Neuroprotective effects of NEP1-40 and fasudil on Nogo-A expression in neonatal rats with hypoxic-ischemic brain damage

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ABSTRACT. The hypoxic-ischemic encephalopathy caused by peripartum asphyxia is a serious disease in newborn infants, and effective therapies need to be developed to reduce injury-related disorders. We evaluated the effects of NEP1-40 and fasudil on Nogo-A expression in neonatal hypoxic-ischemic brain damage (HIBD) rats. Seven-day-old Wistar rats were randomly divided into control, HIBD, NEP1-40, and fasudil groups. NEP1-40 and fasudil groups were injected intraperitoneally with these compounds. Rat brains at 6, 24, 72 h, and 7 days after HIBD were collected to determine histopathological damage and the expression levels of Nogo-A. Histopathological damage was reduced in NEP1-40 and fasudil groups compared with the untreated HIBD group. The expression of Nogo-A in the HIBD group was significantly higher than that in control, NEP1-40 and fasudil groups at the same times. Compared with the fasudil group, the expression levels of Nogo-A were significantly reduced in the NEP1-40 group. We
conclude that NPE1-40 and fasudil have potential for neuroprotective effects in the neonatal rat HIBD model, mediated by inhibiting Nogo-A/Rho pathways.

**Key words:** Hypoxic-ischemic brain damage; NEP1-40; Fasudil; Nogo-A