Original Research Paper

Volume - 11 | Issue - 09 | September - 2021 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Neurology

BETWEEN THE DEVIL AND DEEP BLUE SEA - ANTICOAGULATION IN CARDIOEMBOILC STROKE

Dr. N. Thamilpavai MD,DM, Associate Professor In Neurology, Madras Medical College & Rajiv Gandhi Govt General Hospital, Chennai

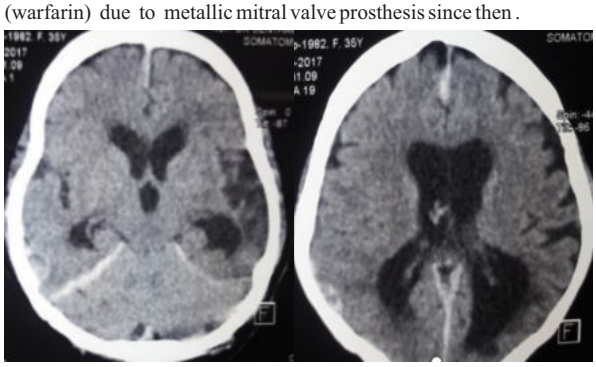
KEYWORDS :

INTRODUCTION:

Stroke is the commonest cause of mortality and morbidity after coronary artery disease. According in India stroke factsheet updated in 2021, the estimated age-adjusted prevalence rate for stroke ranges between **84-262/100,000 in rural and 334-424/100,000 in urban areas**. Ischemic stroke is the commonest followed by cardioembolic which is 20% which may be higher in developing countries because of illiteracy and lower socioeconomic status. Cardioembolic strokes are usually severe in presentation and prone for early recurrence. The risk of long term recurrence and mortality are also high. Hemorrhagic transformation occurs in up to 71% of cardioembolic strokes. Atrium, ventricle and valves are the high-risk origins. This article highlights the importance of balancing between thromboembolism and bleeding risks while making therapeutic decisions. Anticoagulation is indicated both for primary and secondary stroke prevention. The role of Novel oral anticoagulant versus warfarin and they edge over as they don't need INR monitoring .Thrombogenic atrial substrate even in the absence of atrial fibrillation can predispose to atrial thromboembolism.TEE allows better visualization (aortic atheromas, patent foramen ovale, atrial septal aneurysms) of earlier crytogenic lesions elucidating a cause and thereby reducing the embolic risk. Because of varied etiology and presentation, a tailored individual approach is needed.

CASE VIGNETTE 1:

An 35yr old female presented with acute onset of loss of consciousness to the emergency .On neurological examination GCS was E1V2M2 , dolls eye manoverable , PERL 2mm, right hemiparesis with right UMN facial lag. Deep tendon reflexes present and right plantar extensor.NIHSS score was 18 . Operated 7 years back for rheumatic heart disease.Patient was on anti-coagulation with an VKA (warfarin) due to metallic mitral valve prosthesis since then .



INVESTIGATIONS :

Routine blood biochemistry and Coagulation profile was normal. Her INR was 3.Echo revealed an metallic prosthetic value in-situ which was functional with no evidence of thrombus or vegetation. CT Brain : Subarachnoid haemorrhage with no intra venricular extension.

DIAGNOSIS:

Acute haemorrhagic stroke / Spontaneous SAH in a patient with prosthetic valves insitu.

TREATMENT :

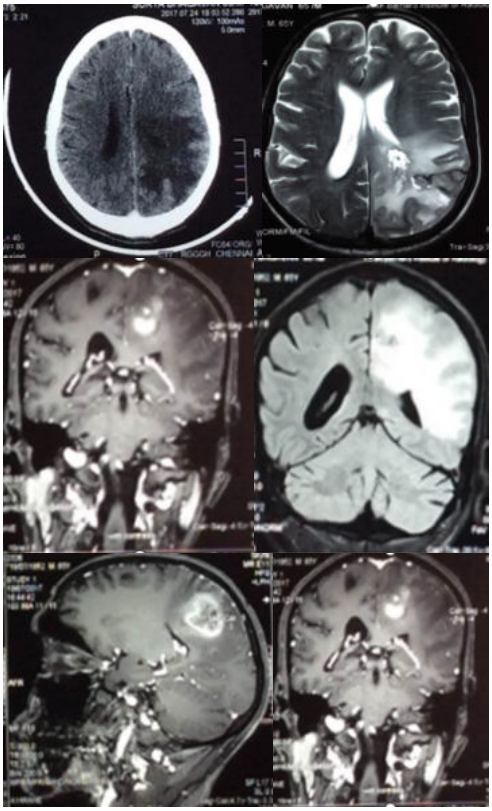
Inj Vitamin K was given intravenously to reverse warfarin induced haemorrhage and fresh frozen plasma.Patient was started on protocol for management for SAH. DSA was done and aneurysm was ruled out.Periodic CT brain done and after 5 weeks SAH resolved . VKAs was started after 5 weeks to prevent recurrent stroke and valve thrombosis.

