Alzheimer's disease is an age-related neurodegenerative disease with an insidious onset, characterized by memory impairment and cognitive disturbances that become increasingly more severe with disease progression. Nitric oxide plays a role in a series of neurobiological functions, underlying behavior and memory. The functional role of nNOS derived nitric oxide in cognitive functions is elusive. The present study was designed to investigate the effect of specific neuronal nitric oxide synthase inhibitor, 7-nitroindazole, against intracerebroventricular streptozotocin-induced cognitive impairment in rats. Learning and memory behavior was assessed using Morris water maze and elevated plus maze. 7-nitroindazole (25 mg/kg i.p) was administered as prophylactically (30 min before intracerebroventricular streptozotocin injection on day 1) and therapeutically (30 min before the assessment of memory by Morris water maze on day 15). Intracerebroventricular streptozotocin produced significant cognitive deficits coupled with alterations in biochemical indices. These behavioral and biochemical changes were significantly restored by prophylactic treatment of 7-nitroindazole. However, therapeutic intervention of 7-nitroindazole did not show any significant reversal. Our data suggested that 7-nitroindazole can be effective in the protection of dementia induced by intracerebroventricular streptozotocin only when given prophylactically but not therapeutically.