

# ACUTE STROKE CARE IN A STROKE CENTER IN DELHI : CHALLENGES AND LEARNINGS

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## Abstract

In India, Stroke Care Remains A Challenge Due To Various Reasons: Lack Of Awareness, Social Traditions & Taboos along with Inadequate Stroke Centers. However, Our Center In Delhi Caters To A Large Population With Better Health Consciousness. We Analyzed Our Data Of Patients With Acute Ischemic Stroke In Past 18 Months.

830 Patients With Acute Stroke Were Admitted To Our Center, Out Of Which 23.7% Had Hemorrhagic Stroke, Which Is relatively high figure but corroborates With Asian Data. However, 72% Of Ischemic Stroke patients were male, across all age groups, Including After 60 Years. This Was An Unusual Demographic Pattern, Which May Require Further Understanding. the Average NIHSS Was 9 With A Range Of 2 To 21. 169 Patients I.e. 26.2 % Of Patients Presenting With Acute Ischemic Stroke Were Thrombolysed With Intravenous Tissue Plasminogen Activator (tPA), Which Again Is A High Number, Even With International Standards. Another Important Finding Was Achievement Of Modified Rankin Scale (MRS) Of 0-1 In About 60% Of The Thrombolysed Patients At 3 Months. The Door To Needle Tme (DTN) Was Brought Down From Initial 60 Minutes To Less Than 30 Minutes With 1 Patient Getting Thrombolysed Within 5 Minutes, Which May Be A Kind Of Record.

about 9-10% Of Patients Had Large Vessel Occlusion (LVO), Requiring Bridging Therapy With Digital Subtraction Angiography / Mechanical Thrombectomy. About 55% Were Having M1 Segment Occlusion Of Middle Cerebral Artery. About 50% Patients After Bridging Therapy, Showed An Improvement Of 2 Point On MRS At 3 Months. 6 Patients Had Recanalization Of M1 Occlusion After Intravenous Thrombolysis Only. 2 Patients On Novel anti coagulants (NOAC) Were Thrombolysed Due To Miscommunication But Did Not Develop Bleeding Complications. Our experience Indicates That Challenges Have Made Us Wiser As Shown By The Data, But Still A Long Way To Go