CASE VIGNETTE 2:

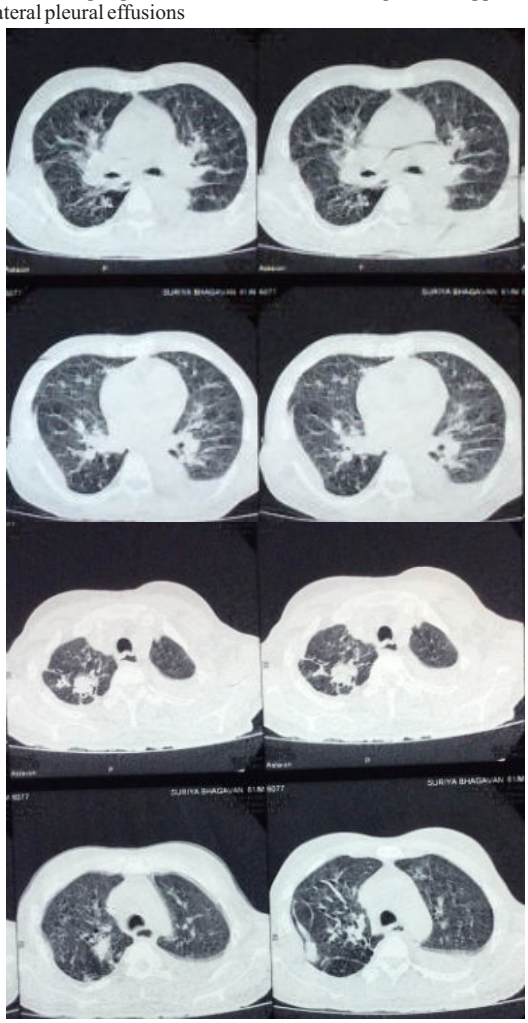
65yr old male normotensive , euglycaemic presented with 15days duration of fever and h/o weakness of right upper and lower limbs of 3days duration. O/E patient was conscious , oriented with right sided hemiplegia and right UMN facial palsy .Fundus examination normal. NIHSS score was 7. After two weeks into the disease course patient developed gangrene of the toes and fingers. Routine blood investigations like complete blood count, liver function and renal function tests are normal. Fever workup for leptospirosis, malaria, dengue , HIV was negative. Urine analysis :proteinuria with plenty of pus cells.Blood culture , urine culture : negative .Vascultic profile - normal . CSF analysis Normal.Doppler study of upper and lower **limbs :** Normal.Carotid vertebral doppler : normal study.USG Abdomen was suggestive of renal dysfunction. Renal biopsy was diagnostic of IgA dominant IRGN.

ECHO : Features suggestive of infective endocarditis with moderate MR , AR and TR mild . Freely mobile vegetations seen at the base of PML , AML at the atrial aspect, minimal pericardial effusion.

NEUROIMAGING :CT Brain : Left fronto parietal white matter odema without midline shift or mass effect. Contrast MRI brain revealed mutiple ring enhancing lesions with surrounding odema in bilateral cerebral hemispheres without involvement of thalamus, basal ganglion, and cerebellum suggestive of multiple brain abscess.MRA brain was done to r/o mycotic aneursyms and it was normal.



CT CHEST :
Nodules with peripheral air clefts and surrounding fibrosis upper lobe , bilateral pleural effusions



DIAGNOSIS : Cardioembolic stroke due to infective endocardtis.

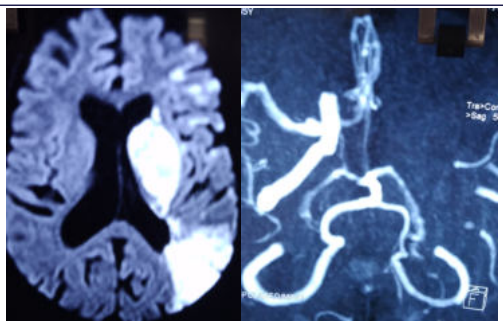
TREATMENT:Patient was treated with 6 weeks of antibiotic therapy.Planned for mitral valve replacement in the future.

