Direct oral anticoagulants after stroke: are our patients correctly treated?

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Introduction: Direct oral anticoagulants (DOACs) are effective drugs in the prevention of stroke in patients with non-valvular atrial fibrillation (NVAF). The correct dosage of these drugs contributes to a reduction in the recurrence of stroke and hemorrhagic complications.

Goals: To assess the percentage of patients receiving the correct dose of DOACs after an ischemic stroke or TIA. To detect factors involved in an incorrect dosage of these drugs.

Method: Retrospective analysis of consecutive patients admitted to our stroke unit during a period of 5 years with a diagnosis of NVAF, and for whom treatment with DOACs was prescribed. Statistical analysis: t-student, Mann-Whitney U, Chi-square and logistic regression analysis.

Results:

Variables	N(%)
Age	74,96+/-9,13 yo >80yo-101 (29,6)
Sex (♂)	206 (60,4)
Tobacco	
Active smoker	39 (11,4)
Past smoker	114 (13,4)
Alcohol	78 (22,9)
Hypertension	212 (78,9)
Diabetes	78 (22,9)
Hypercholesterolemia	195 (57,2)
Hypertriglyceridemia	108 (31,7)
Previous Stroke or TIA	69(20,2)
Previous arterial embolism	4(1,2)
Carotid or intracranial stenosis	40(11,7)
Coronary artery disease	49 (14,4)
Heart failure	27 (7,9)
Chronic renal failure (GF<50ml/min/1.73m2 or creatinine>1,5mg/dl)	34 (10)
Previous Atrial fibrillation	152 (44,6)
CHADS2	3.63±0,87
CHA2DS2VASc	5.15±1.29
HASBLED	1,65±0,99
Type of cerebrovascular disease:	
* TIA	69 (20,2)
* Stroke	272 (79,8)
NIHSS	6.61±6.6
High Hemorrhagic risk	13 (3,8)

Study variables analysed

Variable	Correct dose N=271 (81,4%)	Lower dose N=62 (19,6%)	P
Age>80yo	74,10+/-9,48 73 (78.5%)	77,89+/-7,11 20 (12.5%)	0.001 0.400
Tobacco			
Active smoker	34 (89.5%)	4(10.5%)	0.377
Past smoker	91 (81.3%)	21 (18.7%)	
Alcohol	68 (90.7%)	7 (9.3)	0.019
Hypertension	212 (80.3%)	52 (19.7%)	0.323
Diabetes	64 (84.2%)	12 (15.8%)	0.471
Hypercholesterolemia	151 (79.9%)	38 (20.1%)	0.424
Hypertriglyceridemia	85 (81.7%)	19 (18.3%)	0.912
Stroke or TIA	53 (76.8%)	16 (23.2%)	0.273
Peripheral embolism	4 (100%)	0 (0%)	0.336
Arteriopathy	17 (70.8%)	7 (29.1%)	0.168
Carotid or intracranial stenosis	28 (71.8%)	11 (28.2%)	0.102
Coronariopathy	35 (75%)	12 (25%)	0.220
Heart failure	19 (73.1%)	7 (26.9%)	0.257
Chronic renal failure (GF<50ml/min/ 1.73m² or Creat>1.5mg/dl)	30 (88.2%) 26 (96.3%)	4 (11.8%) 1 (3.7%)	0.279 0.038
Preadmission NVAF	122 (82.4%)	26 (17.6%)	0.659
CHAD2CS2 VASc>5	5.08+/-1.34 109 (75.7%)	5.44+/-1.07 35 (24.3%)	0.052 0.020
HASBLED	1.64+/-0.99	1.69+/-1.00	0.694
Type of cerebrovascular disease:			
Stroke	55 (85.9%)	9 (14.1%)	0.292
TIA	216 (80.3%)	53 (19.7%)	
Admission NIHSS>8	6.38+/-6.51 85 (75.2%)	8.26+/-6.94 28 (24.8%)	0.044 0.038
Weight< 60 kg	7 (100%)	0 (0%)	0.231
Preadmission antithrombotic treatment	101 (82.1%)	22 (17.9%)	0.793
Type of antithrombotic treatment			
*VKA	39 (90.7%)	4 (9.3%)	
*DOAc	20 (83.3%)	4 (16.7%)	
*Antiplatelets	41 (74.5%)	14 (25.5%)	0.346
*DOAc+ Antiplatelets	1 (100%)	0 (0%)	

Comparison between correct dose and Lower dose

Dosification of DOAc at discharge

Treatment data	N (%)
Preadmission antihrombotic treatment	127 (37,2)
*VKA	45
*DOAc	26
*Antiplatelet	55
*Antiplatelet+DOAc	1
Preadmission type of DOAc	
*Dabigatran	8 (29,6)
*Apixaban	10 (37,1)
*Rivaroxaban	9 (33,3)
*Edoxaban	0
Preadmission antiplatelet treatment	
*ASA	45(80,3)
*Clopidogrel (CI)	8 (14,3)
*ASA+ CI	1 (1,8)
*Triflusal	2 (3,6)
DOAc type and dose at discharge	
*Dabigatran 110mgBID/150mgBID	53+62=115 (33,7)
*Apixaban 2,5mgBID/5mgBID	51+99=150 (44)
*Edoxaban 30mg/60mg	0 + 2=2 (0,6)
*Rivaroxaban 15mg/20mg	21+53=74 (21,7)
Antiplatelet at discharge	34 (10)
*ASA	20
*CI	14

Preadmission and discharge treatment

% correct dosification each increase in 5 years of age (Age x 5)

Dosification of DOAc in patients wuth antiplatelet at discharge

Conclusions:

Approximately 20% of our patients received an incorrect dose of DOACs. (Lower dose:18,2% and higher dose: 2,3%).

Each increase in five years of age and the concomitant treatment with antiplatelets were the main factors associated with infradosificacion. Furthermore, patients with GF<50 ml/min/1.73 m² or creatinine >1.5 mg/dl were usually correctly dosified.

Both lower dose and higher doses could contribute to an increase of recurrence of Stroke and hemorrhagic complications.