Management of Patients with Past or Present
Haematological Abnormalities

Evidence Based Medicine | Official recommendations | Expert opinion

Can tocilizumab therapy cause blood cell count abnormalities?

Patients on tocilizumab therapy should be monitored for the following blood cell count abnormalities:

- neutrophil count decline to less than 2000/mm^3
- and platelet count decline to less than 100,000/mm^3.

Neutropenia

In controlled trials and open-label extensions, neutropenia <2000/mm^3 occurred in 16% to 39% of patients receiving tocilizumab 8 mg/kg. Both proportions were significantly higher than in the control groups (Table 6).

Most cases of neutropenia were mild (grade 1 or 2) and therefore were not associated with a substantial risk of infection. Grade 3 neutropenia (<1000 neutrophils/mm^3) was less common and grade 4 neutropenia (<500/mm^3) was exceedingly rare except in the RADIATE study of patients having failed TNF antagonist therapy (1.5% of patients) (Table 6).

Neutropenia developed within 4 to 8 weeks of treatment initiation or, in some cases, earlier (as early as day 5) and was generally short lived. The neutropenia occurrence rate seemed unrelated to the concomitant use of methotrexate or other disease-modifying antirheumatic drugs.

Neutropenia was not found to affect the risk of serious infection [4], probably because of its short duration.

The cause of neutropenia during tocilizumab therapy is unknown. Some studies suggest neutrophil margination rather than marrow stem cell impairment [28].

Thrombocytopenia

Platelet count declines to less than 100,000/mm^3 were more common in the tocilizumab groups (1.7% vs. 1% in the control groups) of therapeutic trials. No bleeding events were reported in the patients with thrombocytopenia.

Course of action before tocilizumab therapy in patients with blood cell count abnormalities

Before starting tocilizumab therapy, blood cell counts must be obtained routinely.

The strategy recommended by the EMA [4] is described below:

Neutrophils: or platelets:	500-2,000/mm^3 50,000-100,000/mm^3	No contraindication Use tocilizumab with caution
Neutrophils: or platelets:	< 500/mm^3 < 50,000/mm^3	The use of tocilizumab is not recommended

What warning signs deserve special attention in patients receiving tocilizumab?

A fever or signs of infection should suggest neutropenia.

Purpura, gingival bleeding, or a hematoma developing in the absence of trauma should suggest thrombocytopenia.

In both situations, blood cell counts should be obtained.

Declines in all three cell lines should prompt investigations for macrophage activation syndrome related to an infection.

In practice, what is the course of action when neutropenia or thrombocytopenia develops during tocilizumab therapy?

In light of the recommendations issued by the EMA [4], the CRI experts advocate the following strategy in patients with neutropenia (<2,000/mm^3) or thrombocytopenia (<150,000/mm^3) (Table 2)