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Central nervous system lymphoproliferative disorder secondary to methotrexate: A systematic literature review and case illustration

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Abstract

Background: Methotrexate is an immunosuppressant commonly used to treat inflammatory conditions, such as rheumatoid arthritis. However, albeit exceedingly rare, it can have serious adverse effects within the central nervous system (CNS), such as methotrexate-associated lymphoproliferative disorder (MTX-LPD). Literature describing the natural history, treatment options, and clinical outcomes of patients with central nervous system MTX-LPD remains sparse.

Methods: We present a systematic literature review following PRISMA guidelines and a case illustration of CNS MTX-LPD.

Results: A systematic review of the literature revealed 12 published cases of CNS MTX-LPD, plus the case presented herein, for a total of 13 included cases. The most common indication for MTX was rheumatoid arthritis. The most common treatment for the LPD was MTX cessation (12, 92.3%), adjunct chemotherapy (2, 15.4%), total tumor resection (3, 23.1%), or steroid therapy (1, 7.7%). Treatment usually led to improvement of neurological symptoms (9, 69.2%) along with regression of the lesions (3, 23.1%) with no recurrence (6, 46.2%). Death was reported in four cases (4, 30.8%) with a mean time from onset of 11 months.

Conclusions: CNS MTX-LPD should be considered in the differential diagnosis for patients who are taking MTX presenting with neurologic symptoms, as immediate withdrawal of MTX has demonstrated good prognosis.

Keywords: brain tumor; central nervous system; immunosuppressant; lymphoproliferative disorder; methotrexate; rheumatoid arthritis.