CASE VIGNETTE 3:
A 35 year old male presented with acute onset left sided hemiplegia of 6 hours duration. On examination he had a GCS of 14/15 with NIHSS score of 12. His BP was stable and patient was in atrial fibrillation. Cardiac evaluation revealed a mid diastolic murmur suggestive of mitral stenosis. His blood parameters were normal. Mitral stenosis with dilated left atrium was diagnosed by ECHO. MRI Brain : Large right gangliocapsular bleed without SAH or intra ventricular extension.

DIAGNOSIS:
Acute haemorrhagic stroke with RHD in AF.

TREATMENT:
Antiodema measures.Anticoagulation resumed after 2 weeks.

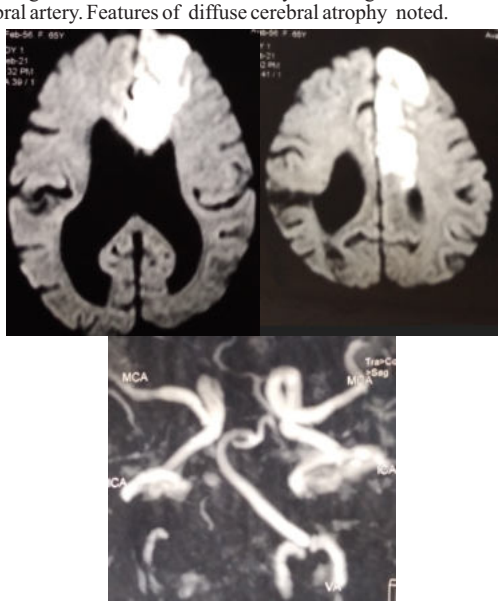
CASE VIGNETTE 4:
A 35 year old female presented with acute onset right sided hemiparesis with aphasia which she developed in her work place. She arrived at the casuality within the window period of 2hours. On examination her GCS was 15 /15 and NIHSS was 19.Her CT brain ASPECTS score was 7.She was on warfarin medication for her rheumatic heart disease for the past 3years.She has no known vascular risk factors. Her platelet count was normal.Her coagulation profile was normal and INR was 2.5. Carotid vertebral doppler study normal.MRI Brain with MRA:Acute ischemic infarct with diffuse restriction on DWI involving the left MCA territory multiple in nature with mild mass infarct. MRA Left ICA totally occuled .



DIAGNOSIS:
Acute ischemic stroke in the window period with known rheumatic heart disease on OAC.

TREATMENT:
Though patient arrived at the window period , because the infarct was large and complete large artery occlusion was detected on MRA,and on oral anticoagulation , thrombolysis deferred because there is increased risk of haemorrhagic transformation. Heparin and anti platelets also deferred for the same lesion though its a cardioembolic stroke.Being an ideal candidate for mechanical intervention patient was offered , but she was unwilling and medical management was continued. Anticoagulantion was restarted after 3 weeks.

CASE VIGNETTE 5:
A 75 year old male diabetic presented with acute hemiparesis of 1 day duration. On examination his GCS was E4V4 M5 and NIHSS was 14 . He was in atrial fibrillation on admission with a stable BP. H/o memory disturbances for the past 18months. ECHO was normal with a grade 1 left ventricular diastolic dysfunction.MRI brain with MRA - Diffusion restriction involving the left medial parasagittal region,superior frontal gyrus,cingulate gyrus,and left genu of corpus callosum.No evidence of haemorrhage. MRI Brain with MRA :Acute infarct involving the left ACA/MCA territory.Thinning of the left anterior cerebral artery. Features of diffuse cerebral atrophy noted.



DIAGNOSIS:
Cardioembolic stroke due to non valvular atrial fibrillation in the elderly.

TREATMENT:
Patient was treated with antiodema measures and statins.Atrial fibrillation treated by rate control drugs.Platelets was preferred over anticoagulants on long term prophylaxis.

DISCUSSION:GUIDELINES FOR MANAGEMENT: (FIG 1& 2) :
Highlights the causes and sources of cardiac emboli.These sources provide a rich substrate for the development and propagation of cardiac thrombi and subsequent embolism. There is a great dilemma whether to resume anti-coagulation immediately after acute stroke, the risk of recurrent haemorrhage and the need to prevent further thromboembolic events. The CHA2DS2-VASc score should be used

for assessing stroke risk and HAS BLEED in bleeding risk assessment [FLOW CHARTS 1&2] .There is increased risk of stroke in elderly patients and the benefit derived from OAC is significantly higher compared with the young,with the simultaneous increase in bleeding risk. In elderly patients presenting with H/o of dementia and AF they are associated with increased bleeding risk, intracranial hemorrhagic events and falls with a high mortality.A balance should be struck between recurrent bleeding events on resuming anti -coagulation and the greater risk of thromboembolism in patients with definite risk.

