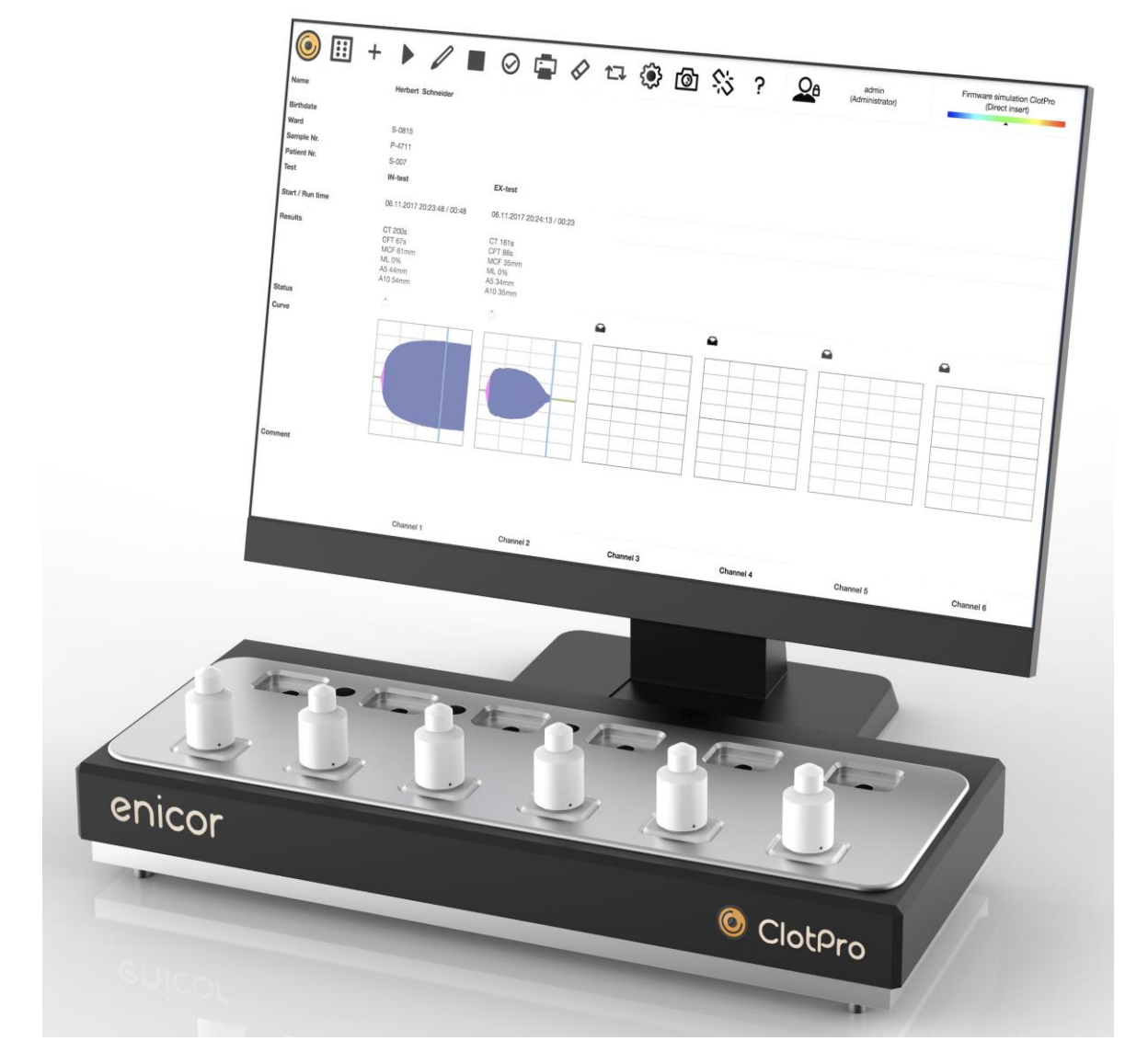


# Reversal of Apixaban in RVV-Test on the ClotPro® Analyzer

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## Introduction

The ClotPro is a novel viscoelastometry analyzer. In addition to the established viscoelastometry assay portfolio ClotPro® also provides an assay which uses a direct FXa activation by a snake venom (FXa activator from Daboia Russelli / Russel Viper, RVV-test), which is sensitive to DOAC. We examined the reversal of DOACs in the RVV-test using activated carbon.



