Management of methotrexate-induced renal failure without glucarpidase

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Glucarpidase (Voraxaze®) is effective in the treatment of high dose methotrexate (MTX)-induced renal dysfunction. However, glucarpidase is not always necessary for the treatment of this condition. Its high cost and availability issues, as well as other risks, complicate the decision of using it or not.

**Objective**

To describe the evolution of a pediatric patient with MTX-induced renal failure.

**Methods**

A 13 year-old girl with acute lymphoblastic leukaemia (consolidation therapy) developed a MTX-induced acute renal failure which was managed without glucarpidase.

**Results**

Conclusions

An early intervention with supportive treatment based on folinic acid, hyperhydration and urine alkalinization was effective in the management of MTX induced renal toxicity.

**CHEMOTHERAPY**

- MTX 5g/m² + oral mercaptopurine 30mg/m² + triple intrathecal therapy.
- There were no pharmacological interactions between MTX and the rest of the girl’s treatment.

**WHY DELAY THE START OF GLUCARPIDASE?**

- MTX level < 250 mcM
- It can be used within first 96 hours
- Difficulty of MTX monitoring after its administration
- Absence of effect in renal function improvement
- High cost

**REEVALUATE THE USE OF GLUCARPIDASE**

- Elimination Kinetic is adequate
- MTX level <10mcM

**FINAL MANAGEMENT**

- Desestimate the use of glucarpidase
- Maintain hyperhydration/alkalinization and cholestyramine
- Folinic acid dose adapted to MTX levels (Bleyer’s nomogram)

- The patient didn’t develop mucositis nor hepatic toxicity. She presented almost no hematologic toxicity needing just two red blood transfusions.

**Conclusions**

An early intervention with supportive treatment based on folinic acid, hyperhydration and urine alkalinization was effective in the management of MTX induced renal toxicity.