METHOTREXATE-INDUCED MYELITIS IN A CAUCASIAN GIRL WITH LYMPHOBLASTIC LYMPHOMA AND PHARMACOGENETIC STUDY: CASE REPORT


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Background and importance
Methotrexate (MTX) is widely used in pediatric chemotherapy treatment and is effective. However, it presents a significant toxicity. Myelopathy is a rare but serious complication, usually related to mechanical damage caused by multiple lumbar punctures and the administration of drugs by this route.

The main symptoms are loss of sensitivity, alteration of motor neurons, root pain, and sphincter incontinence.

Aim and objectives
We present a clinical case of a Caucasian girl with precursor B-cell lymphoblastic lymphoma, stage IV, that affects the central nervous system (CNS) type 3.

She presented neurotoxicity after administration of intrathecal MTX. She received treatment under EURO-LB02 protocol.

Material and methods

Due to the patient’s clinic, we analyzed 22 single nucleotide polymorphisms (SNPs) associated with the MTX metabolic pathway by TaqMan real-time PCR.

Results

Ten altered SNPs were found, mainly in genes encoding transport proteins (ABCB1 and ABCG2) and enzymes in the folate pathway (MTHFR)

Conclusion and relevance

MTX may cause spinal cord dysfunction in children, especially when the intrathecal route is used. SNPs in enzymes involved in pharmacokinetics and pharmacodynamics may be the cause. However, more studies are needed to confirm these findings and transform them into information applicable in clinical practice.

References