## Introduction

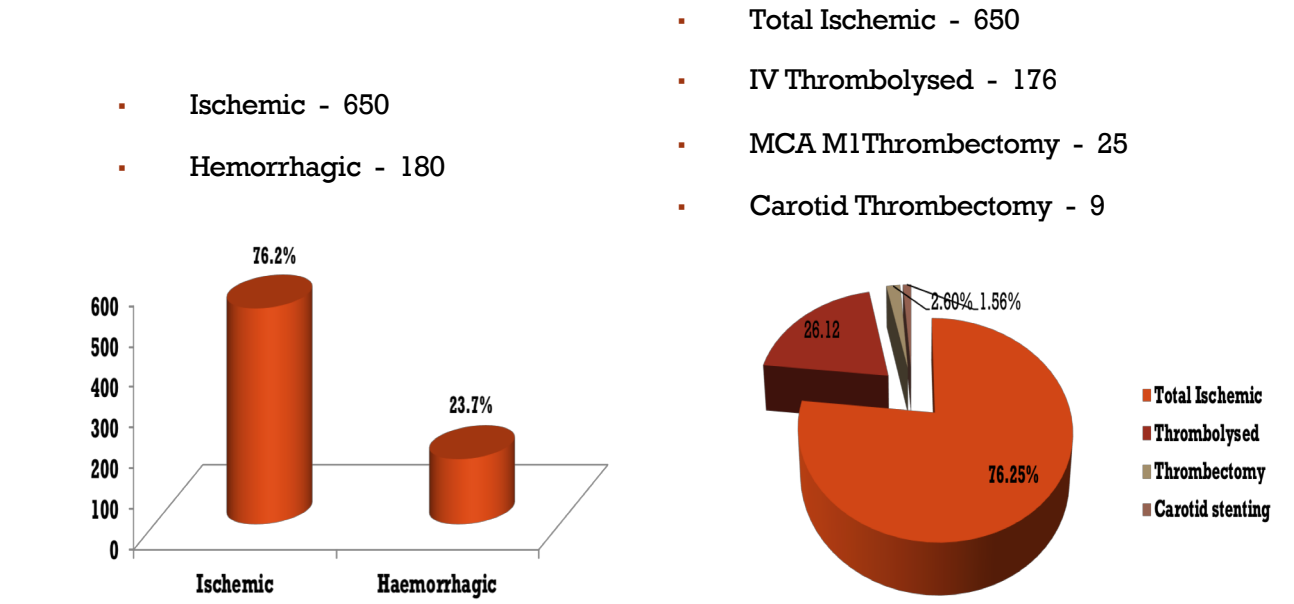
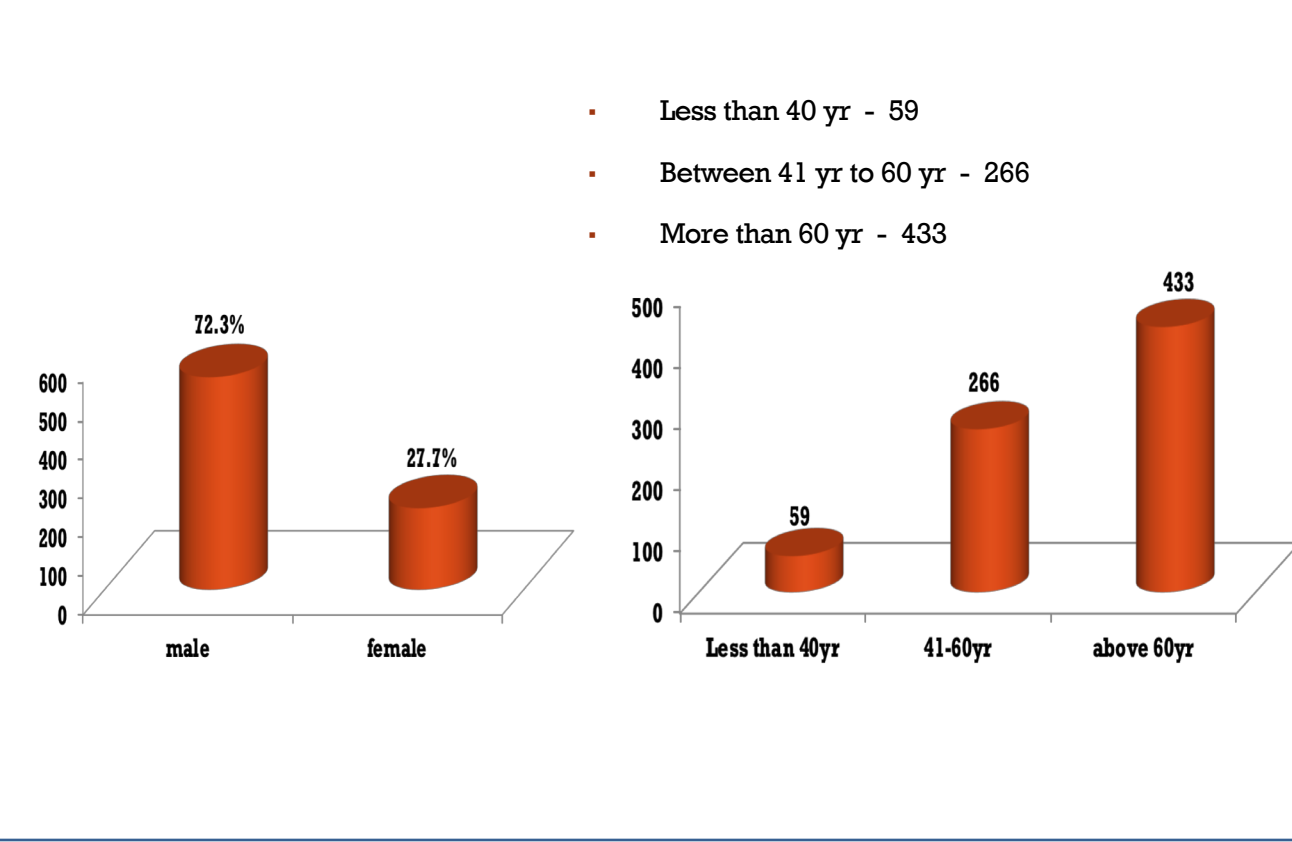
Stroke remains a major health problem world over. With better understanding of risk factors implicated to its occurrence, associated mortality and morbidity are getting reduced in developed countries, but in developing countries, it has now become the second largest killer. Global stroke burden study estimated that over 85% of stroke burden is borne by low- and middle-income countries. Lack of awareness and education about its identification in early stage along with prevailing myths and taboos make it a more complex condition in India. To add to it, limited accessibility and availability of stroke centers make it even more complicated resulting in a huge social burden.