## A novel POC for semiquantitative measurement of Apixaban

### Material and Methods:

39 citrated blood samples collected from patients admitted in our general praxis for routine laboratory analysis. Citrated whole blood was used for duplicate measurements on ClotPro using RVV-test (enicor GmbH, Munich) and . Apixaban effects were quantified by the clotting time (CT) (reference range: 48-77 sec). 1 carbon pallet (DOAC-Remove, 5-Diagnostics) was added to 150µl NaCl. 50µl of carbon solution was added to 300µl sample and RVV-test performed. Citrated Plasma was used for determination of anti-Xa activity using a chromogenic one step test (Innovance® Heparin, Siemens) calibrated against apixaban. Analyses were performed on BCS XP.

### Results:

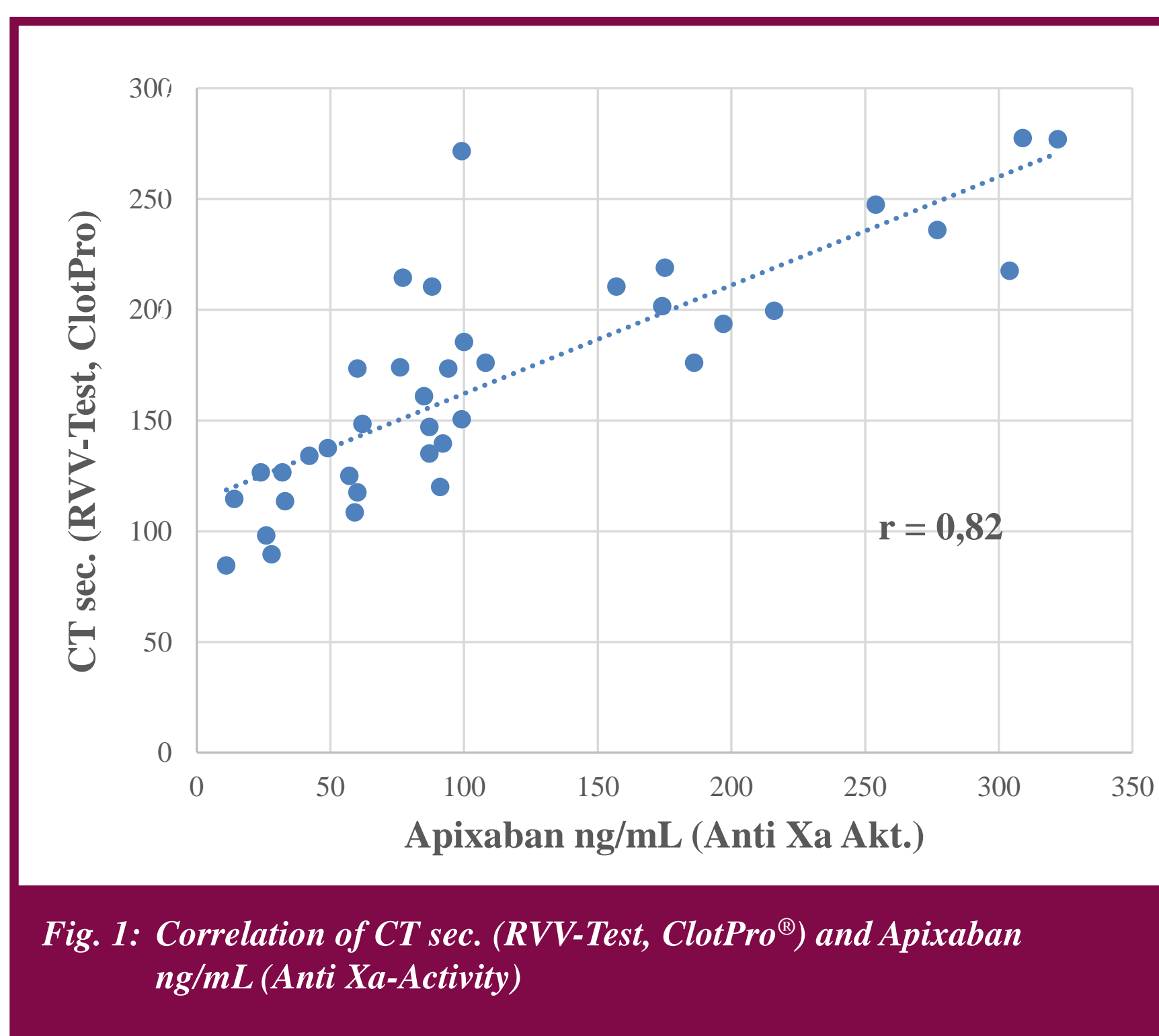


Fig. 1: Correlation of CT sec. (RVV-Test, ClotPro®) and Apixaban ng/mL (Anti Xa-Activity)

Apixaban concentration ranged from 11 to 322 ng/ml. There was a moderate correlation between CT in ClotPro® and Apixaban concentration ( $r = 0.82$ , Fig. 1). Mean value of CT in RVV-test was 167 sec ( $\pm 52$  SD) and 82 sec ( $\pm 22$  SD) in sample with

carbon. CT in was in mead reduced by 85 sec ( $\pm 49$  SD) by adding carbon (Fig. 2).

