Liver injury after Methylprednisolone pulse therapy in Multiple Sclerosis patient: a report of seven-year follow-up study

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Introduction

High-dose glucocorticoids are being used as a standard pule therapy for a variety of critical conditions such as multiple sclerosis (MS) relapsing. Although they are considered to be safe for liver, few evidences have reported toxic liver injury after administration of high-dose Methylprednisolone (MP), related to drug-induced liver injury (DILI), autoimmune hepatitis (AIH), or viral hepatitis activation, which are difficult to distinguish accurately.
Case report

The present paper reported a case of a 38-year-old female who referred for liver enzymes elevation (ALT) level of higher than 2000 U/L together with clinical features of hepatitis, few weeks after receiving pulse MP for three episodes between 2013 and 2019, for MS-relapsing.
She had been diagnosed with Multiple Sclerosis (MS) on the basis of clinical and laboratory findings 6 years ago and was being treated with Beta interferon (rebif/3 times a week) for 2 weeks and subsequently with Glatiramer Acetate.
The first episode

She received pulses of methylprednisolone (MP) on Dec 25th, 2013 when she was diagnosed with the symptom of paresthesia (1 gr/day for 3 days and followed by 50mg/day of oral prednisolone, which was tapered and stopped for 2 weeks)
In the first episode, she was approached as drug-induced liver injury (DILI) with beta interferon that was stopped, and after about 2 months, the liver function test results proved normal.
The second episode

She received pulses of methylprednisolone (500mg/day for 3 days, but oral prednisolone was not administered) on Aug 23rd, 2018, one month after delivery with imaging disorder without clinical presentation.
In the second period, she scored 15 according to the AIH scoring system, and was prescribed Azathioprine and Prednisolone according to probable AIH. However, she took only Ursodeoxycholic acid (UDCA). After about 2 months, the AST, ALT, ALP, TB, and serum protein electrophoresis were all normal.
in the last time, she suffered from diplopia and was treated again with MP (1 gr/day for 3 days from Oct 17th, 2019, and subsequently, the oral prednisolone was administered, tapered and stopped for 2 weeks).
In the third episode, she scored 17 according to the AIH scoring system, and was prescribed Azathioprine and Prednisolone according to probable AIH. However, she took them for less than one month. Her clinical features and laboratory tests were improved without specific intervention several weeks after MP discontinuation. Liver biopsy didn’t confirm specific diagnosis.
Conclusion

After exclusion of viral hepatitis due to persistent negative serological tests, DILI and AIH were the two possible diagnoses for this patient. The same clinical features and recovery periods in all three episodes showed that despite the possibility of AIH, MP-related DILI could be considered as a more probable cause of liver injury in our case.