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## Hydrogen water reduces NSE, IL-6, and TNF- $\alpha$ levels in hypoxic-ischemic encephalopathy

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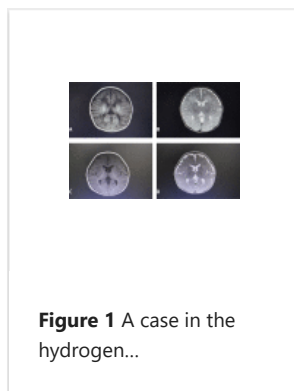
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### Abstract

This study retrospectively analyzed the efficacy of hydrogen water in the treatment of neonatal hypoxic-ischemic encephalopathy (HIE) and its effect on serum neuron-specific enolase (NSE), interleukin-6 (IL-6), and tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) levels. Forty newborns with HIE who received treatment from April 2014 to April 2015 were divided into a conventional care group and a hydrogen water group according to the different treatment methods applied. Twenty healthy full-term newborns comprised the control group. In the hydrogen water group, 5-mL/kg hydrogen water was orally administered two days after birth daily for 10 days in addition to conventional treatment. After 10 days, efficacy indicators were examined in the HIE groups. The NSE, IL-6, and TNF- $\alpha$  levels were compared among all three groups. The efficacy indicators were significantly lower in the hydrogen water group compared with the conventional group. Before treatment, the serum NSE, IL-6, and TNF- $\alpha$  levels in the HIE groups were higher than those in the control group. After treatment, these levels in the hydrogen water group were lower than those in the conventional group. Hydrogen water lowers serum NSE, IL-6, and TNF- $\alpha$  levels in HIE newborns, thereby exerting a protective effect.

**Keywords:** Hydrogen water; Hypoxic-ischemic; IL-6, TNF- $\alpha$ ; Newborn.

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