There was no correlation between apixaban concentration and CT in samples with carbon (Fig. 3).

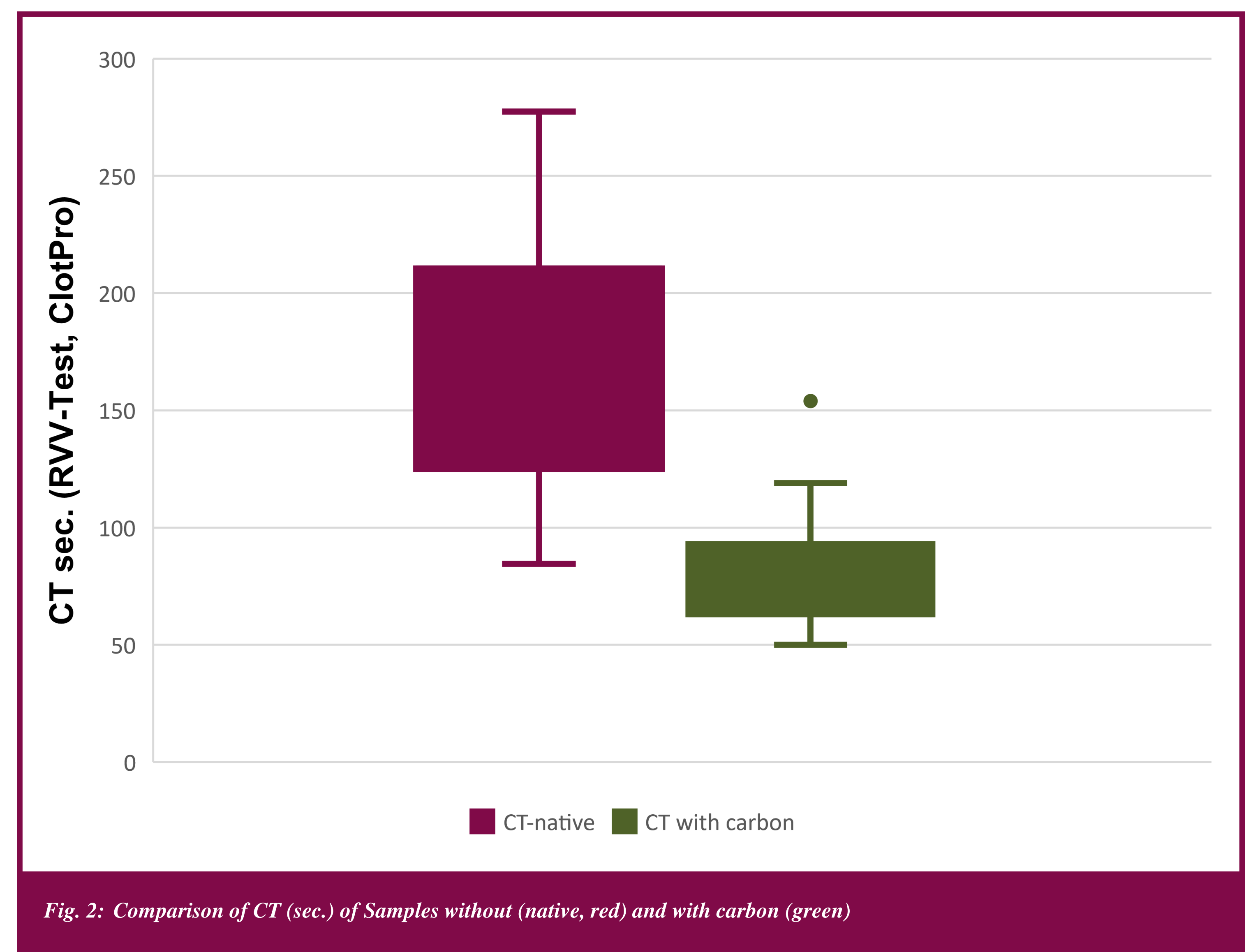


Fig. 2: Comparison of CT (sec.) of Samples without (native, red) and with carbon (green)

### Conclusion:

**RVV-test in combination with carbon removes the effect of Apixaban and may allow to differentiate between coagulopathy by apixaban and deficiency of clotting factors.**

### Discussion:

Apixaban is more frequently used for anticoagulation.

