

Presentation of three patients treated with dabigatran that strongly confirm the importance of quantitative measurement of dabigatran concentration in selected clinical situations: case reports

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INTRODUCTION

Although clinical application of dabigatran does not require routine monitoring, there are special clinical situations in which laboratory measurement of drug concentration in plasma should be performed. In literature, there are increasing evidence of case reports of serious bleeding on dabigatran in the elderly, especially in those who develop acute renal failure.

AIM

To present three patients treated with dabigatran in which quantitative measurement of dabigatran concentrations in plasma have confirmed as very effective approach in clinical decision making and treatment.

METHODS

Case 1: 85 years old female presented at consultant neurologist office with multiple skin hematomas.

Case 2: 85 years old female presented at Emergency Department (ED), referred from general practitioner with severe normocytic anemia and clinical symptoms of melena/hematochezia and chronic renal insufficiency in anamnesis.

Case 3: 89 years old male presented at ED in soporous state, with severe hypotension as a result of afterwards diagnosed aortic dissection.

Dabigatran was prescribed by cardiologist to all patients, in 110 mg twice daily regimen.

Concentrations of dabigatran were measured by Innovance DTI assay on BCSXP analyzer (Siemens Healthineers, Germany). The study was funded by the Croatian Science Foundation as a part of the research project IP-2016-06-8208.

RESULTS

Case 1

Peak concentrations of dabigatran were 473, 373 and 446 ng/mL, while trough concentrations were 257, 237 and 292 ng/mL, respectively.

Case 2

Dabigatran concentration in random sample was 1269 ng/mL.

Case 3

Dabigatran concentration in random sample was 968 ng/mL. Results of screening coagulation assays and dabigatran concentrations are presented in Table 1.

Table 1. Dabigatran concentrations and other laboratory results in intoxicated patients

	Case 1	Case 2*	Case 3*
age (years)	85	85	89
Dabigatran (ng/mL)	373 - 476	1269	968
PT (%)	19 - 25	< 8	< 8
	34 - 40		
INR	2.4 - 3.3	> 5.3	> 5.3
	1.6 - 1.9		
aPTT (s)	68 - 78	83	88
	58 - 63		
TT (s)	> 150	/	/
	> 150		
creatinine (μmol/L) (CKD-EPI (mL/min/1,73m²))	60 (80)	149 (27)	136 (39)
hemoglobin (g/L)	163	65	101

*laboratory values at the time of admission at Emergency Department; PT – prothrombin time; INR – international normalized ratio; aPTT – activated partial thromboplastin time; TT – thrombin time; CKD-EPI – Chronic Kidney Disease - Epidemiology Collaboration

CONCLUSIONS

In all three cases, measurement of dabigatran concentration directed further clinical decision making and treatment. In all three cases dabigatran treatment was immediately discontinued. In Cases 1 and 2 treatment was continued with apixaban, while in Case 3 surgical treatment was not done due to high risk of bleeding.