Review
Of
Literature
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Parashar BS, Kaushik NK\textsuperscript{55} in their study of Stroke in High Altitude concluded that out of 100 cases average age was 57 88 yrs, maximum incidence in 7\textsuperscript{th} decade, with M F 195:1, 96% were anterior circulation stroke, with 69% infarct and 26% had PICH Risk factors could be identified in 91% cases Hypertension was present in 62%, smoking in 60% and both hypertension and smoking were present in 36%, diabetes mellitus in 9%, 10% had h/o previous stroke. 83% presented with hemiparesis; 7\textsuperscript{th} nerve palsy in 74%, speech disorders in 46% and altered sensorium in another 28%.

Deobadh G. Stewart, MD\textsuperscript{56} death rates from stroke have been declining with an annual decrease of 5% per year in the United States since 1970 2 the incidence of first stoke rises exponentially with age. In the 55 to 59 year old age group, the risk of stroke is about 5% per year, whereas in the 80 to 84 year old group the risk is about 25% per year.\textsuperscript{21} gender has been shown to affect stroke risk, men have a 30% increased risk until the later decades of life when women have a higher risk.\textsuperscript{21} More women under the age of 45 years die from stroke than myocardial infarction
A disproportionate percentage of subarachnoid hemorrhage occurs in women. Race-related differences in incidence and mortality of stroke have also been demonstrated. When compared with whites, blacks have a higher incidence and mortality of stroke, which may be in part attributable to a relatively late presentation for medical care.21,57

Helen M Dewey Jonathan Sturm et al,58 made a study to determine the incidence and outcome of sub-types of cerebral infarction (CI). Annual incidence rates per 100,000 persons adjusted to the world population were 11 Total Anterior Cerebral Infarction (TACI), 25 for PACI, 17 for POCI and 18 for LACI. 28-day case fatality was highest for TACI 35%, and first year recurrence rate was highest for PACI 17%; TACI had the poorest outcome at 3 and 12 months.

Rahman K M et al22 conducted a study in 85 consecutive stroke patients irrespective of age and sex admitted during the period of August 2000 to June 2001. The outcome was that about of the admitted cases 81.8% were males and were of the age group 62.54 +/- 13.08 yrs. and 18.82% were females of the age group 58.81+1-12.27 yrs. 78.82% were hypertensive and had hemiplegia on presentation. Altered consciousness was more common when hemorrhagic stroke 54 84%.
G.Q.Khan et al\textsuperscript{69} studying stroke admissions in Kashmir Valley concluded that intracerebral haemorrhage shared a greater percentage. The amazing fact was that 635 (23.9\%) who were clinically suspected of having ischaemic strokes were documented as small intracerebral haemorrhage on CT Scan of head. Again, most of the patients who were admitted in a comatosed state and died immediately were also clinically suspected as having intracerebral haemorrhage. Hypertension, rupture of AV malformations, and intraparenchymal aneurysms are the leading factors responsible for intracerebral haemorrhage. Among them hypertension is the most common, the most modifiable and the most important risk factor which needs multipronged approach.

Daad H. Akbar, Maunona Mushtaq\textsuperscript{66} in their study of clinical profile and risk factors in patients of stroke in Saudi Arabia out of 103 patients which form part of their study 34 (33\%) had Dyslipidemia and this was more common in ischemic stroke (74\%) as compared to non ischemic stroke.

James F. Meschia, M.D. and Thomas G. Brott, M.D\textsuperscript{60} It now appears likely that hyperlipidemia is an independent risk factor for ischemic stroke.\textsuperscript{61} Lipids tend to temporarily fall after an acute stroke.\textsuperscript{62,63} This phenomenon is probably not strictly related to inadequate nutrition that might result from conservative early
management of dysphagia because the same phenomenon has been seen in patients with many acute non-neurologic conditions. Aull and colleagues have recommended that a fasting lipid profile should be obtained on the first or second morning after stroke to avoid pseudonormalized values.\textsuperscript{62} Mendez and colleagues found in patients ages 60 to 69 that mean fasting LDL cholesterol levels changed from $136 \pm 20$ mg/dl on day 1 to $115 \pm 17$ mg/dl on day 7 and $160 \pm 16$ mg/dl at 3 months following an acute ischemic stroke.\textsuperscript{63} The investigators concluded that lipids should be checked at least three months after a stroke to avoid missing hyperlipidemia in some patients.

Chirstensen H et al,\textsuperscript{64} made a study to evaluate how soon after stroke the diagnosis of hypertension could be established. In a prospective study of 1192 patients with acute stroke within 6 hrs, blood pressure was measured serially at 2 hrs intervals during the first 24 hrs. In 779 patients with mild to moderate ischemic stroke or TIA, Mean Arterial Pressure (MAP) was 118 mm of Hg on admission and 109 mm of Hg 4 hrs later. No such early decrease was seen in 228 patients with severe cerebral infarction. BP 24 hrs after admission in patients with mild to moderate cerebral infarction or TIA was representative of patient's BP 3 months after stroke A diagnosis of arterial hypertension could be established a few days after stroke.
The worldwide literature documents that intracerebral haemorrhage was responsible for 10-15% of all strokes and its incidence ranges from 10-20 per 100,000 populations.

