

Intravenous - Thrombolysis in a 90 year Old

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Abstract

Intravenous thrombolysis in acute ischemic stroke has been conventionally avoided in the elderly (>80years of age) with fear of higher incidence of complications like symptomatic intracranial hemorrhage (SICH) and possible loss of efficacy of thrombolysis in view of lack of evidence with most previous trials excluding this group of patients. There has been recent evidence suggesting benefit of IV thrombolysis in the elderly (>80 years) especially when treated within 3 hours of stroke onset. We report a successful thrombolysis in a 90 years old lady which to our knowledge is the first successful thrombolysis reported from India.

Key Words

Intravenous Thrombolysis, Symptomatic Intracranial Hemorrhage, NIHSS score, Elderly

Introduction

The incidence of stroke increases with advancing age with the rate doubling with each consecutive decade after 55 yrs of age (1). With the average age of survival increasing, a sizeable number of strokes will occur in elderly individuals above the age of 80 years. Traditionally these elderly patients above the age of 80 years have been denied the benefit of IV thrombolysis for fear of a higher incidence of SICH and poor efficacy of thrombolysis. The European Stroke Organization guidelines recommend exclusion of patients >80 yrs and <18 yrs for thrombolysis. Age itself is the most significant independent risk factor for stroke associated mortality because these patients are more prone to complications compared to their younger counterparts (2). A recent large metaanalysis has shown that patients older than 80 years achieved similar benefit of IV thrombolysis compared to those under 80 yrs of age, particularly when treated early (within 3 hours of stroke onset) (3).

Case Report

A 90 year old lady with a 10 year history of hypertension was triaged within 90 minutes of abrupt onset left hemiplegia. No history of diabetes nor any previous TIA's or stroke was reported. Clinical evaluation revealed a drowsy patient who could be aroused, to obey commands, had left gaze palsy and dense left hemiplegia (NIHSS 20). BP was 160/90 & RBS was 118 mg/dl. CT Scan head on arrival did not reveal any hemorrhage nor any acute/hyperacute infarct. No other contraindication for IV thrombolysis was observed. Informed consent for thrombolysis beyond guidelines was obtained and patient was evaluated with a stroke MRI to exclude a stroke mimic. MRI brain (*Fig. 1,2*) revealed an acute evolving RMCA infarct with mild atherosclerotic plaquing without any critical stenosis in extra cranial and intracranial vessels. IV thrombolysis was initiated within a needle time of 120 minutes. Patient tolerated the IV thrombolysis well with significant post thrombolysis improvement to

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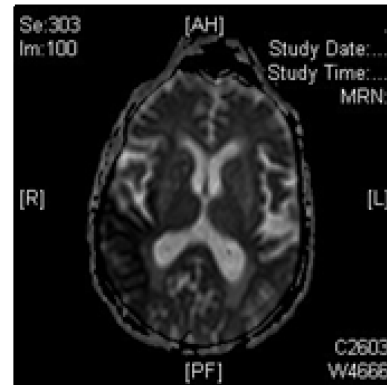
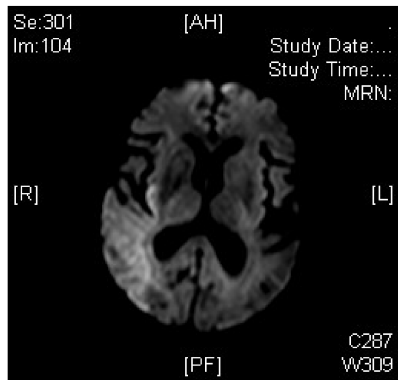


Fig 1&2. MRI Brain Revealing an Acute Evolving RMCA Infarct which is Bright on DWI Sequence (Fig 1) and Shows Signal Loss on ADC Sequence (Fig 2)

