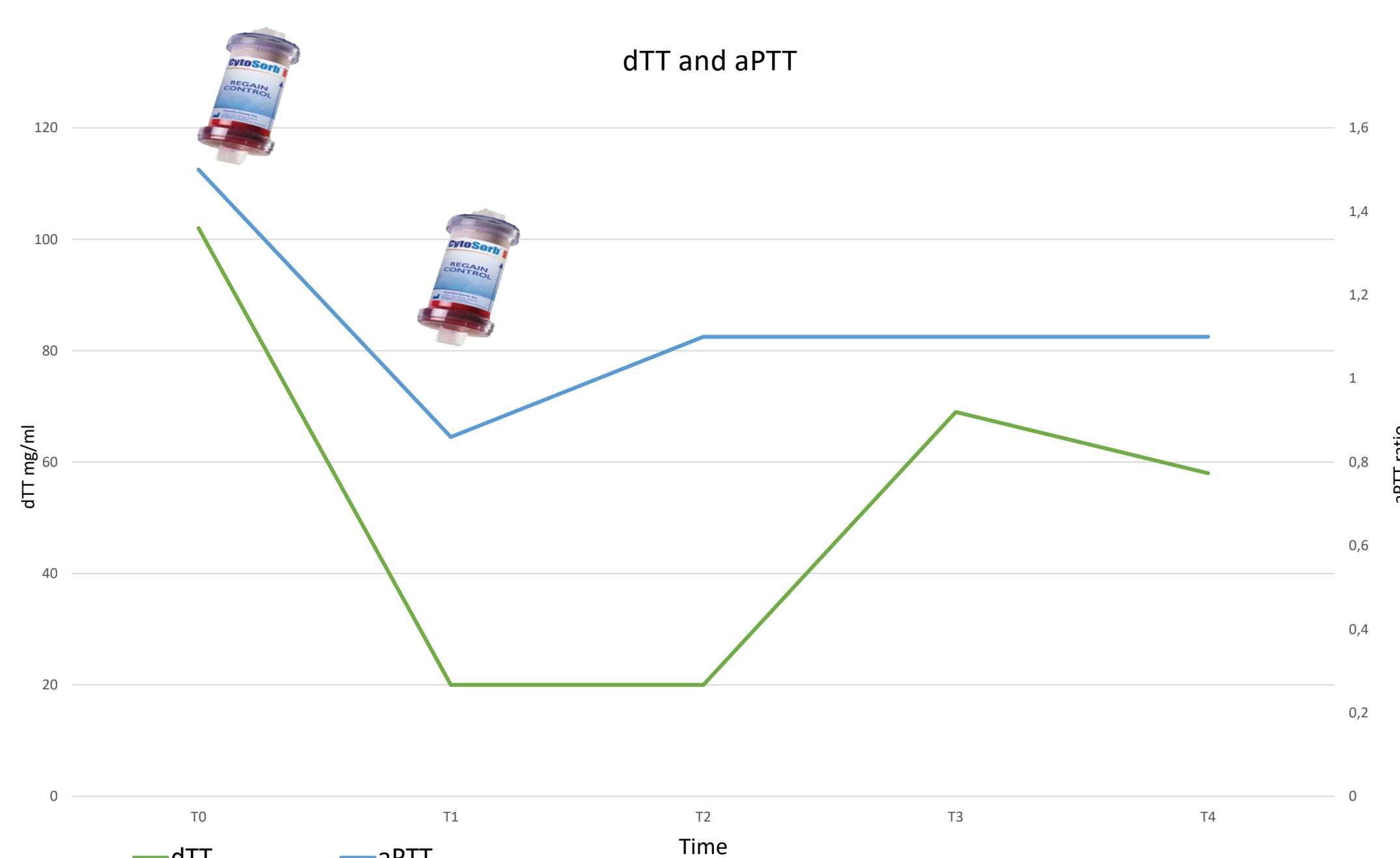


Figure 1