Carlberg et al.\textsuperscript{26} demonstrated that previous hypertension was the strongest predictor of elevated blood pressure in stroke patients on admission.

A 20 year follow-up of the National Health and Nutrition Survey conducted by Qureshi A I et al.\textsuperscript{65} to evaluate long-term risk of stroke, type of stroke and predictors of stroke associated with Isolated Systolic Hypertension (ISH) and Borderline Isolated Systolic Hypertension (BISH) and this risk compares with that for persons with diastolic hypertension and normotension.

ISH defined as SBP >160 mm of Hg and DBP < 90 mm of Hg

BISH defined as SBP 140-159 mm of Hg and DBP < 90 mm of Hg

Relative Risk (RR) in ISH was 2.7 and RR in BISH was 1.4

Thus he concluded that increased risk of ischemic and intracerebral hemorrhage was observed in patients with BISH, similar to those with ISH and Diastolic hypertension (10).

Gasowski J et al.\textsuperscript{66} conducted a trial to explore the independent roles of pulse and mean pressure as predictors of mortality in a wide range of patients with hypertension. He concluded
that in hypertensive patient's high pulse pressure is associated with an increased risk of fatal events.

Carlberg B, Asplund K, Hagg E\textsuperscript{26} patients with acute stroke are often found to have high blood pressures on admission. A study conducted to study the prognostic value of high blood pressure in acute stroke. The study included 85 patients with intracerebral hemorrhage and 831 patients with ischemic disease.

Results showed that high BP in alert stroke was not associated to increased mortality. Stroke patients with impaired consciousness showed higher mortality rates with increasing BP (12).

Boreas AM et al\textsuperscript{27} studied the prognostic values of BP in acute stroke, BP were recorded by reviewing BP records of 817 patients who were admitted as cases of stroke using the mean of daytime as well as night time systolic and diastolic BP values. Only night time systolic BP 165 mm of Hg, night time diastolic BP 60 mm of Hg and a decrease in daytime diastolic BID between 0-4 days of 10 mm of Hg showed a significant relationship with poor outcome.

Control of hypertension in the acute phase of stroke has been studied in small trials and case reports.\textsuperscript{64} Hypertension occurs in 75\% of patients with infarction or hemorrhage. Two-thirds of these patients had preexisting hypertension. Current published recommendations are to gradually lower the blood pressure to
185/105 mmHg if the patient has a premorbid history of hypertension, and to 160/95 mmHg in patients with no history of hypertension. Patients with hemorrhagic stroke should probably be managed similarly, but the range of acceptable systolic and diastolic pressure can be 5 mmHg higher in each category mentioned above. Medications used for acute treatment of hypertension can include labetalol, enalapril and clonidine.

Danilo Toni, Marco Fiorelli et al,68 made a study to identify predictors of early neurological improvement in acute ischemic stroke patients, to evaluate its impact on clinical outcome. Thirty-four patients (22%) improved, 84 (56%) remained stable, and 34 (22%) deteriorated.

In the International Stroke Trial, involving 17,398 patients with ischemic stroke, 80% of patients had high blood pressure, the mean systolic blood pressure across the study was 160 mmHg.69 The natural history is for blood pressure to start falling within hours of stroke onset70 and to settle over the first weeks after stroke49,51,71 few patients have a low blood pressure, as defined by systolic blood pressure <100 mmHg. Indeed, in the International Stroke Trial, less than 5% of patients with ischemic stroke had a systolic blood pressure < 120 mmHg.
Several case studies have reported on the results of actively lowering blood pressure in acute stroke. The largest study in ischemic stroke (n=481) used a variety of drugs so class-specific interpretation is not possible,\textsuperscript{72} nevertheless, fall in blood pressure of 20-30\% by day 2 were associated with improved outcome and reduced cerebral oedema. Similarly, the largest series in PICH (n=167) reported that lowering blood pressure was beneficial.\textsuperscript{73} Other and far smaller case series have found that lowering blood pressure may be detrimental\textsuperscript{74-76}

Guy Rordorf, Steven C, Cramer\textsuperscript{77} in their study to determine whether induced hypertension in stroke is safe and examined its effect on neurological deficits in patients presenting with cerebral infarction. They retrospectively reviewed all patients with the diagnosis of ischemic stroke over a period of 2.5 years. Thirty-three patients were not given a pressor, while 30 were treated with vasopressor in an attempt to improve cerebral perfusion.

Niaz Ahmed, Nils Gunnar Wahlgren\textsuperscript{78} Intravenous Nimodipine West European stroke Trial (INWEST) enrolled acute ischemic stroke patients within 24 h (n=295) to the following groups: placebo (n=100), 1mg/h nimodipine (n=101) or 2mg/h nimodipine (n=94). Results were: no significant difference in BP was observed between the Total Anterior Circulation Infarct (TACI) and non-TACI
subtypes at baseline, nor did the subtypes differ in BP course within
the treatment groups. For TACI patients, there was no outcome
difference between the placebo and nimodipine treated groups. In
multivariate analysis for TACI patients, BP reduction and nimodipine
treatment had no relation with outcome. Systolic BP reduction was
associated with a better clinical outcome.

They concluded that BP lowering and nimodipine treatment had
no significant effect on outcome for TACI patients.
Aims

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Objectives