

Stroke prevention in atrial fibrillation

Sara Själander

Akademisk avhandling

Som med vederbörligt tillstånd av Rektor vid Umeå universitet för avläggande av medicine doktorsexamen framläggs till offentligt försvar i Aulan, Sundsvalls sjukhus, fredagen den 23 september, kl. 13:00. Avhandlingen kommer att försvaras på svenska.

Fakultetsopponent: Docent Håkan Walfridsson,
Institutionen för Medicin och Hälsa, Linköpings Universitet, Sverige.



Department of Public Health and Clinical Medicine

Division of Medicine

Umeå University, Umeå, Sweden, 2016

Organization

Umeå University
Department of Public Health
and Clinical Medicine

Document type

Doctoral thesis

Date of publication

2 September 2016

Author

Sara Själander

Title

Stroke prevention in atrial fibrillation.

Abstract

Background: Atrial fibrillation (AF) confers an increased risk of ischemic stroke, a risk that increases with increasing age, female gender and concurrent illnesses. Treatment with oral anticoagulation (OAC) decreases the stroke risk. The aims of this thesis were: [1] to evaluate if a warfarin dosing algorithm can increase warfarin treatment quality; [2] to assess the prevalence and net clinical benefit of aspirin as monotherapy for stroke prevention in AF; [3] to investigate the risk of thromboembolic and haemorrhagic complications within 30 days after electrical cardioversion (ECV) of AF in patients with and without OAC pre-treatment; and [4] to assess the proportion of patients discontinuing OAC after pulmonary vein isolation (PVI), identify factors predicting stroke after PVI and to investigate risk of complications after PVI with and without OAC. **Materials and Methods:** The studies are retrospective and based on information from the Swedish national quality registries Auricula, Swedish National Patient Register, Dispensed Drugs Register, Cause of Death Register, Riksstroke and Swedish Catheter Ablation Register. **Results:** *Study 1:* In total 769.933 international normalized ratio (INR) values were included, 590.939 from accepted algorithm suggestions and 178.994 from manually changed doses. Hit rate was higher (0.72 vs. 0.67) and mean error was lower (0.44 vs. 0.48) after accepted algorithm suggestions compared with manually changed warfarin doses. *Study 2:* Out of 182.678 patients with a diagnosis of AF, 32% were on monotherapy with aspirin. A total of 115.185 patients were included, 58.671 with aspirin treatment and 56.514 without antithrombotic treatment at baseline. After stratification after CHA₂DS₂-VASc score and after multivariable adjustment, aspirin treatment did not confer a decrease in thromboembolic events. After propensity score matching, rate of ischemic stroke was 7.4%/year (95% CI 7.1-7.6) in aspirin treated patients and 6.6%/year (95% CI 6.4-6.9) in patients without antithrombotic treatment. *Study 3:* In total 22.874 patients undergoing ECV were included, 10.722 with and 12.152 without OAC pre-treatment. In patients with low stroke risk (CHA₂DS₂-VASc 0-1), no thromboembolic complication was seen within 30 days after ECV. In patients with CHA₂DS₂-VASc ≥2, the risk of thromboembolic complications was increased when no OAC pre-treatment was used, results that remained after propensity score matching. No difference regarding haemorrhagic complications was seen. *Study 4:* A total of 1585 patients undergoing PVI were included with a mean follow up of 2.6 years. During the first year after PVI, 30.6% discontinued OAC treatment. Previous ischemic stroke was a predictor for a new stroke after PVI. In patients with CHA₂DS₂-VASc ≥2 stroke risk was increased in patients discontinuing OAC compared to those continuing OAC (1.60%/year vs. 0.34%/year). **Conclusion:** OAC is still underutilized for stroke prevention in patients with AF. Patients with CHA₂DS₂-VASc ≥2 benefit from continuous OAC, also in conjunction with ECV and after PVI. If warfarin treatment is chosen to prevent stroke, a dosing algorithm can improve treatment quality compared with manually changed doses. Aspirin should not be used for stroke prevention in patients with AF.

Keywords

Atrial fibrillation, stroke, oral anticoagulation, aspirin, haemorrhage, electrical cardioversion, pulmonary vein isolation.

Language

English

ISBN

978-91-7601-519-3

ISSN

0346-6612

Number of pages

96 + 4 papers