

Management of stroke - Bangladesh perspective

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Stroke is a disease of the brain where there is sudden onset of mostly focal lesion due to occlusion or rupture of a cerebral blood vessel & its symptomatology should last for more than twenty four hours. If not and cured within twenty four hours- this is called transient ischemic attack (TIA). The incidence of stroke is increasing in this country in comparison to developed country. In our country the prevalence of stroke above the age of 40 is 370/100000. Although stroke is a disease of the elderly but in our country it is more common in 5th and 6th decade of life. In our country male and rural people suffer from stroke more.¹ It has been seen that there are few risk factors which predisposes a person to get stroke. Common risk factors are divided into two groups.²

A. Modifiable

- Hypertension
- Diabetes Mellitus
- Smoking
- Cardiac disease
- Oral contraceptive pill
- Dyslipidemia
- Obesity
- Alcohol
- Sedentary habit

B. Non modifiable

- Age
- Sex
- Race
- Past history of TIA

From all risk factors above, the most important are age, hypertension, diabetes mellitus, smoking, cardiac disease & dyslipidemia.²⁻⁸ Although in our country it is common in 5th and 6th decade of life,¹ the trend to involve younger people before the age of 40 is also found in this community. the more is the age the more is the risk of stroke.⁹ Both the systolic and diastolic component of hypertension is equally responsible to cause stroke.¹⁰ Diabetes mellitus type I & II are also responsible for stroke.¹¹ Among cardiac diseases, the most important are myocardial infarction, valvular heart disease, and cardiac dysarrhythmia. These usually cause embolic stroke.¹²

Pathogenesis

Either occlusion or rupture of a blood vessel in the brain causes stroke. Occlusion could be due to focal atherosclerosis or emboli. What ever might be the cause of occlusion there is ischemia or infarction of that part of the brain supplied by that vessel. The rupture of the blood vessel is due to hypertension or due to congenital defect in the vessel. The rupture due to any cause will give rise to hemorrhage. Hypertensive rupture will give rise to intra cerebral haemorrhage (ICH) whereas rupture of a congenital defect (aneurysm) will give rise to subarachnoid haemorrhage (SAH).¹³

Types of stroke

There are two types of stroke. One is the ischemic stroke (85%) and the other is haemorrhagic stroke (15%) which includes intra cerebral haemorrhage (80%) and subarachnoid haemorrhage (20%).¹⁴

Clinical features

It is very important to know the symptomatology of stroke in the vascular territory wise, but this is very complex. For the sake of simplicity the common features of stroke are given below. Remember one patient may have only one or two or more of the features but not the entire feature.

The common features are^{2,15-17}

- Hemiplegia/monoplegia
- Difficulty in speech (dysarthria/dysphasia)
- Difficulty in swallowing
- Cranial nerve palsy
- Deterioration of level of consciousness/coma
- Headache
- Vomiting
- Convulsion
- Blurring of vision/double vision
- Difficulty in reading/writing
- Neck stiffness
- Sensory loss
- Difficulty in walking/imbalance
- Hiccough

Remember, hemiplegia is the commonest presentation of stroke. What ever might be the feature, the rule is sudden onset e.g. within minutes to hours but not hours to days.

How to differentiate ischemic from haemorrhagic stroke?

This is never absolute from the clinical feature. It needs CT or MRI of head to become certain but there could be suspicion from the presentation. If a patient is hypertensive and on irregular drug presents with sudden onset of paralysis during excitement with deepening coma with headache and vomiting-this is probably haemorrhagic stroke.¹⁸ If there is neck stiffness this is more certain. On the other hand atherosclerotic stroke usually occurs at rest, no severe loss of consciousness, less headache & vomiting.

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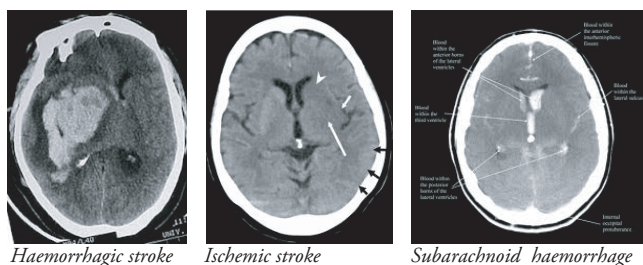


Figure-1: CT images of different types of stroke

Diagnosis

The diagnosis of stroke^{2,15-17} depends on taking history, medical document survey, clinical feature and from certain investigations. Sudden onset of clinical features is all the time important. The basic investigations are- CBC, blood sugar, serum creatinine, serum electrolyte, serum lipid profile, x-ray chest, ECG, echocardiogram, doppler neck vessels, CT or MRI of brain. Cerebral angiogram is needed in some cases, particularly for subarachnoid haemorrhage. The most specific diagnostic investigation is either CT or MRI of head. Remember CT of head is preferred early because it will exclude haemorrhage. CT of head is good for haemorrhage where as MRI of brain is good for infarction particularly brain stem & cerebellum.

Differential diagnosis

Some of the other diseases may mimic stroke. These are brain tumor, subdural haemorrhage, electrolyte imbalance, diabetic coma, encephalitis, psychogenic, hypertensive encephalopathy etc. But careful history taking, temporal profile of the disease will differentiate all these from stroke. If even confused the targeted investigation may be helpful.^{2,15}

Treatment of stroke

Stroke is always a medical emergency. So it should be addressed as early as possible. About 50% of the stroke patient may need treatment in the hospital.

