Protocol Of Neurological Indications To Percutaneous Left Atrial Appendage Closure For Stroke Prevention In Atrial Fibrillation

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Citation
M Masato, C F Salimbeni, S Saccà, M Michieletto, B Reimers, D D’Este, A Bruscagnin, C Bruscagnin. Protocol Of Neurological Indications To Percutaneous Left Atrial Appendage Closure For Stroke Prevention In Atrial Fibrillation. The Internet Journal of Neurology. 2015 Volume 19 Number 1. DOI: 10.5580/IJN.32959

Abstract
Atrial fibrillation is a frequent cardiac arrhythmia. The prevalence is 2-2.7% in middle aged population; it increases with ageing and approaches 8% in elderly people. There is high cardioembolic risk related to atrial fibrillation: about 20% of strokes are caused by this common arrhythmia. The aim of this study is to identify patients with selective clinical features to address to left atrial appendage closure.

INTRODUCTION
Atrial fibrillation is a frequent cardiac arrhythmia. The prevalence is 2-2.7% in middle aged population; it increases with ageing and approaches 8% in elderly people. There is high cardioembolic risk related to atrial fibrillation: about 20% of strokes are caused by this common arrhythmia.

Oral anticoagulation remains the mainstream therapy for ischemic stroke prevention in patients with atrial fibrillation and warfarin therapy is considered the first choice, since it reduces about 60% of strokes. However the anticoagulant therapy has many limitations, such as food interactions, and relative/absolute contraindications due to haemorrhagic complications. Patients often discontinue warfarin for a variety of reasons and chronic warfarin administration rates remains indeed suboptimal. Although the compliance with anticoagulation may improve with new anticoagulants and the bleeding risk can be reduced compared with that of warfarin, there is still a progressive increase in bleeding complications over time.

The Authors identified some neurological situations at risk for haemorrhagic complications and divided relative haemorrhagic risk from absolute haemorrhagic risk. International Guidelines have been used in this study. The aim of this study is to identify patients with selective clinical features to address to left atrial appendage closure.

MATERIALS AND METHODS
The Departments of Neurology and Cardiology of Mirano-Venice Hospital cooperated to analyze neurological patients with Ischemic and Haemorrhagic Strokes and identified in high haemorrhagic risk categories with controidication to anticoagulant therapy.

CHA2DS2Vasc score was used to identified ischemic risk, HAS-BLED score was used to identified haemorrhagic risk, but also other clinical characteristics were considered as haemorrhagic risk as HAS-BLED.

Neuroimaging was the main source, since it can identify site and extension of haemorrhagic lesions, presence of microbleeding and leukoaraiosis.


It was assessed if there is major indication to left atrial appendage between ischemic patients or haemorrhagic patients, keeping in mind that obviously haemorrhagic risk
for ischemic stroke is a systemic risk (internal medicine diseases).

The neurological protocol

a) Evaluation of contrindications for prolonged use of oral anticoagulants (vitamin K antagonist -VKA and new oral anticoagulant -NOA) that we have divided in:

1) ABSOLUTE:
- atypical cerebral seat haemorrhagia (lobar): amiloidotic angiopathy, vascular malformations and lesional haemorrhagic cerebral diseases.
- relapse of haemorrhagic cerebral event

2) RELATIVE:
- typical cerebral seat haemorrhagia (deep)
- systemic internal medicine diseases with haemorrhagic risk

b) Esclusion of other thrombo-embolic causes using Sovra-aortic Eco_Doppler sonography and Echocardiography:
- Carotic plaques
- Aortic Arch plaques
- Cardiac Thrombosis
- Valvular pathology with thrombosis

c) Examination of Neuroimaging (CT e MRI performed with gradient-echo sequencies too)

d) Haematochemical examinations (for thrombophilic and inflammatory predisposition):
INR, PT, aPTT, fibrinogen, ATIII
C protein,. Resistance to Activated C protein, S protein
Antiphospholipids Ab, beta2 glicoprotein Ab
Homocysteine
Mutations in Factor II, Leiden’s Factor V e MTHFR
ENA, ANA, ANCA, C3-C4, rheumatoid factor

e) Evaluation of limitations for use of new oral anticoagulants (NOA):
renal insufficiency-failure, hepatic insufficiency-failure, gastroenteric haemorrhagic risk, other haemorrhagic risks due to medical problems, cancer with haemorrhagic risk, pharmacological interactions for continuative drug use (carbamazepine e phenytoin with dabigatran, atorvastatin with dabigatran, SSRI e SNRI with dabigatran, NSAIDs)

f) Evaluation of haemorrhagic risk that is not identifiable using HAS-BLED score:
triple therapy for presence of coronary stents, cancer with haemorrhagic risk, inflammatory bowel diseases (IBDs), compliance of the patients, risk of falls, absence of caregiver for old disabled patients.

g) Decision of the patients: always to be considered.

CLINICAL RECORDS in the period between 2012-2014

27 patients: 18 males, 9 females
Average age: 74 years old (from 54 to 85)
Pathology: Ischemic Stroke: 10, Haemorrhagic Stroke: 10, Other conditions: 7

Typical cerebral haemorrhagia: 4, Atypical cerebral haemorrhagia: 2, Subdural haemorrhagia: 1, AIT: 3, Ischemic Stroke: 7, Other haemorrhagic risk: 7

CONCLUSIONS
It’s necessary to have clear basis before addressing patients to LAA closure and Neuroimaging is very helpful and reliable for this purpose. It’s highly recomendad to evaluate limitations in use of NOACs. Patients are selected case to case.

Figure 1
Figure 2

Chart 1
Chart Of Diagnostic Points

- Realization of contraindication of prophylactic use of oral anticoagulant (POAG or NOACs) due to high haemorragic risk
- Realization of different causes of atrial fibrillation using Ultrasound of super eaves research and echocardiography
- Realization of non-visible and non-visible non-thromboembolic conditions
- Realization of non-visible and non-visible non-thromboembolic conditions
- Realization of non-visible and non-visible non-thromboembolic conditions
- Decision of the patient

Chart 2
Flow Chart

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