Association of post-stroke disability with plasma concentration and anti-Xa activity of apixaban.

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Background & Objectives

- ✓Several studies suggested that physical vulnerability, so-called frailty, affects pharmacokinetics¹.
- ✓Patients in acute stroke also show physical vulnerability^{2 3}, but its relation with pharmacokinetics of anticoagulants remains unknown.
- ✓This study aimed to determine whether post-stroke disability was associated with pharmacokinetics of apixaban in acute ischemic stroke patients.

Methods

- ✓This single-center, prospective observational study included patients with acute ischemic stroke or transient ischemic attack (TIA) who were admitted to our hospital within 7 days after onset and started apixaban for non-valvular atrial fibrillation from JAN 2012 to DEC 2015.
- ✓Patients were divided into two groups according to presence of mild (mRS 0-3) and severe disability (mRS 4-5) at discharge.
- ✓Blood sample was obtained before and 4 hours after taking apixaban. Anti-Xa activity (AXA) was measured using chromogenic assay, (STA[®]-Liquid Anti-Xa). Concentration (C) of apixaban was analyzed based on AXA.

Results

Baseline characteristics

	Overall	mild disability	severe disability	P- Value
	n=167	n=123	n=44	
Women	70(41.9)	52 (42.3)	18(40.9)	0.875
Age, y	78.8±9	79.1±9	78.1±9	0.552
Body weight, kg	55.1±12.3	54.3±11.6	57.2±14.1	0.179
Serrum creatinin, mg/dl	0.91±0.2	0.91±0.3	0.92±0.2	0.932
Creatinine clearance, ml/min	52.9±24.2	52.2±23.3	54.9±26.9	0.524
Prestroke CHADS ₂ score	2 [2-3]	2 [2-4]	2 [2-3]	0.576
Prestroke CHA ₂ DS ₂ -VASc score	4 [3-5]	4 [3-5]	4 [3-6]	0.972
Prestroke HAS-BLED score	3 [2-3]	3 [2-3]	2 [2-4]	0.893
Prestroke mRS	0 [0-0]	0 [0-0]	0 [0-0]	0.114
NIHSS on admission	6 [2-12]	4 [2-12]	15 [9-19]	<0.001
Regular dosage of apixaban	89 (53.3)	64 (52.0)	25 (56.8)	0.585
Days from onset to measuring apixaban	11 [8-16]	10[7-13]	15[11-22]	0.509

n (%), mean ± standard deviation or median [interquartile range]

Relationship between AXA/C of apixaban and disability

Multiple regression analysis for variables predicting AXA/C

Variables	AXA trough			AXA peak			C trough			C peak		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Age, y	0.03	0.01	.30**	0.03	0.01	.22**	3.33	1.0	.30**	3.31	1.2	.24**
Body weight, kg	-0.01	0.01	-.19*	-0.02	0.01	-.21*	-1.47	0.8	-.18*	-1.96	0.9	-.20*
Serum creatinine, mg/dl	0.88	0.24	.27*	0.85	0.30	.21*	90.5	26.7	.25*	68.35	32	.16*
Regular dosage of apixaban	1.01	0.19	.54**	1.40	0.23	.62**	107.7	20.7	.53**	155.62	24.8	.63**
Severe disability	0.32	0.15	.16*	0.41	0.18	.16*	36.6	16.1	.16*	47.63	19.3	.17*
R ²	0.22			0.24			0.21			0.24		
F for change in R ²	9.2**			10.3**			8.5**			10.1**		

*p < .05, **p < .01

Conclusions

Post-stroke disability was independently associated with pharmacokinetics of apixaban.

References

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Disclosure

Cardiovascular Diseases of the National Cerebral and Cardiovascular Center, and Grants from the Japan Agency for Medical Research and Development (AMED: 17ek0210091h0001, 17ek0210055h0001).