Acute Stroke Care in Pakistan

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There is no large-scale epidemiological data to find the exact incidence and prevalence of stroke in Pakistan. An integrated population health survey was conducted in 24 districts of *Khyber Pakhtoonkhwa* province. This study enrolled 22500 (more than 18 years of age) participants. Stroke was identified in 271 cases and the prevalence of stroke was 1.2% or an estimated 1200/100,000 population.[1] Clinical features of stroke in Pakistan are different from their western counterparts in terms of younger age with a large number of young stroke patients, high incidence of intracerebral hemorrhage, and high age specified prevalence of stroke in women.[2]

The stroke unit is a specialised part of a Hospital ward designated for acute stroke patients. This unit provides continuous monitoring of vitals and multidisciplinary team care to acute stroke patients including nursing care and rehabilitation services. Its goal is to provide intravenous thrombolysis for stroke patients within a time window of 4.5 hours, post thrombolytic care, identification of stroke etiology, early mobilisation, and secondary stroke prevention. The stroke unit significantly reduces stroke mortality.[3] In Pakistan, there are only ten acute stroke units mainly in large cities of Pakistan including Karachi, Lahore, Islamabad, and Quetta. Only six centres are offering intravenous thrombolysis with alteplase (tissue plasminogen activator, tPA) at present and all are private tertiary care Hospitals.

Acute stroke care largely depends on early intervention but majority of patients arrive late at hospital after acute stroke. One study showed that out of two hundred seventeen patients presenting to hospital with acute ischemic stroke, only 16 presented within the critical 4.5 hours.[4]number of acute stroke patients undergoing thrombolytic therapy in Pakistan is very low due to poor awareness regarding the availability of acute stroke therapy, financial and monetary restraints, and lack of infrastructure.[4]

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Recently alteplase (tPA) was registered by the Drug Regulatory Authority of Pakistan. Pakistan Stroke Society is working for training and improving already established stroke centres for receiving and managing acute stroke patients within tPA (tissue plasminogen activator) window and for establishing ten more stroke units in different cities of Pakistan.

Mechanical thrombectomy (MT) is now considered as a standard of care in acute stroke management.

MR CLEAN was the first study to show a significant benefit in favor of mechanical thrombectomy in patients with acute stroke due to large vessel occlusion (LVO). This study was followed by many randomized controlled trials including escape, revascat, swift prime, and piste with comparable conclusions. Recently two trials DAWN and DEFUSE3 demonstrated the utility of thrombectomy in delayed windows up to 16 and 24 hours. The American Stroke Association modified recommendations in 2015 to add mechanical thrombectomy as the standard of care in patients with large vessel occlusion who arrive within six hours of stroke onset. The delayed window period treatment methods were also included in the 2018 recommendations.[5]

The lack of a well-organised national stroke program in Pakistan is a key impediment to attaining the aim of MT. A national stroke registry established by the Pakistan stroke society may be able to provide data on the volume and type of stroke care in Pakistan, as well as advise policymakers on the best implementation tactics for maximum access and influence on outcomes. At present the only data are a few cross-sectional researches conducted across the country. The only published MT data is a single-centre experience of around 30 patients treated on a pilot basis without a bridging method.[6] There are a very limited number of neuro interventionalist and neuro intervention facilities (approximately 15 neuro interventionalists covering entire LVOs, of which 75 percent belong to the private sector and just five thrombectomy-capable stroke centres in Pakistan.

An integrated approach linking neurology and stroke societies with mechanical thrombectomy experts and ministries of health to establish 10 stroke centers in the Country at public Hospitals is required. This will include allocation of space and funding, training of personnel, and public awareness campaigns. All civil Hospitals and district Hospitals must establish a stroke unit with trained staff. Tissue plasminogen activator (tPa) must be made available at these Hospitals. Mechan-

ical thrombectomy facilities should be established in at least six centres in Pakistan with trained staff.

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