CLINICAL GUIDELINE FOR THE MANAGEMENT OF IMMUNE THROMBOCYTOPENIA (ITP) IN CHILDREN V3.0
1. **Aim/Purpose of this Guideline**

1.1. This guideline applies to medical staff caring for children with Immune Thrombocytopenia (ITP).

2. **The Guidance**

2.1. Acute Childhood Immune thrombocytopenia is usually a benign and self-limiting condition, where there is an isolated thrombocytopenia of < 100.10^{9}/l, in the absence of any underlying cause. The time from symptom onset to return of normal platelet counts ranges from a few days to six months with an average of three weeks.

In 4% of patients resolution of the disease is followed by recurrent episodes of thrombocytopenia.

Persistent or chronic ITP develops in 10% of patients. The mechanism is immune mediated with increased destruction of platelets most notably occurring in the spleen, recent evidence also suggest impaired production also occurs< . The majority of children require no intervention. Treatment is based on bleeding severity. Bone marrow assessment is indicated in only some cases.

2.2. **Differential Diagnosis:** see appendix 4

ITP should be distinguished from other causes of (a) thrombocytopenia and (b) bruising/petechiae.

2.3. **Presentation of ITP:**

- Usually abrupt onset of bruises and petechiae in an otherwise healthy child.
- An antecedent viral illness is often reported in the two or three weeks prior to diagnosis or in some cases it may follow vaccination –MMR, DT/IPV/Hib/MenC
- Less frequent presentations include epistaxis and gross haematuria
- Platelet count is usually < 20 x 10^{9}/l at presentation in ITP

2.4. **Grading of Severity:**

- **Mild:** (54% of cases<sup>3</sup>) Bruising/petechiae/minor epistaxis
- **Moderate:** (42%<sup>3</sup>) More severe skin manifestations, large bruises> 5cm; mucosal lesions and intermittent bleeds from gums, lips buccal mucosa or pharynx or GI tract;, troublesome epistaxis-longer than 20 minutes; menorrhagia; haematuria; malaena; haematemesis without hypotension and HB fall < 2gm/dl
- **Severe:** (4%<sup>3</sup>) Severe epistaxis, melaena, menorrhagia requiring admission and/or blood transfusion; fall in Hb >2gm/dl; suspected
internal haemorrhage; life threatening bleeding if intracranial haemorrhage or continuous or high volume bleeding resulting in hypotension or prolonged capillary refill and requiring fluid resuscitation or blood transfusion>10ml/kg.

2.5. Risk of intracranial haemorrhage:

The risk is small, 0.1-0.5% and is not related to whether a patient has had treatment previously or not.

2.6. Risk of other serious bleeding:

Epistaxis or gastrointestinal bleeds in 4%.

2.7. Investigations:

- FBC
- Blood film - Contact haematologist to confirm film has been examined and is normal
- Clotting studies
- Consider according to presentation
  - GP and save/cross match
  - U+E, LFT
  - Detailed coagulation factor assays (discuss with lab first)
  - DCT particularly if anaemia and high reticulocyte count
  - Viral serology: EBV, CMV, HIV, HCV, Parvo, VZV
  - Autoantibodies ANA, anti-DNA, lupus anticoagulant, ANCA
  - Immunoglobulins, lymphocyte subsets
  - TFT’s.

2.8. Management:

Platelets are young and ‘sticky’ so management should not be based on count alone (grade B recommendation –level IIb evidence), symptoms of bleeding or special circumstances need to be considered.

If typical features of acute ITP [i.e. no pan -cytopenia, acute onset of bruising, normal white cell count and normal blood film except for reduced platelet count]:

- Give parents/ patient information about support I see appendix 3.
- Advise avoidance of formal contact sports or activities where there is a risk of trauma. Otherwise normal activities encouraged.
- Avoid aspirin and non-steroidal anti-inflammatory drugs.
- Relapses may occur during intercurrent viral infections.
- Advice on what to do in the event of injury - open door access card or letter (copy letter to assessment unit/ward.)
- Provide information about the UK Childhood ITP registry: give
information and consent form for parents and child to read (download from www.uk-itp.org.) Consent can be obtained at next review. Email Dr S Harris/ Paediatric research nurses the details of patient once consented. They will enter data. Data is anonymised and there is no change to usual management.

- Parent or patient to carry card /letter/medical alert particularly if ITP persists.

2.9. Treatment:
Most children with ITP do not require specific treatment. Treatments do not resolve the condition faster but can temporarily raise platelet count. Treatment should be tailored to the individual considering presence and severity of bleeding, co-morbidities that may increase risk of bleeding, specific instances such as surgery, and side effects of treatment.

Consideration should be given to performing a bone marrow examination prior to treatment to exclude other diagnoses such as leukaemia.

Advice about treatment and investigations can be sought from Paediatrician with benign haematology interest or Bristol Paediatric Haematologists.

If no treatment is given the child should be monitored closely for the first 2 weeks to exclude any emerging serious marrow disorder. Repeat blood count up to daily initially, but child may not need to stay in hospital if clinically well. After 2 weeks tests can be less frequent and continued until normal counts.

