IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

A REVIEW ARTICLE ON CLINICAL PRESENTATION,MANAGEMENT AND OUTCOMES OF PATIENTS WITH CARDIOEMBOLIC STROKE

Ch.Reshma simple , Sk.Aashabi, T.Daveedu, Y.Nagarjuna reddy, J.Amosbabu*

Pharm D Students, Department Of Pharmacy, A.M Reddy Memorial College Of Pharmacy,Petlurivaripalem, Narasaraopet, Guntur 522601, Andhra Pradesh.

*Corresponding author:Mr.J.Amos babu M.pharm Department of pharmacology ,AM Reddy Memorial College Of Pharmacy,Petlurivaripalem,Narasaraopet,Guntur 522601, Andhra Pradesh

ABSTRACT:

Cardiac embolism accounts for an increasing proportion of ischemic stroke , it accounts for an increasing proportion of ischemic stroke and might multiply several-fold during the next decades. First, although one third of strokes are of unclear cause , it is increasingly that many of these cryptogenic stroke arise from a distant embolism rather than in situ cerebrovascular disease , leading to the recent formulation of embolic stroke of undetermined source as a distinct target for investigation. Cardioembolic stroke accounts for 14-30% of ischemic strokes, cardioembolic infraction are prone to early and long term stroke recurrence. The more common high risk cardioembolic conditions are arterial fibrillation recent myocardial infraction , mechanical prosthetic value , dilated myocardiopathy , and mitral rheumatic stenosis. In-hospital mortality in cardioembolic stroke 27.3% is the highest as compared with other subtypes of cerebral infraction.

KEYWORDS :

Stroke , cardioembolic, embolism, riskfactors, treatmentINTRODUCTION:

Twenty –six million people worldwide experience a stroke each year , making it the second-leading cause of mortality and a leading cause of long term disability. One –third of strokes represent intracerebral or subarachnoid hemorrhage, where as two-third represent cerebral ischemia , cardiac embolism causes more severe strokes than other ischemic stroke subtypes. Despite a decrease in the overall incidence of stroke, cardioembolic strokes have tripled during the past five years. Approximately 25% of all ischemic cases are believed to be cardioembolic in origin, however despite accounting for a relatively small proportion of all ischemic strokes, cardioembolic strokes are particularly important as they are frequently more severe than atherothrombotic strokes.Cardioembolic strokes can occur from specific cardiac disorders, including atrial

fibrillation , left ventricular thrombi, cardiac tumors, valvular vegetations ,and paradoxical emboli

DIFFERENT TYPES OF STROKE :-

ISCHEMIC STROKE :- these are the strokes caused by the blockage of an artery , about 87% of all strokes are ischemic.

HEMORRHAGIC STROKE :- these are strokes caused by bleeding. about 13% of all strokes are hemorrhagic.

ISCHEMIC STROKE :- an ischemic stroke occurs when a blood vessel which supplies blood to the brain gets blocked or clogged and impairs blood flow to parts of the brain. And the cells in brain will start to damage ,lack of oxygen. Ischemic stroke is divided into 2 types.

THROMBOTIC STROKES:- these are caused by a blood clot that develops in the blood vessels inside the brain .

EMBOLIC STROKE :- These are caused by a blood clot or plaque debris that develops elsewhere in the body and then travels to one of the blood vessels in the brain through the blood stream . this is a type of ischemic stroke. This happens if an artery to the brain becomes blocked. The brain relies on near by arteries to bring in blood from the heart and lungs. When one of the arteries is blocked.the brain cant produce the energy it needs to function these brain cells will begin todie if the blockage lasts for more than a few minutes.

ETIOLOGY:-

Diagnostic criteria for cardioembolic stroke were previously very strict. In the past, cardiogenic cerebral embolism was diagnosed only when sudden focal neurologic signs maximal at onset, developed in patients with peripheral systemic embolism and recent myocardial infraction or rheumatic mitral stenosis. With these criteria, cardioembolic infracts were diagnosed in3-8% of stroke patients. However in various current stroke registries, approximately 10-20% of patients diagnosed with cardioembolic strokes did not have symptoms at the onset of their stroke.

RISK FACTORS FOR CARDIOEMBOLIC STROKE :-ATRIAL FIBRILLATION :-

Atrial fibrillation is a disorder of heart rhythm that effects 33 million people worldwide. The prevalence of atrial fibrillation increases sharply from 0.1% among adults aged <55 years to most 10% among those aged >80 years .

