Tocilizumab is a fully humanised monoclonal antibody that specifically binds to, and blocks the action of Interleukin-6. It is licensed and approved by NICE for the treatment of children with Systemic-Onset JIA but is also licensed for the treatment of poly-articular JIA. It may take several weeks to become effective after commencing treatment or a dose increase. It is not a cytotoxic drug so handling and disposal do not require special precautions beyond the safe disposal of any other injected drug. Patients should also be supplied with an information sheet on Tocilizumab.

**PRE-TREATMENT INVESTIGATIONS** - Performed in hospital
- Full Blood Count, Urea, Electrolytes, Creatinine, & Liver Function Tests
- Varicella Zoster and Measles immune status
- Quantiferon GOLD assay and a Chest X-ray should be performed to exclude a diagnosis of Tuberculosis before starting any TNF-blocking agent.

**PRE-TREATMENT PATIENT INFORMATION**
1. Pregnancy and Breast-feeding - Both are Contra-indicated. Whilst not a known teratogen, there is little data to support its safe use in pregnancy and during breast-feeding. Adolescent patients are advised to avoid pregnancy whilst taking Tocilizumab and for 3 months after stopping it
2. Infections - Patients taking Tocilizumab are at increased risk of infections. In addition these patients may not develop a fever, and will almost always have a normal CRP measurement despite the presence of severe, and even life-threatening infections. Patients should have open access to their local paediatric unit and a copy of our guidelines for dealing with infections will be available there. Reactivation of latent Tuberculosis is also a risk but this should be minimised by the above screening
3. Alcohol - Although there is no interaction between alcohol and Tocilizumab many patients are also co-prescribed Methotrexate and should follow the guidance for that drug
4. Immunisations - Do not give live vaccines (MMR, BCG, Yellow Fever etc) to children taking Tocilizumab. Other immunisations, including the HPV vaccine may be less effective, but should be given according to the regular schedule. All children should receive an annual flu vaccine
5. Drug Interactions - There are no known drug interactions. However Tocilizumab should not be used in combination with other 'Biologic' agents
6. Side-Effects - Most side-effects are mild and relatively infrequent. Allergic reactions are sometimes seen and can often be prevented by pre-treatment with Hydrocortisone and Chlorphenamine. Patients have reported headaches and coryzal symptoms.
7. Monitoring - Patients taking Tocilizumab will need to have their Blood Count, ESR, U&E’s and Liver Function checked with every infusion. Transient abnormalities are common and often associated with viral infections. A neutrophil count of <1.5x10^9 usually requires the drug to be stopped for 1-2 weeks and the blood tests are then re-checked. If they have returned to normal the Infliximab can be re-started and monitoring continue as normal
8. Long-Term Side-Effects - The long-term side-effects of Tocilizumab are unknown. There have been case-reports of associated malignancies and the Federal Drug Administration in the United States mentions this on its website. Paediatric Rheumatologists are clear however that any possible long-term risk is outweighed, on current evidence, by the clear benefits of controlling active arthritis with Tocilizumab if Methotrexate therapy fails. Children taking Tocilizumab are recommended to be enrolled in the UK-wide registry to monitor for this, or any other long-term problems.

**FORMULATIONS**
- Intravenous Infusion – Tocilizumab is only available in this form

**DOSEAGE & ADMINISTRATION**
Usual dose is 8-12mg/kg given every 2-4 weeks.
INFECTIONS & IMMUNOSUPPRESSION

Tocilizumab in these doses may mask many, or even all the clinical features of infections so caution is needed as severe infections and even fatalities have been described. Most patients tolerate it well but some may notice that simple viral illnesses may be more persistent whilst taking Tocilizumab. Most infections can be dealt with by the patient's GP in the normal manner and it is rarely necessary to stop Tocilizumab during simple viral illnesses, however if there is any concern that a more serious infection may be present the patients are advised to use their open-access to their nearest paediatric ward.

Varicella contacts and infection

All patients taking Tocilizumab should have their varicella immune status checked before starting. In those with a negative IgG result consideration is given to immunising the patient before starting Tocilizumab. However this is not always possible.

Any patient taking Tocilizumab, regardless of their immune status, who develops Chickenpox or Shingles should be admitted to their local hospital and receive at least 48hrs of IV Aciclovir and complete a total of 5 days treatment.

A patient who is known to be immune to varicella does not need treatment if they come into contact with someone who has active infection. However their parents are advised to completely undress their children at least daily and check to see if spots develop

A patient who is known to be non-immune to varicella needs treatment if they come into contact with someone who has active infection. Contact is defined as any 'kissing' contact, or being in the same room for more than 15minutes with a case, including the 48hrs before spots appear.

Treatment is either an IM injection of Varicella Immunglobulin (ZIG) if the contact occurred less than 72hrs ago or oral Acyclovir given for 2 weeks from the date of contact. Parents are advised to contact us their specialist team to discuss the best option for their child.

Measles contacts and infection

All patients taking Infliximab should have their Measles immune status checked before starting. In those with a negative IgG result consideration is given to immunising the patient with MMR before starting Tocilizumab. However this is not always possible.

A patient who is known to be immune to measles does not need treatment if they come into contact with someone who has active infection.

A patient who is known to be non-immune to measles needs treatment if they come into contact with someone who has active infection. Contact is defined as any 'kissing' contact or being in the same room for more than 15minutes with a case, including the 48hrs before the rash appears.

Treatment is either an IM injection of Normal Human Immunglobulin (HNIG) if the contact occurred less than 72hrs ago or IV Immunoglobulin if the IM route is not available. Parents are advised to contact their specialist team directly to discuss the best option for their child.