Medicines Management & Pharmacy Services (MMPS)
The Leeds Children’s Hospital Administration Guide
Intravenous methylprednisolone for paediatric rheumatology

This protocol is designed for use by nursing and medical staff wishing to prescribe, administer and care for children receiving IV Methylprednisolone.

Indications
Intravenous Methylprednisolone can be given to rapidly suppress inflammation in a variety of rheumatological conditions including:

- Juvenile Idiopathic Arthritis (JIA)
- Juvenile Systemic Lupus Erythematosus (SLE)
- Juvenile Dermatomyositis (JDM)
- Kawasaki Disease
- Other systemic vasculitides

Methylprednisolone should be given on units experienced in the management of children.

Admission Procedure
Methylprednisolone is usually given once daily for 3 consecutive days. Patients may either be admitted or treated in a day-care setting. Methylprednisolone may be given alone or at the same time as other immunomodifying drugs (eg. Biologic agents), when it may form part of an individually-tailored treatment regimen. On day 1, the patient should be admitted by ward nursing staff (including baseline observations, and weight). Blood should be taken at the time of cannula insertion and sent for tests as directed in the table below. Please also check the prescription chart for any additional investigation requests.

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<th>ESR</th>
<th>CRP</th>
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- **Juvenile Idiopathic Arthritis**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - No
  - No
  - Yes

- **Juvenile Dermatomyositis**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes

- **Systemic Lupus Erythematosis**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - No
  - No
  - Yes

- **Vasculitis**
  - Yes
  - Yes
  - Yes
  - Yes
  - Yes
  - No
  - No
  - Yes

Ensure there are no current symptoms of infection/illness, if there are concerns please discuss with a member of the Paediatric Rheumatology team.

Dosage
30mg/kg/dose once daily for (usually) 3 days. **Maximum daily dose of 1g**

If a patient is concurrently receiving oral steroids, these should ideally be omitted on days of IV methylprednisolone infusion (and re-started following infusions at the direction of the rheumatology team). However if oral prednisolone dose is given on the morning of infusion, it is fine to go ahead with the infusion.

Administration
Methylprednisolone is added to 0.9% sodium chloride, to make a total volume of 100mls. This is infused slowly over 1 hour. In certain situations a slower infusion over 2 or 4 hours may be preferred (discuss with rheumatology team). These situations include, but are not limited to:

- Systemic sclerosis (when renal crisis may be more likely)
- Vasculitic conditions, or conditions predisposing to bleeding (when sudden increase in BP would be particularly undesirable)
- Previous concerns with BP or symptoms during infusion of methylprednisolone
Monitoring
- Temperature, Pulse, Respiratory Rate (TPR) and Blood Pressure (BP) before the start of the infusion, and after the infusion, unless unwell.
- Urinalysis: on first urine passed whilst on the ward each day of infusion. Please let the Paediatric Rheumatology team know if any glucose is detected (or more than a trace of blood or protein).
- If patient is known to have diabetes, hyperglycaemia should be expected. Insulin requirements will rise and can be unpredictable. Blood glucose must be monitored regularly and appropriate insulin cover provided. Doctors should discuss with the team looking after the child’s diabetes when arranging methylprednisolone infusions, so there is a clear plan in advance.
- If the patient feels unwell, check TPR, BP and Blood glucose (BM) and consider slowing or stopping the rate of infusion. Discuss with Paediatric Rheumatology team.
- The patient must remain on the ward for 30 minutes after the infusion.

Cautions/Contraindications
- Methylprednisolone should not be given in the context of active or recent serious infection.
- Methylprednisolone should not be given if suspicious of malignancy or tuberculosis.

Side Effects
Mild common side effects requiring no intervention:
- Facial flushing
- Metallic taste in the mouth (sucking sweets can help)
- Hyperactivity
- Mood changes
- Blurred vision
- Lethargy
- If stinging occurs during infusion, slow the rate or give in a more dilute solution.

Rare Side effects requiring intervention:
- Hypertension - If the BP is raised, repeat 30 mins later and inform a member of the Paediatric Rheumatology team. Raised BP is uncommon and often responds to slowing the infusion. Occasionally an antihypertensive agent such as Nifedipine is needed.
- Hypotension
- Severe tachycardia

Extremely Rare Side effects requiring infusion to be stopped and subsequent intervention:
- Altered conscious state or psychosis
- Seizures
- Allergic reaction, presumably to an additive within the IV solution.

Other Considerations
If a patient is known to have diabetes, liaise with the diabetes team prior to administering methylprednisolone. Prior to discharge ensure patient is aware of follow-up arrangements, is prescribed oral prednisolone if required and is given appropriate advice regarding vaccinations.

References