FIGURE 1. CAUSE OF CARDIOEMBOLIC STROKE

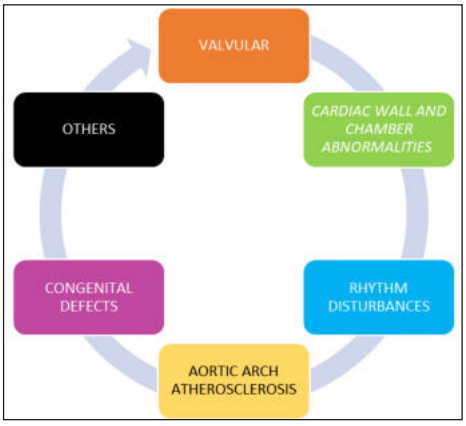
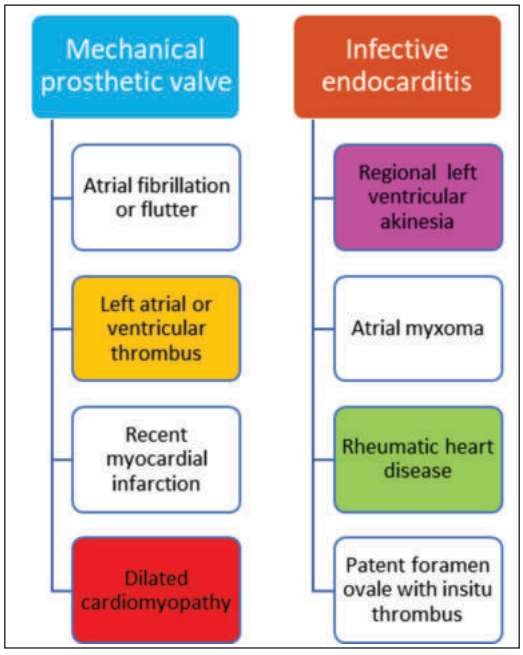
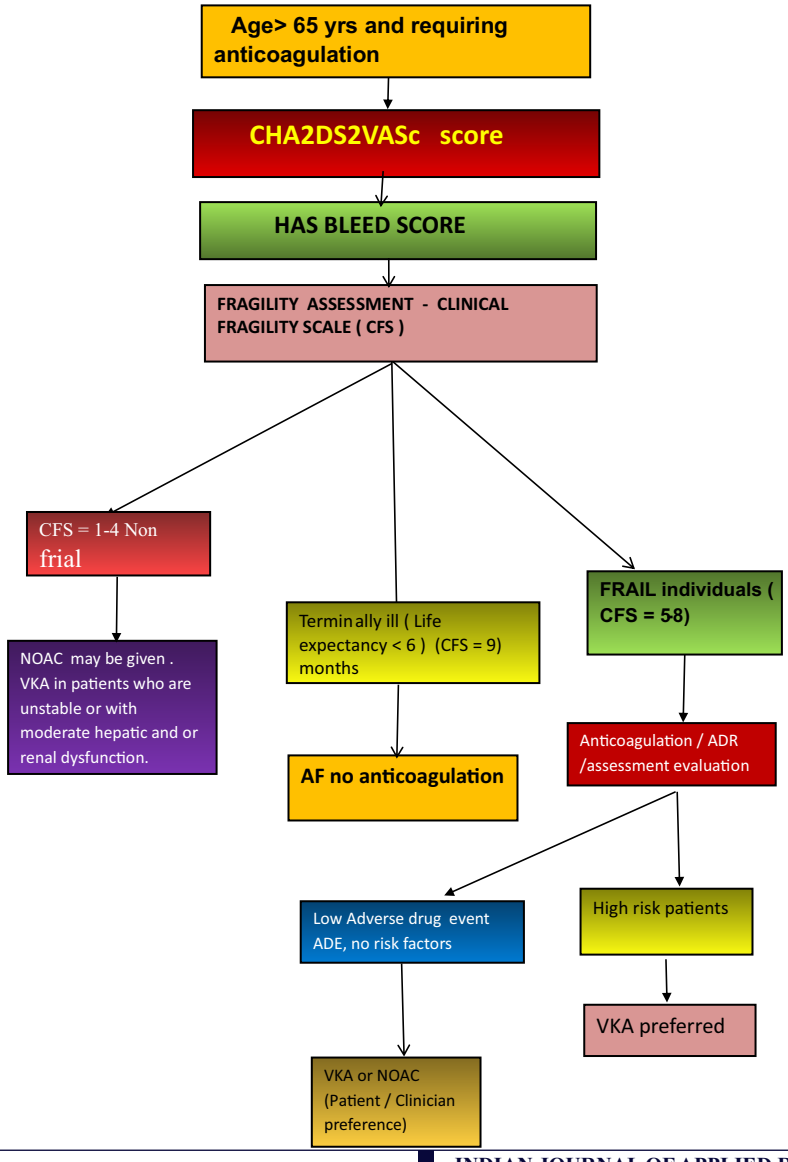


