

Primary and secondary stroke prevention

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Case 1

75 year old man with left hemiparesis and dysarthria and diagnosis of Ischemic stroke. There is a 65% stenosis in his R-MCA without any other risk factor.

What is your opinion?

-- ? **Anticoagulant therapy**

-- ? **Antiplatelet therapy**

Case 2

68 year old man with non valvular atrial fibrillation and left hemiparesis and dysarthria with diagnosis of Ischemic stroke.

What is your opinion?

-- ? **Anticoagulant therapy**

-- ? **Antiplatelet therapy**

Anticoagulation in stroke :

- **Atherothrombotic stroke** ----> NO , except in :
 - * Basilar artery thrombosis with fluctuation deficits
 - * ? Impending carotid artery occlusion from thrombosis or ? dissection
- TOAST study : No benefit from heparin in acute stroke (2% recurrent stroke / inc. Cerebral hemorrhage)
- **Cardioembolic sources of stroke** : -- Non valvular AF
 - Left atrial or LV thrombus
 - Rheumatic mitral disease $\pm$ AF
 - *Mechanical mitral or aortic valve*
 - Acute anterior STEMI with **LV mural thrombus** formation
or **anterior wall akinesias or dyskinesia**

Acute MI and Ischemic stroke

Acute anterior STEMI with **LV mural thrombus** formation

OR **anterior wall akinesis or dyskinesis** both identified by echo:

Anticoagulant for 3 months

Intolerance to Warfarin: Heparin or NOACs for 3 months

Arterial dissection

There are no data to support the therapeutic superiority of anticoagulants over antiplatelet agents on treatment of cervical artery dissection, but recently antiplatelet > anticoagulant

3-6 months antiplatelet or anticoagulant therapy

*** Hypercoagulable state including APS**

Anticoagulation might be considered depending on the clinical circumstances and abnormality (Class IIb; Level of Evidence C).

*** Cerebral venous Sinus thrombosis(CSVT)**

Anticoagulation is reasonable even in presence of ICH

Anticoagulant	Mechanism of Action
Warfarin	Reduced synthesis of factors II, VII, IX, X
New Oral Anticoagulants	
Dabigatran	Direct competitive reversible inhibition of thrombin
Rivaroxaban	Direct competitive reversible inhibition of factor Xa
Apixaban	Direct competitive reversible inhibition of factor Xa
Edoxaban	Direct competitive reversible inhibition of factor Xa



Antiplatelet Therapy:

☐ Atherothrombotic stroke

✓ Aspirin/Clopidogrel/Ticlopidine/Dipyridamole

☐ 2018 AHA/ASA Secondary Stroke Prevention Guidelines:

- ✓ --Administration of aspirin is recommended in patients with AIS within 24 to 48 hours after onset.
- ✓ --For those treated with IV alteplase, aspirin administration is generally delayed until 24 hours later
- ✓ --Aspirin is not recommended as a substitute for acute stroke treatment in patients who are otherwise eligible for IV alteplase or mechanical thrombectomy.

Dual Antiplatelet Therapy:

❖ 2018 AHA/ASA Secondary Stroke Prevention Guidelines:

-- In patients presenting with minor stroke, treatment for 21 days with dual antiplatelet therapy (aspirin and clopidogrel) begun within 24 hours can be beneficial for early secondary stroke prevention for a period of up to 90 days from symptom onset

❖ CHANCE study

--5170 patients with TIA or minor stroke within 24 hours of symptoms

--Monotherapy (Aspirin plus placebo for 90 days 75 mg.)

--Dual therapy (for 21 days):

✓ Aspirin plus Clopidogrel (loading dose of 300 mg followed by 75 mg/day for 90 days)

---> reduce the risk of stroke / not increased the risk of hemorrhage

Antiplatelet Therapy:

□ The best course of treatment for patients who have lacunar or atherothrombotic strokes while already receiving antiplatelet medication **is not clear** :

? Switching to anticoagulation

? Dual antiplatelet function

? anticoagulation + antiplatelet

**** Control of vascular risk factor**

Carotid artery stenosis:

SYMPTOMATIC PATIENTS :

- ❖ With CS greater than 70% --->
 - Carotid endarterectomy
 - Angioplasty and stenting
- ❖ Timing of endarterectomy--->
 - within 2 weeks of a TIA or minor stroke

ASYMPTOMATIC PATIENTS :

- ❖ more than 70% ---> 2% annual risk of stroke over a 5 years period but 1% with endarterectomy
- ❖ With luminal narrowing less than 60-70% ---> ? Not clear ? Ulcerated plaque ? Heavy calcification ? Repeat ultrasonography :
 - if the stenosis becomes narrowed to about 2mm.or less
 - if TIA (Symptomatic)

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What is your opinion?

-- **Antiplatelet therapy**

Case 2

68 year old man with non valvular atrial fibrillation and left hemiparesis and dysarthria with diagnosis of Ischemic stroke.

-- Anticoagulant therapy

* when should anticoagulation be started?

--For most patients with stroke ,it is reasonable to initiate oral anticoagulation *within 14 days* after the onset of symptoms ,if *large infarct and high risk for hemorrhagic conversion >14 days*

* *what is best treatment ?*

--Vitamin K antagonists --Apixaban--Dabigatran --Rivaroxaban

--Selection should be based on risk factors, cost, renal function

Case 2

68 year old man with non valvular atrial fibrillation and left hemiparesis and dysarthria with diagnosis of Ischemic stroke.

- * Patient has coronary stent

- * what is best treatment ?

? combination of oral anticoagulation with antiplatelet therapy

--The combination of oral anticoagulation with antiplatelet therapy is **NOT** recommended for all patients after ischemic stroke ,but is **REASONABLE** in patients with clinically apparent CAD ,particularly an **acute coronary syndrome or stent placement**