At the same time, metropolitan and other bigger cities of India do have advanced Stroke centers, which offer comprehensive stroke management, but they are mostly run by private healthcare sector. It makes treatment expensive and beyond the reach of common people, as health insurance cover is also grossly inadequate. However, our center, Max Institute of Neurosciences in Delhi with dedicated stroke care facilities, caters to a high-density population. We analyzed our data for last 18 months, which is being shared here.

## Methods and Materials

All patients presenting to Emergency Department of Max Super specialty Hospital, Patparganj, New Delhi with acute stroke in preceding 18 months (July 2017 to December 2018) were included in the study. Various parameters including the type of stroke, age, gender, time of onset of stroke, details of clinical examination with baseline NIHSS score, Door to CT time, Imaging findings, Door to Needle and Door to Groin Puncture time in eligible patients, Post procedure evaluation including NIHSS change or complications, risk factor stratification, Modified Rankin Scale assessment at discharge and at 1 and 3 months of follow up in outpatient department.

## Observations and Analysis



•Total number of 830 patients had presented in previous 18 months with acute stroke. 598 were male patients (72.3%) while 232 were female patients (27.7%). This was an unusual pattern, as most of the studies have shown almost same incidence of stroke in both sexes, with female patients outscoring male counterparts after the age of 60 years. This was an interesting finding which may suggest higher male population in this geographical area, along with likelihood of better life style practices of female members, Female Sex resistance to stroke, or neglect of the female members in the population studied. Further demographical studies would probably throw more light on this issue.

•Further, age wise distribution revealed 54% of patients who were more than 60 years of age while 35% patients were in 40 to 60 years bracket with only 10% of patients were less than 40 years of age. Grossly speaking, 90% of stroke cases were more than 40 years of age. This pattern of distribution of age was probably in concordance with the demographical profile of this region.

•Looking at the stroke types, 650 patients (76.2%) patients had suffered from Ischemic stroke, whereas 180 patients (23.2 %) had suffered from acute hemorrhagic stroke. When compared with international data, this was again little different pattern with higher incidence of hemorrhagic stroke.

•Out of 650 patients with acute ischemic stroke, 169 patients were thrombolysed with Intravenous Alteplase / tPA. The NIHSS score ranged from 2 to 21, with mean score of 9. This meant about 26% patients were thrombolysed, which is a high percentage with international statistics, which show this figure in the range of 10-15% only in leading stroke centers across the world.

•The Door To Needle (DTN) is a measure of quality at our center. It was close to 60 minutes initially, but with strict implementation of STROKE CODE in the hospital, alerting all concerned departments, it has gradually come down to around 30 minutes. In fact, there have been rising number of patients getting thrombolysed within 10 minutes of their arrival, with 1 patient got thrombolysed with Door to Needle time of 5 minutes only. We wonder, we might have created a kind of world record here!!

•9-10% patients underwent bridging therapy or mechanical thrombectomy in Large Vessel Occlusion. 90 patients were found to have large vessel occlusive disease , out of which 79 patients (89%) had anterior circulation disease, where 49 had M1 occlusion (55%), 22 had T-occlusion(25%), 8 each had tandem occlusion(9%) and Basilar occlusion, whereas 3 patients had posterior cerebral artery occlusion. 6 patients with M1 occlusion had recanalization with IVT only.

•Analyses of clinical outcome by modified Rankin scale (MRS) showed 61% patients with MRS of 0-1 at follow up after 3 months. Again, this is an excellent outcome measure, in concordance with international standards. In the Large Vessel Occlusion subgroup, more than 50% patients had reduction of 2 points on MRS after 3 months of discharge.

## Conclusions

Our study has highlighted that in spite of so many challenges, like inadequate public awareness, social customs and taboos, poor socioeconomic strata, prevailing local practices of unproven treatment modalities etc., we are able to deliver Comprehensive Stroke Care to our patients. Results also corroborate well with expected or even better than expected outcome parameters. However, it’s a long journey and we need to keep learning from our experiences in order to make acute stroke care even more accessible and more effective.

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