SYSTOLIC HEART FAILURE :-

Heart failure affects is of 26 million people worldwide. although hospitalizations for heart failure are decreasing in high-income countries, this condition accounts for 2% of primary hospital discharge diagnosing, making it the most common reason for hospital

RECENT MYOCARDIAL INFRACTION :-

Acute myocardial infraction (MI) is a long established risk factor for ischemic stroke. In case series from 1980, 2.5% of patients experienced a stroke within 4 weeks of acute mi . the rates of stroke after acute mi are decreasing over time, perhaps because of acute reperfusion therapy, widespread use of antithrombotic medications and improved long term secondary prevention therapies

INFECTIVE ENDOCARDITIS :-

Infective endocarditis affects over 1 per 10000 individuals in a high income settings. It is a relatively uncommon stroke risk factors , but the magnitude of association between infective endocarditis and stroke greatly exceeds that of more common stroke risk factors

OTHER CAUSES :-

There are several rare causes of embolism such as papillary fibroelstoma,myxom and mitral classification each accountsfor <1% of cardioembolic stroke.

Table 1 Risk factors for ischemic stroke[a]

Nonmodifiable risk factors	Modifiable risk factors
Age	Hypertension
Race	Diabetes mellitus
Sex	Hypercholesterolemia
Ethnicity	Transient ischemic attacks
History of migraine headaches	Carotid stenosis
Sickle cell disease	Hyperhomocystinemia
Fibromuscular dysplasia	Oral contraceptive use
Heredity	Cardiac disease
	Atrial fibrillation
	Valvular disease
	Prosthetic valve
	Mitral stenosis
	Structural anomalies
	Lifestyle issues
	Excessive alcohol intake
	Tobacco and illicit drug use
	Obesity and physical inactivity

[a] Based on information from American Heart Association/American Stroke Association.[1,3-5]

PATHPHYSIOLOGY :-

Cardioembolic stroke accounts for 20-30% of all ischemic strokes in adults ischemic strokes in adults and up to 30% of ischemic stroke in children. Cardioembolic stroke can arise via different pathophysiological mechanism , including formation of mural thrombus due to pooling of blood and nonlinear flow in dyskinetic ventricular ventricle or with cardiac arrhythmia, clot formation or vegetation on an abnormal heart valve, paradoxical embolism of a venous thrombus in a right-to-left shunt due to congenital structural heart defects. In majority of patients ,emboli are thrombotic in nature and can be formed in an artery, cardiac chamber ,heart valve, or vein. whereas in certain cases they may contain both thrombotic and non thrombotic material, as it may occur in infected vegetations ,valvular calcifications, and other pathologies. The majority of cardiac thrombi are formed with in a chamber(i.e , the left ventricle, the atrial appendages ,or the left atrium) .in other patients, thrombi are formed on pathological cardiac valves .they may be either purely thrombotic in nature or mixed with nonthrombotic material such as vegetation and calcified material. The cardiac emboli May consists of cholesterol ,thrombus ,platelet thrombi ,calcium or even bacterial clumps .emboli from the heart can be distributed anywhere in the body ,but more than 80% migrate to the brain .

TREATMENT:-

Ischemic strokes are most common kind of stroke they occur when a blood clot blocks the blood flow to your brain and the medication treatment must start within 4-5 hours.

ASPIRIN :-

Doctors use aspirin in the treatment of strokes as of that it thins your blood and can even help prevent further

strokes. as a preventive medication, it is especially effective in preventing secondary stroke. Among all the antiplatelet agents aspirin has been proved in clinical trails to reduce risk of cardioembolic stroke.And only use aspirin as a preventive medication if they have both,

- A low risk of bleeding
- A high risk of atherosclerotic cardiovascular disease, such as stroke or heart attack

CATHETER EMBOLECTOMY :

If drugs don't adequately break the clot and if the stroke is acute, or localized to one area , then the clot can be removed by the use of the a catheter to access the blood clots and can be remove it manually ,and the catheter is threaded through your blood vessel through the area where the clot is logged . and the clots can be removed by corkscrew like device attached to the catheter or by using clot busting agents administered directly in the clot by the use of the catheter.

CAROTID ENDARTERECTOMY :

This is the procedure done or performed on people who has a clot in the carotid artery ,and the carotid arteries are the major blood vessel in the neck that supply blood to the brain. In this procedure the removal of plaques and the blockages from the arteries in order to improve the blood flow and decrease the risk of the future stroke .

