

Macrophage activation syndrome secondary to a CMV infection in a neonate.

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Results

Introduction

Macrophage activation syndrome (MAS) is a life-threatening systemic disorder which is thought to be caused by the activation and uncontrolled proliferation of T lymphocytes and well-differentiated macrophages, leading to cytokine overproduction. It usually associates clinical signs (fever, hepatosplenomegaly...), biological signs (cytopenia, liver insufficiency...) and cytological signs such as widespread hemophagocytosis.

Its pathogenesis is often linked to an immunodeficiency disposition and a viral infection trigger.

Aim and method

We describe a case of a very premature infant born at 28 weeks and 2 days of gestation who developed at 50th days of life a MAS. Etiological checkup excluded a familial hemophagocytic lymphohistiocytosis but showed a congenital cytomegalovirus infection. From this case-report, we reviewed the physiopathology of macrophage activation syndrome, the investigations for diagnosis and the treatment.

Case report

An ELBW boy, born at 28 weeks from a consanguineous family, with an uneventful pregnancy, was admitted in NICU. At day 10, he develops necrotizing enterocolitis with *Enterobacter cloacae* septic choc treated by multiple platelets transfusions and surgery. At day 47, he develops an important hepatosplenomegaly, with elevated serum liver enzymes and ferritin, hypofibrinogenemia, recurring thrombocytopenia, anemia and elevated acute phase reactants. Microbiologic as well as metabolic workup is done. The only significant result was positive CMV PCR on blood and urine. A CMV PCR was realized on the surgical intestinal biopsy performed day 14 and will return positive, confirming a congenital CMV infection. As the clinical and biological features were compatible for a MAS, a bone marrow aspirate is done and supports the diagnosis with definite activation and uncontrolled proliferation of T8 lymphocytes. He receives high IV dose steroids, cyclosporine and ganciclovir. Evolution is good with easy tapering of immunosuppressive drugs and ongoing treatment with (Val)ganciclovir

Conclusion

Macrophage activation syndrome is a rare and potentially fatal systemic immunologic disorder. It generally occurs in patients who encounters specific pathogens in the context of preexisting congenital or acquired immune deficiencies. It is associated with a reported 20-30% mortality rates with a much better prognosis in secondary disease. The earlier recognition of its clinical features and treatment are critical.

In our patient, immunological workup showed no indication of a familial HLH. Genetic analysis for homozygosity showed that all known genes for FHLH or secondary HLH to metabolic diseases were heterozygous. X-linked forms were excluded.

We concluded that CMV was probably the causative agent of secondary macrophage activation syndrome. Further follow-up comforts this idea.