Definition :

Atherosclerotic disease involving the intracranial arteries including those encased by cranial bones and dura, and those located in the subarachnoid space.

Extracranial atheromatous thromboembolism is one of the major causes of ischaemic stroke in the developed countries, whereas intracranial and small vessel disease is the case in the developing world. This difference is probably due to the atherogenic diet taken in developed countries.

Stroke In India : are we different from the World?

Few decades ago low average life expectancy for Indians than that of American, European and Japanese populations, which excludes the population at highest risk for stroke, thereby bringing down the prevalence rate. As Indian life expectancy is increasing , Incidence and Prevalence of stroke same as rest of world.

As in most parts of the world, ischemic strokes predominate over intracerebral hemorrhage in India.Among ischemic strokes, intracranial atherosclerosis is the major atroke mechanism, although all other stroke mechanisms also coantribute to stroke.As in most parts of the world, ischemic strokes predominate over intracerebral hemorrhage in India. Among ischemic strokes, intracranial atherosclerosis is the major stroke mechanism, although all other stroke mechanisms also contribute to stroke.

Intracranial large artery atherosclerotic disease is the commonest cause of stroke in patients in India, followed by lacunar, cardioembolic, and extracranial carotid disease, according to the findings presented by Subhash Kaul (Nizam's Institute of Medical Sciences, Hyderabad, India) at India's National Stroke Symposium on Feb 2007 .

Hypertension, diabetes mellitus, tobacco use and, interestingly, low concentration of hemoglobin were the most important risk factors for ischemic stroke, for both sexes, and in the young as well as the elderly.

Vascular Imaging and Diagnosis

Both transcranial Doppler ultrasound and magnetic resonance angiography noninvasively identify 50 to 99% intracranial large vessel stenoses with substantial negative predictive value [The Stroke Outcomes

and Neuroimaging of Intracranial Atherosclerosis (SONIA) Trial]. TCD: PPV 36% ,NPV, 86% ; MRA: PPV 59% , NPV, 91% . Cerebral DSA is 'Gold Standard' and the confirmatory test to reliably identify stenosis.

Medical Management Recommendations

1. Antiplatelets : For patients with recent stroke or TIA (within 30 days) attributable to severe stenosis (70%–99%)
of a major intracranial artery, the addition of clopidogrel 75 mg/d to aspirin for 90 days might
be reasonable **(Class IIb; Level of Evidence B)**.

2. Hypertension Management Recommendations :For patients with a stroke or TIA attributable to 50% to 99% stenosis of a major intracranial artery, maintenance of systolic BP below 140 mm Hg and high-intensity statin therapy are
recommended **(Class I; Level of Evidence B)**.

3. Dyslipedemia Recommendation : Statin therapy with intensive lipid-lowering effects is recommended to reduce risk of stroke events among patients with ischemic stroke or TIA presumed to be of atherosclerotic origin and a LDL-C level ≥100 mg/dL **(Class I; Level of Evidence B)**.

4. Glucose Metabolism and DM Recommendations: After a TIA or ischemic stroke, all patients should be screened for DM with testing of fasting plasma glucose, HbA1c, or an oral glucose tolerance test.
In general, HbA1c may be more accurate than other screening tests in the immediate post event period **(Class IIa; Level of Evidence C**).

5. **Obesity Recommendations :** All patients with TIA or stroke should be screened for obesity with measurement of BMI **(Class I; Level of Evidence C)**.
6. **Cigarette Smoking Recommendations :** strongly advise every patient with stroke or TIA who has smoked in the past year to quit **(Class I; Level of Evidence C)**.

Present Status of Intracranial Angioplasty & Stenting

For patients with severe stenosis (70%–99%) of a major intracranial artery and actively progressing symptoms after institution of aspirin and clopidogrel therapy, the usefulness of angioplasty alone or placement of a

Wingspan stent or other stents is unknown and is considered investigational **(Class IIb; Level of Evidence C)**.

Wingspan® StEnt System Post MArket SurVEillance Study (WEAVE™ Trial) were presented Jan 25, 2018 at the International Stroke Conference, providing compelling evidence that more patients suffering from intracranial atherosclerotic disease (ICAD) may benefit from endovascular treatment with the Wingspan Stent System.

The final results showed that following on-label indications resulted in extremely low periprocedural stroke and death rate (2.6%) with Wingspan for FDA approved indication. This was better than the FDA's target of 4%. The trial data suggest that patients suffering from intracranial atherosclerotic disease may benefit from endovascular treatment with the Wingspan Stent System.

About the Wingspan Stent System and Gateway Balloon

The Wingspan Stent System is a self-expanding Nitinol stent and delivery system intended for use in the treatment of intracranial atherosclerotic disease. The Gateway PTA Balloon Catheter is an over-the-wire balloon catheter used to pre-dilate the lesion prior to insertion and deployment of the Wingspan Stent System. Stryker's Wingspan Stent System with Gateway® Percutaneous Transluminal Angioplasty (PTA) Balloon Catheter was approved in the United States under a Humanitarian Device Exemption (HDE) and received CE Mark in 2005.

As on MAY 2018 Criteria for Intracranial Angioplasty & Stenting are :

1. 70-99% stenosis intra-cranial atherosclerotic lesion
2. more than seven days post stroke,
3. 22 to 80 years old,
4. modified Rankin Score (mRS) of three or less,
5. difficult to manage medically and recurrent (two or more) strokes.