

**Conclusions:** The study of the largest cohort of structural variants in *SERPINC1* evaluated by different methods (N=16) reveals heterogeneity of defects attending to the type (duplications or deletions), size (193bp-2MB), or underlying mechanism (non-homologous recombination involving repetitive Alu sequences or retrotransposition activity). We show new gross genetic defects in *SERPINC1* responsible for ATD hardly detected by current molecular methods, supporting that these defects may be underestimated. Funding. ISCIII&FEDER-PI18/00598; Fundación Séneca-19873/GERM/15.

## PB0181 | Activated Charcoal Is an Effective *in vitro* Removal Agent of Dabigatran and Rivaroxaban in Plasma of Patients Who Need Lupus Anticoagulant Testing

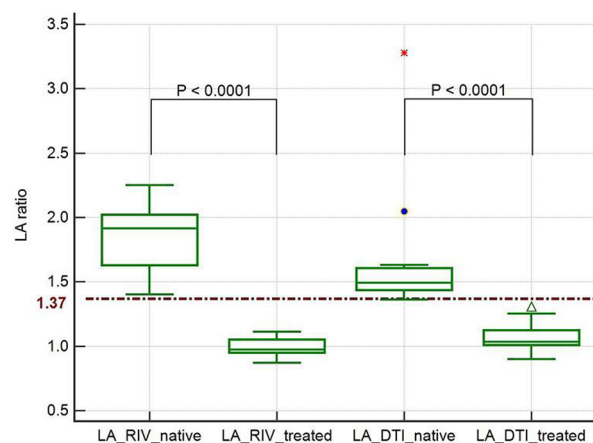
I. Celap<sup>1</sup>; S. Margetic<sup>1</sup>; S. Supraha Goreta<sup>2</sup>; J. Buben<sup>2</sup>

<sup>1</sup>University Hospital Centre Sestre Milosrdnice, Department of Clinical Chemistry, Zagreb, Croatia, <sup>2</sup>University of Zagreb, Faculty of Pharmacy and Biochemistry, Department of Biochemistry and Molecular Biology, Zagreb, Croatia

**Background:** Lupus anticoagulant (LA) results could be misinterpreted, mostly due to its false positive identification, in patients treated with direct oral anticoagulants (DOACs).

**Aims:** The aim was to investigate whether activated charcoal (AC) could be used for *in vitro* DOACs removal from patient plasma samples in which LA testing was ordered.

**Methods:** The study included 30 plasma samples from patients treated with dabigatran (N=14) and rivaroxaban (N=16). Firstly, dabigatran and rivaroxaban concentrations and LA ratios was determined in native samples. Secondly, 100 mg of AC was added to 500 µL plasma sample allowing DOACs adsorption for 10 minutes. Afterwards, treated samples were centrifuged 20 minutes at 1800xg and DOACs concentrations and LA were measured in supernatant. Rivaroxaban was determined using Innovance anti-FXa assay (Siemens Healthineers, Germany) with rivaroxaban calibrator (Hyphen Biomed, France) and dabigatran was measured using Innovance DTI assay (Siemens Healthineers, Germany), funded as a part of Croatian Science Foundation research project IP-2016-06-8208. LA ratio was calculated from dRVVT screen (dRVVTs)



**FIGURE 1** Comparison of LA ratio between rivaroxaban and dabigatran native and AC treated samples

and dRVVT confirm (dRVVTc) tests using LA 1 screening and LA 2 conformation reagents (Siemens Healthineers, Germany). All measurements were performed on BCSXP coagulation analyzer (Siemens Healthineers, Germany). Statistical analysis was done using Wilcoxon and Mann-Whitney test by MedCalc Statistical Software version 18.11 (MedCalc Software, Belgium).

**Results:** LA ratio was positive in 13/14 dabigatran and 16/16 rivaroxaban native plasma samples. LA ratio was significantly higher in both rivaroxaban and dabigatran native than in AC treated samples [1.92 vs 0.98; P< 0.0001 and 1.48 vs 1.04; P< 0.001], respectively (Table 1, Figure 1). In all AC treated plasma samples, concentrations of dabigatran and rivaroxaban were undetectable.

**Conclusions:** AC has been found as an effective *in vitro* agent to overcome the effect of dabigatran and rivaroxaban on dRVVT assays confirming its potential for using before LA testing in patients treated with DOACs.

**TABLE 1** Differences between dRVVTs, dRVVTc and LA ratio in native and AC treated samples. Results are presented as median (IQR)

	DOAC conc. (ng/mL)	dRVVTs (s)		dRVVTc (s)		LA ratio	
		native	AC treated	native	AC treated	native	AC treated
Dabigatran N=14	162 (92-273)	111.5 (92.9-140.2)	37.3 (33.9-43.5)	72.7 (35.1-99.9)	35.6 (33.0-37.0)	1.48 (1.43-1.57)	1.04 (1.01-1.12)
		P<0.001		P=0.004		P<0.001	
Rivaroxaban N=16	183 (121-234)	115.5 (95.0-140.0)	37.4 (35.9- 41.0)	56.7 (51.4-65.7)	37.3 (35.4- 39.0)	1.92 (1.63- 2.03)	0.98 (0.95- 1.06)
		P<0.0001		P<0.0001		P<0.0001	
		P=0.816	P=0.852	P=0.102	P=0.051	P=0.009	P=0.105