P-09
Pancytopenia associated with methotrexate intoxication in rheumatoid arthritis

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Objective: Folate antagonists were among the first antineoplastic agents to be developed. The related agent methotrexate (MTX) is still an important component of modern treatment for ALL as well as a number of other hematologic malignancies. In addition to antiproliferative activity, MTX also has antiinflammatory and immunomodulating properties, leading to its use for a broad range of therapeutic indications. We report a case of rheumatoid arthritis with long-term MTX use who presented with suffered from pancytopenia.

Case report: A 71-year-old female with medical history of rheumatoid arthritis under oral form MTX 15mg per week therapy had been followed at our rheumatology clinic for several years. She presented to our emergency department (ED) with general weakness, productive cough and intermittent fever for one week. Her vital signs upon arrival were: body temperature, 36°C; heart rate, 64 beats/min; respiratory rate, 17 breaths/min and blood pressure, 106/78 mmHg. Physical exam showed bilateral wheezing breathing sound, bilateral leg ecchymosis and pitting edema. Severe oral ulcers with candida infection and bedsore over sacrum area were also found. Laboratory tests reported a hemoglobin 6.5 g/dL, white blood cell count 600/μL, platelet count 34000/μL, potassium of 5.1 mEq/L, sodium 131 mEq/L, serum creatinine 2.17 mg/dL, blood urea nitrogen 36.3 mg/dL, albumin 2.5 g/dL and MTX 0.3 μmol/L. She was admitted to hematology ward. Intravenous cefepime was given because neutropenic fever during hospitalization. Bone marrow study demonstrated myeloid hypoplasia. Calcium folinate was added for higher MTX level and MTX related pancytopenia. Her hemogram gradually recovered on hospital day 10 with hemoglobin 9.5 g/dL, white blood cell count 6100/μL, platelet count 239000/μL.

Conclusion: Immunosuppressive drug related complication is not uncommon in the daily practice of emergency department. In rheumatoid arthritis, MTX is administered as long-term, low-dose therapy. Potentially life-threatening hepatotoxicity, nephrotoxicity, and myelosuppression may be seen.[1] Folinic acid is the choice for reducing side effects in patients receiving MTX therapy. [2]

References:

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2. Shea B, Swinden MV, Ghogomu ET, et al. Folic acid and folinic acid for reducing side effects in patients receiving methotrexate for rheumatoid arthritis. J Rheumatol 2014; 41:1049.