

Investigation on Dabigatran Etexilate
and Worsening of Renal Function in
Patients with Atrial fibrillation:
The IDEA Study

Background

Warfarin-related nephropathy is an unexplained kidney injury, and may occur in patients with supratherapeutic INR, in the absence of overt bleeding.

Similar findings have been observed in rats treated with dabigatran etexilate.

Aim of the study

To assess the incidence of dabigatran-related nephropathy and to investigate the possible correlation between dabigatran plasma concentration (DPC) and worsening renal function.

Methods

- Prospective study in dabigatran etexilate-treated patients
- 107 patients treated long term with dabigatran etexilate for nonvalvular atrial fibrillation (NVAF) were followed up for 90 days.
- DPC, serum creatinine (SCr) and serum cystatin C were prospectively measured.
- 95 patients had complete follow-up data and were evaluable for primary endpoint.

Results

- 11 patients had suprathreshold DPC, defined as DPC higher than 200 ng/ml at study enrolment, but at the end of follow-up no patient showed a persistent increase in SCr.
- No patients experienced acute kidney injury.

Table 1 Baseline characteristics of the patients. For quantitative variables the median values (first quartile, third quartile) are reported

Patient characteristics	Total	DE110	DE150	P value
Female sex (%)	49.53%	59.02	36.96	0.032
Age, y	79 (72.5–84)	83 (80–88)	73 (69–77.5)	< 0.001
BMI (kg/m ²)	26.17 (23.23–28.42)	26.76 (23.81–28.66)	25.71 (22.04–28.30)	0.213
CHA2DS2-VASc score	5 (3.5–5)	5 (4–6)	4 (3–5)	0.001
HAS-BLED score	3 (2–3)	3 (2–3)	2 (2–3)	0.119
Serum creatinine at T0	0.93 (0.78–1.06)	0.96 (0.76–1.08)	0.88 (0.79–1.00)	0.323
eGFR at T ml/min	63.01 (49.56–76.05)	56.40 (41.25–69.55)	67.75 (57.57–77.74)	0.002
DPC at T0 ng/ml	102.9 (70.2–164.6)	106.30 (71.25–171.85)	99.00 (63.15–149.97)	0.389
DPC at T1, ng/ml	115.65 (80.12–166.97)	128.90 (82.25–175.05)	99.2 (76.0–124.70)	0.072

Table 2 Baseline characteristics of patients, according to DPC at T0

Patient characteristics	DPC < 200, ng/ml	DPC ≥ 200, ng/ml	P value
Female sex (%)	42 (46.67%)	10 (66.67%)	0.174
Age, year	80 (74–86)	84 (81–87)	0.136
BMI, kg/m ²	26.2 (23.29–28.65)	25.84 (21.37–27.84)	0.558
CHA2DS2-VASc score	4 (4.00–5.75)	5 (5–6)	0.015
HAS-BLED score	3 (2–3)	2 (2–3)	0.250
Serum creatinine at TSTART , mg/dl,	0.92 (0.77–1.04)	0.98 (0.83–1.02)	0.486
Serum creatinine at T0, mg/dl	0.90 (0.76–1.02)	1.00 (0.82–1.29)	0.053
eGFR at T0, ml/min	65.98 (53.56–77.58)	47.23 (36.49–61.53)	0.001

Conclusions

- This study shows that no persistent renal detrimental effect is associated with dabigatran treatment.
- An increase in SCr during dabigatran treatment is reversible and it seems to be unrelated to dabigatran itself.
- Further investigations, on larger samples of patients, are needed.