In severe polytrauma increased loss of blood may lead to coagulopathia and may increase coagulation time in RVV-test. The addition of carbon removes the effect of Apixaban in the RVV-test.

So the comparison of CT of native RVV-test and RVV-test with added carbon may allow to differentiate between coagulopathy by apixaban and deficiency of clotting factors.

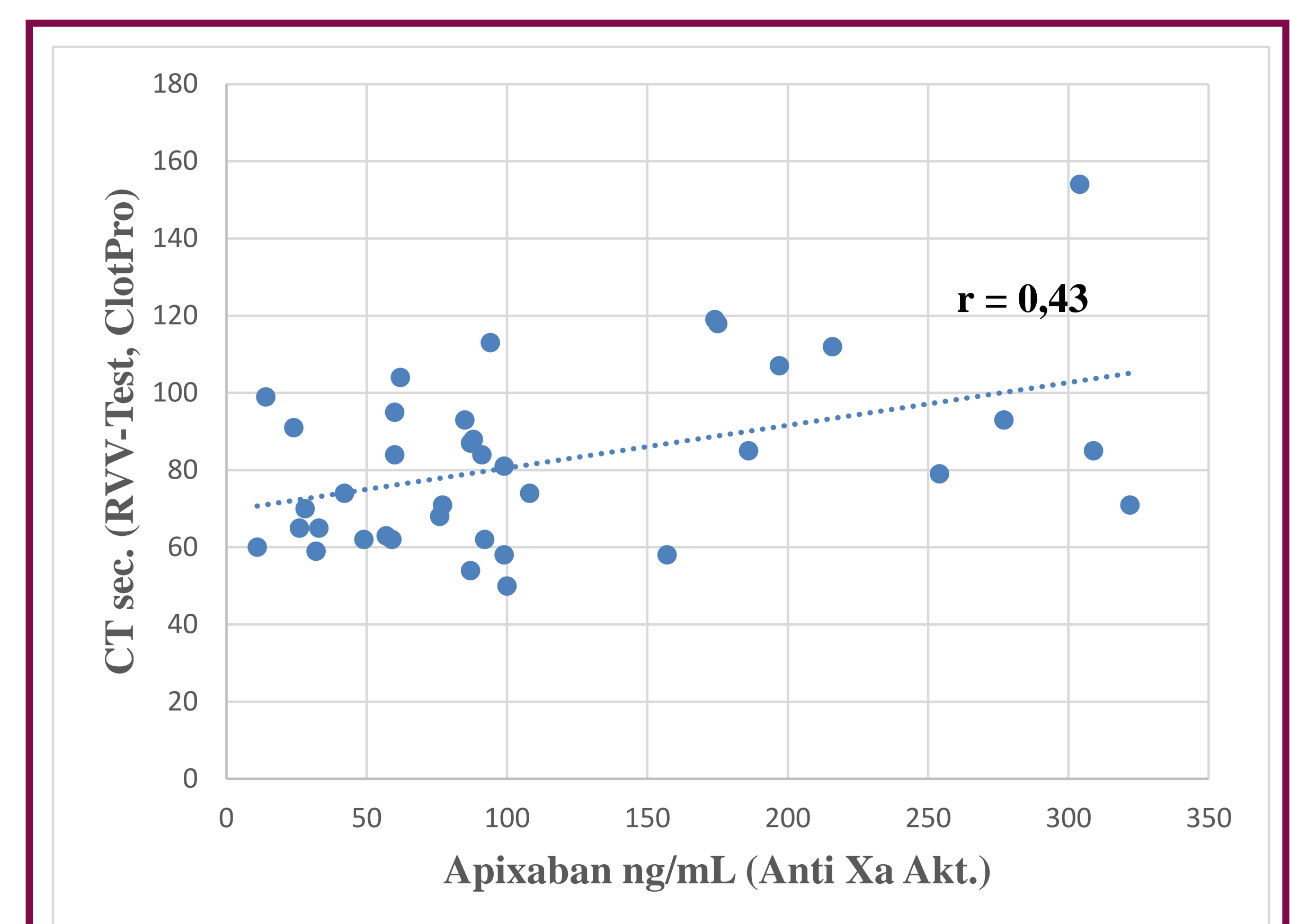


Fig. 3: Comparison of CT (sec.) of Samples with carbon and concentration aof Apixaban