Evaluation of anticoagulant therapy with Dabigatran based on Ecarin clotting time

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**Objectives**

**Background:** Dabigatran, a direct thrombin inhibitor, has been approved for prevention of cerebral embolism in patients with Non-Valvular Atrial Fibrillation (NVAF). The monitoring by laboratory test is not required when Dabigatran is administered in routine clinical practice. However, a treatment for the prevention of major and minor bleeding or thrombotic events may be needed in those cases.

Aims: We examined the anticoagulant ability of Dabigatran by measuring ecarin clotting time (ECT) and the effects of anticoagulation by determining molecular markers for thrombosis.

**Methods**

**Samples**

Japanese NVAF patients receiving Dabigatran therapy (total 452 samples):
- 300 mg/day (Regular-dose) 144 samples
- 220 mg/day (Low-dose) 308 samples

**Methods**

ECT was initiated by adding ecarin at a final concentration of 0.83 units/ml

**TIR calculation formula:**

\[ TIR = 10 \times \text{(patient ECT - control ECT)} / \text{control ECT} \]

Measurement of Molecular markers for thrombosis and Dabigatran concentration in blood:

- D-Dimer (DD) was measured by Lias Auto D-Dimer Neo (Sysmex) [Cut off 1.0 micro g/ml DDU]
- Fibrin monomer complex (FMC) was measured by Auto LIA FM (Sysmex) [Cut off 4.5 micro g/ml].

Dabigatran concentration was determined with Hemoclot Thrombin Inhibitors (Hyphen BioMed).

**Results**

**TIR** showed a greater correlation with Dabigatran concentration compared with PT and APTT.

**FMC** may have a greater specificity for high coagulation than DD.

Most samples from patients receiving Low-dose Dabigatran had anticoagulant effects similar to samples from patients treated with Regular-dose Dabigatran, though an insufficient anticoagulant effect was detected in some low-dose samples.

**Conclusions**

TIR can reflect anticoagulation ability in patients receiving Dabigatran therapy.

FMC may have a greater specificity for high coagulation than DD.

**References**


