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Bleeding Risk of Warfarin, Dabigatran and Rivaroxaban for Stroke and Systemic Embolism Prophylaxis in Patients with Non-valvular Atrial Fibrillation in Princess Margaret Hospital

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Introduction

New oral anticoagulants (NOACs) were indicated for non-valvular atrial fibrillation (NVAf) patients for stroke and systemic embolism prophylaxis. However, few researches about their bleeding risks were done in Chinese patients. It remains uncertain whether the adverse events profile reported by overseas NOAC trials can be applied to Chinese patients in Hong Kong.

Objectives

The primary objective of this study was to compare the incidence of bleeding events in Chinese patients with NVAf who required oral anticoagulant treatment. The secondary objective was to investigate the relationship between blood coagulation panel results and bleeding incidents.

Methodology

In this retrospective observational study, data were collected from Chinese patients with NVAf who received warfarin, dabigatran or rivaroxaban in Princess Margaret Hospital for stroke and systemic embolism prophylaxis. Patient demographics, medication prescribing history, laboratory results were retrieved from the Electronic Patient Record. Consultation notes were reviewed to collect information on bleeding events, ischemic stroke and use of Traditional Chinese Medicines or herbal medicines.

Result

912 patients were included in this study. The patient-years observed were 593.2, 120.9 and 26.5 for warfarin, dabigatran and rivaroxaban group respectively. No significant differences were found in the overall bleeding rates among three groups.

Warfarin (relative risk (RR) 0.50; $p=0.05$) and dabigatran (RR 0.37; $p=0.02$) treatment were associated with lower non-major bleeding rate than rivaroxaban. In patients <75 years old, warfarin (RR 2.93; $p=0.048$) and rivaroxaban (RR 4.55; $p=0.024$) had higher bleeding rate than dabigatran. A significant positive correlation was observed between activated partial thromboplastin time (aPTT) and the number of bleeding events in dabigatran group (Pearson Correlation coefficient=0.220; $p=0.015$). No significant differences in overall bleeding rates between warfarin and new oral anticoagulants (NOACs) were observed in this study. However, rivaroxaban had higher incidence of minor bleeding than warfarin and dabigatran groups. Comparing with the international clinical trial (RELY study), the risk of intracranial bleeding (0.8% vs 0.27%) and gastrointestinal bleeding (5.0% vs 1.32%) in the dabigatran group were higher in this study. This suggested that the local Chinese population may have higher bleeding risk of intracranial and gastrointestinal bleeding. Frequent aPTT monitoring may have an impact in predicting and preventing NOACs related bleeding.