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## A 77-Year-Old Man with a Prolonged Activated Partial Thromboplastin Time

Martin Ehrenschwender,<sup>1†</sup> Juergen Koessler,<sup>1†</sup> Kirsten Brunner,<sup>1</sup> and Udo Steigerwald<sup>1</sup>

<sup>1</sup> Institut für Klinische Biochemie und Pathobiochemie mit Zentrallabor, Universitätsklinikum Würzburg, Würzburg, Germany. <sup>†</sup>These authors contributed equally.

\* Address correspondence to this author at: Institut für Klinische Biochemie und Pathobiochemie mit Zentrallabor, Universitätsklinikum Würzburg, Oberdürrbacher Str. 6, 97080 Würzburg, Germany. Fax +49-931-201645011; e-mail [m.ehrenschwender@medizin.uni-wuerzburg.de](mailto:m.ehrenschwender@medizin.uni-wuerzburg.de).

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### CASE

A 77-year-old man was admitted to another hospital because of increasing dyspnea and edema of the lower limbs. The patient reported a loss of appetite and a flu-like illness 4 weeks previously. He was on various medications for heart failure, including metoprolol, ramipril, spironolactone, torasemide, metformin, and digoxin. For chronic atrial fibrillation, the patient had received dabigatran (75 mg twice per day) for 12 months; dabigatran is a direct thrombin inhibitor that has recently been cleared by the US Food and Drug Administration for the prevention of stroke in patients with atrial fibrillation.

Five days before admission, the patient discontinued dabigatran on his own after recognizing a fresh hematoma on the right hip, easy bruising, and a conjunctival hemorrhage of the right eye. Routine laboratory investigations on admission revealed a prolonged activated partial thromboplastin time (aPTT) of 69 s (reference interval, 25–35 s) and a slightly prolonged prothrombin time (PT). Initially, these laboratory findings and the ecchymosis were attributed to the previous anticoagulant intake.

The patient's other symptoms were felt to be due to exacerbation of congestive heart failure, and these symptoms resolved with optimization of his diuretic therapy. He developed fresh hematomas, however. Because the aPTT remained prolonged 2 days after admission (a total of 7 days after the last dabigatran intake), clotting factor activities were quantified. Clotting factor VIII activity was below the detection limit (<5 IU/dL; reference interval, 70–150 IU/dL), and the activity of factor XII was slightly reduced (53 IU/dL, reference interval, 70–150 IU/dL). Subsequently, the patient was referred to our clinic for further evaluation.

On admission, the results of a repeat aPTT test was 71.4 s (reference interval, 23–36 s), and factor VIII activity was markedly reduced in a chromogenic assay (<10 IU/dL; reference interval, 50–175 IU/dL) and a clotting assay (<1 IU/dL; reference interval, 70–150 IU/dL). The values for other coagulation parameters, including PT, fibrinogen, von Willebrand factor, platelet count, and platelet function were within their respective reference intervals.

Questions to Consider
<ul style="list-style-type: none"><li>• Which differential diagnoses should be considered when a PTT prolongation is detected?</li></ul>
<ul style="list-style-type: none"><li>• To what extent do new anticoagulants, such as direct thrombin inhibitors, affect standard coagulation tests?</li></ul>
<ul style="list-style-type: none"><li>• What techniques should be used to evaluate the cause of a prolonged aPTT?</li></ul>

### Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the October 2012 issue of *Clinical Chemistry*. To view the case and comments online, go to <http://www.clinchem.org/content/vol58/issue10> and follow the link to the Clinical Case Study and Commentaries.

### Educational Centers

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