TISSUE PLASMINOGEN ACTIVATOR :-

A common interavenous IV drug is tissue plasminogen activator (tPA) it is given during a active stroke andthis medication works to stop a stroke by dissolving the clot that's causing it.

tPA is used in some cases of diseases that feature blood clots, such as pulmonary embolism ,myocardial infraction ,and stroke in the medical treatment of thrombolysis

UNCTIONS OF tPA :

Produced mainly in the liver, plasminogen is the inactive zymogen form of plasmin, and circulates in plasma in a closed conformation that cannot be activated. Binding clots or cell surface causes its conformation to change, allowing it to be activated by plasminogen activators.

WARFARIN:-

Warfarin is approximately 50% more effective than aspirin in preventing stroke in patients with atrial fibrillation who do not have valvular disease. Unfortunately warfarin is not without any problems . the narrow therapeutic margin of warfarin and its known associated food and drug interactions require to follow closely dosage adjustment are frequently needed. And as an additional information the atrial fibrillation clopidogrel trail with lrbesartan for prevention of vascular events the safety and efficacy of the combination of aspirin plus clopidogrel in atrial fibrillation patient.

THROMBIN INHIBITOR:-

Ximelagatran is a direct thrombin inhibitor that is orally administered, has stable pharmacokinetics independent of the hepatic P450 enzyme system and low potential for food and drug interactions . the two large studies, stroke prevention using the oral direct thrombin inhibitor ximelagatan with fixed dose and with dose adjusted warfarin in patients with high risk atrial fibrillation .and in that study the both trails , ximelagatran was not inferior warfarin and has fewer major or minor bleeding complications.

Conclusion:-

we concluded that there is link between EF and outcome after CES. we have majorly discussed about pathophysiology and treatment based on the pathophysiology in heart these changes are identified like atrial

fibrillation, myocardial infraction ,in this condition majorly treatment like aspirin, warfarin, TPA, and some surgical procedures are also concluded

Based on the above we concluded that due to the effect of heart there is a change that leads to atrial fibrillation,myocardial infraction which forms to a form of a clot that leads to cardioembolic stroke

REFERENCES:-

1. Krishnamurthi RV,Feigin VL,Forouzanfar MH,Mensah GA,Connor M,Bennett DA,Moran AE,Sacco RL,Anderson LM,Truelsen T,O'Donnell M,Venketasubramanian N,Barker-Collo S,Lawes CM,Wang W,Shinohara Y,Witt E,Ezzati M,Naghavi M,MurrayC, Global andregional burden of first-ever ischaemic and haemorrhagic stroke during 1990-2010: findings from the Global Burden of Disease Study 2010. The Lancet. Global health. 2013 Nov; [PubMed PMID: 25104492]
2. Díaz Guzmán J, [Cardioembolicstroke: epidemiology]. Neurologia (Barcelona, Spain). 2012 Mar; [PubMed PMID: 22682204]
3. FerroJM, Cardioembolicstroke: an update. The Lancet. Neurology. 2003 Mar [PubMed PMID: 12849239]
4. Arboix A,Alió J, Cardioembolic stroke: clinical features, specific cardiac disorders and prognosis. Current cardiology reviews. 2010 Aug; [PubMed PMID: 21804774]
5. Yuan K,Kasner SE, Patent foramen ovale and cryptogenic stroke: diagnosis and updates in secondarystroke prevention. Stroke and vascular neurology. 2018 Jun; [PubMed PMID: 30022802]
6. Di TullioMR,Homma S, Mechanisms of cardioembolicstroke. Current cardiologyreports. 2002 Mar; [PubMed PMID: 11827638]
7. Weir NU, An update on cardioembolicstroke. Postgraduatemedical journal. 2008 Mar; [PubMed PMID: 18372484]
8. Timsit SG,Sacco RL,Mohr JP,Foulkes MA,Tatemichi TK,Wolf PA,Price TR,Hier DB, Earlyclinical differentiation of cerebral infarction from severeatherosclerotic stenosisand cardioembolism. Stroke. 1992 Apr; [PubMed PMID: 1561677]
9. Spence JD, Cardioembolic stroke: everythinghas changed. Strokeand vascularneurology. 2018 Jun; [PubMed PMID: 30022801]