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Low risk of fatal GI bleeds with rivaroxaban, despite more bleeding than with warfarin

Gastrointestinal (GI) bleeding is more common with rivaroxaban than warfarin in patients with non-valvular atrial fibrillation. However, there are few fatal gastrointestinal bleeds and the absolute fatality rate is very low.

These are the conclusions of a post-hoc analysis of ROCKET-AF (Patel et al, 2011), which demonstrated that the oral factor Xa inhibitor rivaroxaban is non-inferior to dose-adjusted warfarin for the prevention of stroke or systemic embolism in patients with atrial fibrillation. Rivaroxaban was endorsed by NICE in this indication in May 2012.

In ROCKET AF, gastrointestinal bleeding of any kind was more common in patients receiving rivaroxaban ($n=394$) than warfarin ($n=290$): 3.61% per year *vs* 2.60% per year, hazard ratio 1.39, 95% confidence interval 1.19–1.61. Rivaroxaban was also more likely than warfa-

rin to result in clinically relevant major (2.00% per year *vs* 1.24% per year, hazard ratio 1.61, 95% confidence interval 1.30–1.99) and non-major gastrointestinal bleeding (1.75% per year *vs* 1.39% per year, hazard ratio 1.26, 95% confidence interval 1.20–1.55).

Investigator Dr Matthew Sherwood, Cardiology Fellow in the Duke Clinical Research Institute, Duke University Medical Center, Durham, NC, USA, commented: 'The higher rate of gastrointestinal bleeding with rivaroxaban was sustained throughout the trial follow-up period, but the absolute rate of the most severe events was very low and similar between rivaroxaban and warfarin.'

The most severe major bleeding events occurred 49 times with rivaroxaban and 47 times with warfarin. Fatal bleeds occurred in one patient on rivaroxaban and five on warfarin.

In ROCKET-AF, the 684 patients who experienced major gastrointestinal bleeding with either warfarin or rivaroxaban were more likely to be older, current or prior smokers, have a history of gastrointestinal bleeding, mild anaemia at baseline, a lower creatinine clearance, and be taking non-steroidal anti-inflammatory drugs and aspirin. They were less likely to be female or have a history of stroke or transient ischaemic attack.

'Oral anticoagulation is the mainstay of treatment for patients with non-valvular atrial fibrillation who are at risk of stroke. A careful risk-benefit analysis is needed for high-risk patients,' concluded Dr Sherwood.

Sue Lyon

Patel MR, Mahaffey KW, Garg J et al (2011) Rivaroxaban versus warfarin in nonvalvular atrial fibrillation. *N Engl J Med* 365: 883–91

Secondhand smoke impairs breathing within 20 minutes

Heavy concentrations of secondhand cigarette smoke can restrict airways of bystanders within minutes of exposure. A study, presented at the annual meeting of the American College of Chest Physicians, showed that after 20 minutes of exposure to highly concentrated secondhand smoke, participants experienced near immediate physiological changes.

To test the effects of short-term secondhand smoke exposure, Dr Behrakis and colleagues from the University of Athens and the Hellenic Cancer Society in Greece, and the Harvard School of Public Health, exposed 15 healthy participants to air heavily concentrated with smoke particulates within an exposure chamber – simulating a bar or moving car – for 20 minutes. During this time, researchers measured participants' total respiratory impedance, resistance, and reactance via impulse oscillometry.

Short-term exposure to concentrated secondhand smoke significantly and immediately affected participants' airways, invoking physiological changes such as increased airway impedance and resistance. Participants showed no clinical signs or feelings of discomfort during the test.

Fainting after flying may be linked to PE

Fainting after recent air travel could be a sign of pulmonary embolism (PE). Research presented at the annual meeting of the American College of Chest Physicians found that fainting associated with recent air travel may be a key indicator for pulmonary embolism diagnosis.

The study was led by Dr Robert Rifenburg of Resurrection Medical Center, Chicago, Illinois. It was undertaken because the centre sees many sick travellers who

come directly from Chicago's O'Hare airport, one of the busiest airports in the USA.

To determine the connection between fainting and pulmonary embolism, Dr Rifenburg and colleagues retrospectively reviewed medical records of 548 patients (mean age 68.9 years) presenting to the emergency department and admitted to the hospital with a new pulmonary embolism over a 5-year period.

Data collection included demographics, air travel his-

tory, initial chief complaint, location and type of pulmonary embolism, electrocardiography findings and echocardiography results.

Of the patients, 10% ($n=55$) presented to the emergency department with fainting as their chief complaint; nearly half of these patients (48%) also reported recent air travel, compared with just 8.1% of patients with pulmonary embolism who did not indicate fainting as a major complaint.