

Case report: Improvement of functional level due to use of Methylphenidate in hypoxic brain injury

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Introduction

A hypoxic brain injury is a type of brain injury that occurs when there is a disruption in supply of oxygen to the brain by many different causes, such as cardiac or respiratory arrest. This brain injury can influence the overall parts of the brain so that its recovery process can be different from stroke. Methylphenidate is a drug of choice with ADHD patients. Previous studies revealed that children with low attention and coordination had a functional improvement after methylphenidate was used. In addition, this medicine is also used to improve the concentration and awareness of adult patients with a brain injury. However, there are not many reports of methylphenidate improving functional level in hypoxic brain injury patients.

Case presentation

A 30 year old female patient who had a hypoxic brain injury on Sep. 17, 2017, had been hospitalized for comprehensive rehabilitation treatment from Nov. 14 to Dec. 22, 2017. She had no history of high blood pressure, diabetes, tuberculosis, and hepatitis. At the outbreak of her disease, she had loss of consciousness and hospitalized in local hospital. On Chest X-ray, tension pneumothorax was observed and after both chest tube insertion, cardiac arrest occurred. After 10-minute of CPR, she came to be ROSC. After this event, she had received rehabilitation treatment for about 1 month. When hospitalized at this department of rehabilitation medicine, her MMSE was 9 points and her MMT was U/Ex (G/G) & L/Ex (F+/F+). On Brain MRI, only hypoxic brain injury was observed. However, due to cognitive decline and poor motor coordination, her gait was made possible only with moderate assist. Also, her MBI was 22 points and she needed maximal assist to ADL. She continued to have rehabilitation treatment, but didn't show a large improvement because of her low attention and poor motor coordination. Accordingly, in order to improve her attention and motor coordination in treatment, Methylphenidate 5mg QD began to be used from Nov. 24, 2017. After no side effects were found, it was increased to 5mg BID from Nov. 29. For three months after her disease occurrence, there had been no big improvement. But right after the use of this medicine, she began to be improved fast. On Dec. 6, her f/u MMSE was improved to be 15 points. At the time of discharge, her functional level was increased to supervision gait and MBI score increased from 22 to 90.

Conclusion

This patient didn't have a large decline in muscle power after her hypoxic brain injury, but because of decline in cognition, attention and motor coordination, she showed low functional level and maximal assist in ADL. However, after Methylphenidate was used, her attention, fine motor control, and core muscle coordination were improved. Within

one month until discharging from this hospital, her overall functions were improved. This Result shows that use of Methylphenidate can improve attention and motor coordination in hypoxic brain injury.