Criteria for hospital admission¹⁹

- If the patient is drowsy/unconscious
- If the patient can not swallow
- If the patient has very high blood pressure/diabetes
- If the patient has cardiac disease
- If the patient has headache/vomiting/convulsion
- If the patient has complication like aspiration pneumonia
- If the patient needs other investigation.
- If the diagnosis is not certain
- If home management is not possible due to other reasons.

The treatment guide line differs according to type of stroke.

For ischemic stroke

A) General treatment²⁰⁻²²

- Care of nutrition - by Ryles tube if needed
- Care of bladder - by self retaining catheter if needed
- Care of skin, limb - by frequent posture change
- Care of bowel - by stool softener
- Care of mouth - by frequent mouth wash

Before each feeding, it is mandatory to see whether the Ryles tube is in situ or not. If prolonged nasal feeding is needed the

idea of PEG (Percutaneous endoscopic gastrostomy) may be applied.

B) Symptomatic treatment

This includes treatment of co-existing disease like hypertension, diabetes mellitus, cardiac disease, renal disease, etc. intravenous fluid in all cases is normal saline, if not contraindicated.

The treatment of hypertension is always important. If there is mild to moderate hypertension e.g. systolic 140-180mm of Hg and diastolic 90-110mm of Hg no urgent treatment is necessary. Wait for 5-7 days, then if the BP is still high - start the treatment with low dose of drug first & then gradually increasing over next few days, slow reduction of BP is ideal.

If there is severe hypertension e.g. systolic >180mmhg or diastolic >110mmhg then urgent treatment is required to lower BP gradually by intravenous labetalol or intravenous nitropruside etc. but never give sublingual nifedipine. It might cause sudden lowering of BP, which is dangerous. The drugs preferred are ACE inhibitor, ARB, calcium channel blocker, diuretics, alphablockers, betablockers, etc. The target of BP is systolic 140±10 and diastolic 80±10.²³⁻²⁵

The treatment of diabetes in acute stage of stroke is always by insulin preferably by soluble insulin. The target of blood sugar is 7-8mmol (post prandial).²⁶ For cardiac disease it is better to consult appropriate physician and to avoid excess load on heart side by side.

C) Treatment of complication

If there is any complication like aspiration pneumonia, urinary tract infection, bed sore, convulsion, headache, insomnia, constipation appropriate drugs could be advised. In case of haemorrhage, the NSAID is contraindicated.

D) Specific treatment

Ischemic stroke

- Antiplatelet^{27,28} Aspirin 300mg stat & then 75-150mg daily and continue for life long. If Aspirin is contraindicated then Clopidogrel 75mg daily for life long. Aspirin is preferred than Clopidogrel for cost but combination of the two is not necessary for stroke only if there is co-existent DM, or cardiac disease-combination may be prescribed.
- Low molecular heparin or oral anticoagulant for cardio embolic stroke.²⁹⁻³¹
- Lipid lowering agent^{32,33} for dyslipidemia
- Pentoxifylline/Vinpocetine/Piracetam may be helpful.³⁴

E) Physiotherapy

It should be started as early as possible. It has specific role in improving muscle power, prevention of contraction, bed sore, frozen joints, etc. more over it builds up patient's confidence & psychology.

For haemorrhagic stroke

General and symptomatic treatment are like ischemic stroke. The difference is in specific treatment-

Specific treatment

Antiplatelet and anticoagulant in any form is contra indicated in heamorrhagic stroke

- Supportive treatment should be continued.
- Surgical treatment is needed in some case of ICH & SAH.
- NSAID is contraindicated in headache.
- Paracetamol & Tramadol is used for headache in SAH.
- In SAH-oral Nimodipine 60mg 4/5 times daily for 2-3 weeks are given to prevent vasospasm.³⁵

Surgery in stroke³⁶

Occasionally surgery has role in ischemic stroke e.g. in hemispheric stroke-craniectomy can be done to decompress brain. But in ICH if the patient is gradually becoming unconscious & if the haematoma size is >60ml & in approachable area-surgery could be done for life saving purpose. In case of SAH- particularly aneurysmal bleeding-clipping or coiling is done.³⁷

Raised intracranial pressure in stroke of (ICP)³⁸

Raised ICP in stroke is a life threatening complication which needs urgent treatment. It can be done by IV Mannitol (5gm/kg) 6-8 hourly for 3-5 days, IV Dexamethasone (5mg IV 6 hourly) for 5-7 days are preferred. Others are craniectomy, external ventricular drainage, lumbar drainage etc could be done.

How to recognize raised ICP

The features are deepening of coma, progression or development of new neurological feature, 6th nerve palsy, papilloedema, vomiting, shallow breathing etc.

When to refer to a better center

1. If the patient needs ICU support
2. If the patient needs high tech investigation
3. If the local facilities are not up to the mark
4. If consultants opinion is necessary
5. Please do not shift the patients if he is not stable.

Rehabilitation

The ultimate objective is to rehabilitate the patient. The patient should be referred to the physical medicine expert as a part of rehab as early as possible.

Outcome^{12,39-44}

With appropriate treatment 30-40% patient is cured (e.g they can go back to their original work), 30% patient remains disabled, and 20% may die.

Advise

- Please talk with the guardian of the patient, explaining the nature, seriousness of the disease and outcome.
- Please explain the limitation of local treatment
- Please explain the importance of urgent treatment
- Please explain the cause of referral or home treatment
- Please sincerely treat the patient
- Please do not do unnecessary investigation.

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