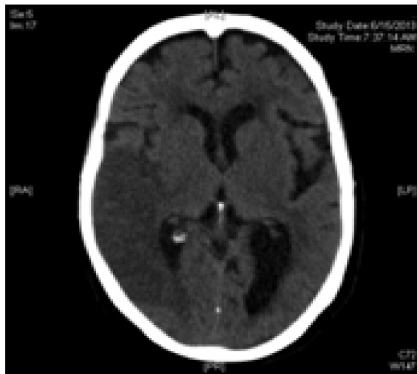


Fig 3. NCCT head after 24 hours Revealing a non Hemorrhagic RMCA Infarct

NIHSS 8 at 2 hr and NIHSS of 5 at 24 hr. CT Scan at 24 hr (Fig. 3) revealed a RMCA non-hemorrhagic infarct. Patient was ambulatory without support with Left upper and lower limb power of 4/5 within 72 hrs of stroke onset. Patient was observed to have intermittent epochs of brief nonvalvular atrial fibrillation on continuous cardiac monitoring. Holter recording revealed intermittent atrial fibrillation with sinus pauses and epochs of severe sinus bradycardia suggestive of sick sinus syndrome. Patient was managed with dabigatran for secondary stroke prevention and underwent permanent pacemaker implantation at 3 weeks post stroke.

Discussion

Stroke incidence increases with advancing age and is often the last & final illness. The Oxford Vascular Study indicated a 12 fold increase in the incidence of non

disabling and disabling ischemic stroke in the age group of 85 years and older compared to the younger population (4). Unfortunately these patients above the age of 80 yrs had been denied the benefit of IV thrombolysis. The NINDS trial removed the restriction of age criteria after 188 patients and 42 patients above the age of 80 yr were thrombolysed with significant benefit in favour of thrombolysis at 3 months (5). The ATLANTIS (6), ECASS I (7), ECASS II (8) and ECASS III (9) trials specifically excluded patients <18 yrs and >80 years. There is now recent evidence suggesting benefit of thrombolysis even in the elderly (>80 years) especially when treated within the first 3 hrs. The IST3 (10) trial which is the largest ever trial of thrombolytic therapy of stroke included 1617 patients older than 80 years of age, compared the efficacy and safety of intravenous rt-PA versus placebo in the 0-6 hours' time window in patients with acute ischemic stroke who were not eligible for thrombolysis according to the license. There were more deaths within 7 days in the rt-PA group than in the control group. However, case fatality rates were similar in both the groups at 6 months follow-up and more patients had Oxford Handicap Score (OHS) scores of 0-2 in the rt-PA group than control group. The IST3 data concluded that patients above the age of 80 years treated within 3 hours achieved similar benefit compared to younger patients in the NINDS trial and concluded that these

elderly patients should not be denied the benefit of IV thrombolysis. The VISTA Collaborators (11) examined 9613 stroke patients including 2755 treated with thrombolysis, from trial archives and included 1805 patients above the age 80 yrs and concluded that IV thrombolysis benefits the elderly(>80 years). A Metaanalysis 3 of 12 trials (7012 patients) including NINDS, ATLANTIS, ECASS I, II, III and IST (3) concluded that patients older than 80 years achieved similar benefit of IV thrombolysis when compared to those 80 years or younger particularly when treated early (<3hours).

In general older patients with stroke fare worse than younger counterparts unrelated to thrombolysis usage. Age related cerebral amyloid angiopathy, hypertensive angiopathy, fragile vasculature and impaired rate of TPA clearance are some potential mechanisms for increased hemorrhage. Presence of other comorbid illnesses also increases the possibility of other systemic complications. Our patient also had a underlying sick sinus syndrome necessitating a pacemaker implantation.

Advanced age in isolation should not be regarded as a contraindication for Intravenous thrombolysis in acute stroke particularly when treated within 3 hours with careful pretreatment selection and after obtaining informed consent for thrombolysis beyond guidelines. Although a previous case of successful intraarterial thrombolysis in a 93 years old patient (12) has been reported but to our knowledge this is the first reported case of successful intravenous thrombolysis in the elderly from India.

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