Macrophage activation syndrome (MAS) in systemic juvenile idiopathic arthritis (sJIA)

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MAS is a well-recognised and potentially life-threatening complication of sJIA with an estimated incidence in patients with sJIA of between 7% and 13%[1,2] and a reported mortality rate of 8% to 22%.[1,3]

MAS is thought to be triggered by infections or changes in medications, but MAS can occur without clear reasons or aetiology.[1]

Diagnosis

There are currently no universally accepted definitive diagnostic criteria although preliminary criteria have been published.[4]

The differential diagnosis of MAS is broad because of the variable and multi-system abnormalities of the disorder and the non-specific nature of the most prominent clinical features, which include fever, hepatosplenomegaly and cytopenia. As a result, achieving a rapid clinical diagnosis is often difficult. Other features of MAS include neurologic abnormalities, and laboratory abnormalities including hypofibrinogenaemia. Successful treatment of MAS has been reported with ciclosporin and glucocorticoids.

The severity and life-threatening nature of this complication, coupled with the frequent difficulties in achieving a rapid diagnosis, necessitate appropriate vigilance and careful management of patients with active sJIA.

RoActemra® (tocilizumab) intravenous (IV) indication in sJIA

RoActemra intravenous (IV) is indicated for the treatment of active systemic juvenile idiopathic arthritis (sJIA) in patients 2 years of age and older who have responded inadequately to previous therapy with non-steroidal anti-inflammatory drugs (NSAIDs) and systemic corticosteroids. RoActemra IV can be given as monotherapy (in case of intolerance to methotrexate [MTX] or where treatment with MTX is inappropriate) or in combination with MTX.[5]

Interleukin-6 (IL-6) inhibition and MAS

Some of the laboratory features associated with RoActemra administration, related to IL-6 inhibition, are similar to some of the laboratory features associated with the diagnosis of MAS (such as a decline in leukocyte count, neutrophil count, platelet count, serum fibrinogen and erythrocyte sedimentation rate, all of which occur most notably within the week following RoActemra administration).[1,5]

Ferritin levels frequently decrease with RoActemra administration[6,7] but often increase with MAS[1,4] and, therefore, may be a useful differential laboratory parameter.

Characteristic clinical findings of MAS (central nervous system dysfunction, haemorrhage, and hepatosplenomegaly), if present, are useful in establishing the diagnosis of MAS in the context of IL-6 inhibition. Clinical experience and the clinical status of the patient, coupled with the timing of the laboratory specimens in relation to RoActemra administration, must guide interpretation of these laboratory data and their potential significance in making a diagnosis of MAS.

In clinical trials, RoActemra has not been studied in patients during an episode of active MAS.

References

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4. Ravelli A, *et al*. Preliminary diagnostic guidelines for macrophage activation syndrome complicating systemic juvenile idiopathic arthritis. *J Pediatr* 2005; **146**: 598–604.
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6. Choy, E. *Curr Rheumatol Rep.* 2008; **10(5)**: 413–417.
7. Yildirim K, *et al. Ann Clin Lab Sci.* 2004; **34(4)** 423–426.

If you have any further questions relating to RoActemra please contact Roche Medical Information on +44(0)1707 361010 or email: medinfo.uk@roche.com.

Full prescribing information can be found in the RoActemra IV Summary of Product Characteristics (SmPC) via the electronic Medicines Compendium (eMC) website: www.medicines.org.uk.

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Reporting forms and information can be found at www.medicinesauthority.gov.mt/adrportal. Adverse events should also be reported to Roche Products Ltd. Please contact Roche Drug Safety by emailing welwyn.uk_dsc@roche.com or calling 01707 367554.

As RoActemra is a biological medicine, healthcare professionals should report adverse reactions by brand name and batch number.

RXUKACTE00047c December 2014