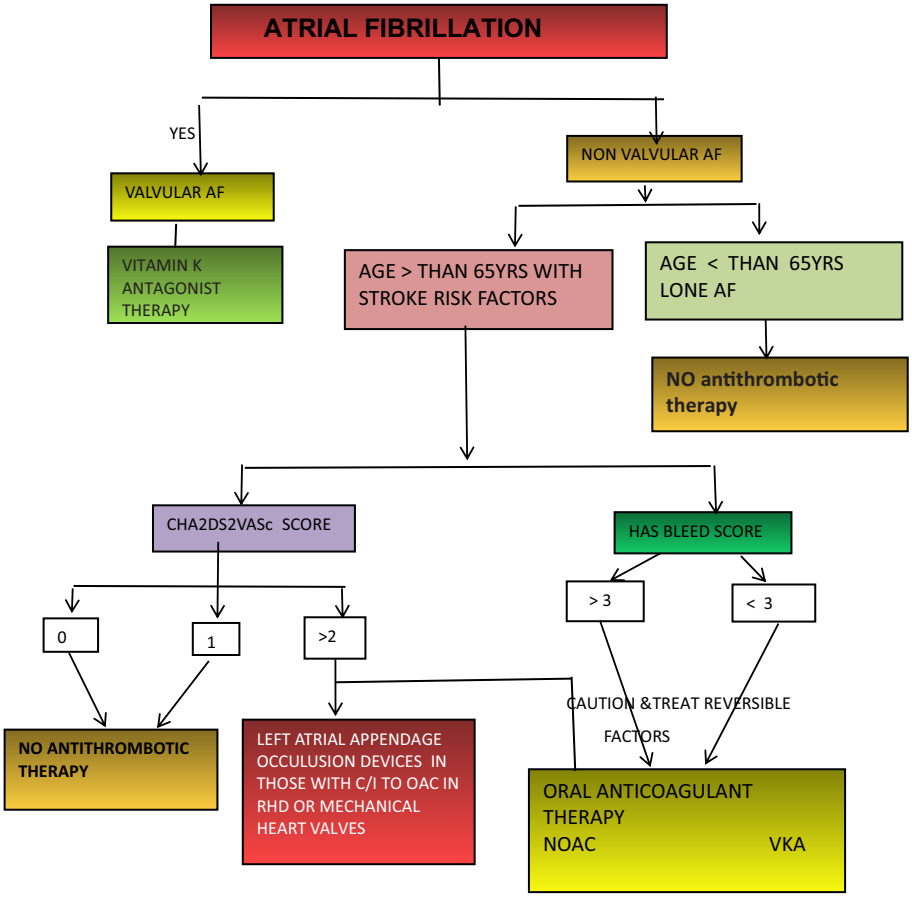
FIG 2:HIGH RISK SOURCES OF CARDIOEMBOLI



FLOW CHART 1 : ANTICOAGULATION IN THE ELDERLY



FLOW CHART 2: ANTIPLATELET VERSUS ANTICOAGULANT THERAPY



REFERENCES :

1. Kamel H, Healey JS. Cardioembolic stroke. Circulation research. 2017 Feb 3;120(3):514-26.
2. Čihák R, Haman L, Táborský M. 2016 ESC Guidelines for the management of atrial fibrillation developed in collaboration with EACTS. Cor et vasa. 2016;6(58):e636-83.
3. Culebras A, Messé SR, Chaturvedi S, Kase CS, Gronseth G. Summary of evidence-based guideline update: Prevention of stroke in nonvalvular atrial fibrillation Report of the Guideline Development Subcommittee of the American Academy of Neurology. Neurology. 2014 Feb 25;82(8):716-24.
4. Garwood CL, Corbett TL. Use of anticoagulation in elderly patients with atrial fibrillation who are at risk for falls. Annals of Pharmacotherapy. 2008 Apr;42(4):523-32.