2.10. Bone marrow tests:
This is not needed for most cases, but is recommended if there are other abnormalities in the blood count/smear, if systemic features e.g. bone pain or unexplained large spleen. Discuss with the Associate Specialist in Paediatric Oncology (or Haematology consultant) if a BM is required. This is usually done under general anaesthesia. The usual bone marrow list is Thurs pm, if required at other times co-ordinate between Consultant Anaesthetist (via Anaesthetic secretary) and doctor performing BM. BM would be indicated in a child with Trisomy 21 due to increased incidence of leukaemia and myelodysplasia.

BM is also recommended in:

- Chronic ITP to ensure there is no slowly progressive myelodysplasia or marrow failure.
- Those failing to respond to treatment.
- The presence of excessive or persistent bleeding despite a platelet count>20.10< /l.

2.11. Treatment options:
- Immunoglobulin
- Steroids
- Platelet transfusion
**Immunoglobulin**

IVIg is only recommended in children with moderate to severe symptomatic ITP—overt mucosa bleeding or suspected internal bleeding or prior to procedures likely to induce bleeding (Grade A level 1b).

Response is more rapid than steroids.

Dose - Intravenous Ig 0.8 g/kg (to 1 gm/kg) this may be repeated depending on platelet response.

Intravenous immunoglobulin is a pooled blood product. Side effects during and after infusion may occur e.g. flu like symptoms. There is also potential risk of transmission of infective agents.

**Steroids**

2mg/kg/day for one - two weeks, then tail steroids over 5 days regardless of FBC.

High dose steroids 4mg/kg for 3-4 days can raise count within 72hrs (72-88% cases)

Bristol Haematology team still recommends bone marrow prior to steroids.

**Emergency treatment in organ or life threatening situations**

Platelet transfusion using 2-3 fold usual volume together with

IV high dose corticosteroids (iv methyl prednisolone 30mgkg/day) and/or IV immunoglobulin.

**Special circumstances** Immunoglobulin/steroids may be given to raise platelet count prior to surgery (see also appendix 3).

**Menorrhagia** Tranexamic acid may help reduce bleeding (TA contraindicated if haematuris). The Oral Combined contraceptive pill may be considered.

**Other treatments**

Intravenous anti-D immunoglobulin for RhD positive children but high incidence of side effects.

Rutiximab in chronic ITP.

Romiplastin unlicenced in children currently.

**Splenectomy** if >5-10 years old with > 12 months history and significant reduction in quality of life. (Give Hib, Pneumovax and meningococcal vaccination preoperatively and lifelong penicillin V postoperatively).

**2.12. Post vaccination ITP:**
If ITP follows within 3 weeks of the first dose of MMR, then serology to these viruses should be evaluated and second doses of MMR components only given if non immune.

2.13. Follow Up:

Children should not be kept in hospital unnecessarily. If platelet count greater than 10 to 20 and asymptomatic, can be followed as out-patients. Arrange follow up FBC at 10-14 days to ensure no evolving serious marrow disorder. There is no need to test FBC's frequently after this. A repeat FBC on resolution of symptoms is helpful to confirm remission.

If atypical features emerge at any point e.g. lassitude, pan-cytopenia, limp, abdominal pain, limb pain, pallor

Arrange bone marrow aspirate under general anaesthesia.

Tests for persistent ITP

Bone marrow evaluation (recommended if ITP persists and no prior response)
Tests to identify infection (HIV/HCV/H pylori) if clinical suspicion or high local prevalence.

ANA Testing for APLA including ACA and LAC
Serum immunoglobulins (IgG, IgA, IgM)
Review of medication usage.
3. Monitoring compliance and effectiveness

<table>
<thead>
<tr>
<th>Element to be monitored</th>
<th>Compliance with sections 2.7,2.8 and 2.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>Audit lead, paediatric consultants</td>
</tr>
<tr>
<td>Tool</td>
<td>Individual patient review</td>
</tr>
<tr>
<td>Frequency</td>
<td>At patient contact</td>
</tr>
<tr>
<td>Reporting arrangements</td>
<td>Paediatric consultants Child health audit and guidelines</td>
</tr>
<tr>
<td>Acting on recommendations and Lead(s)</td>
<td>Paediatric consultants Child health audit and guidelines</td>
</tr>
<tr>
<td>Change in practice and lessons to be shared</td>
<td>Required changes to practice will be identified and actioned within 3-6 months. A lead member of the team will be identified to take each change forward where appropriate. Lessons will be shared with all the relevant stakeholders</td>
</tr>
</tbody>
</table>

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the 'Equality, Diversity & Human Rights Policy' or the Equality and Diversity website.

4.2. Equality Impact Assessment
The Initial Equality Impact Assessment Screening Form is at Appendix 2.
**Appendix 1. Governance Information**

<table>
<thead>
<tr>
<th>Document Title</th>
<th>CLINICAL GUIDELINE FOR THE MANAGEMENT OF IMMUNE THROMBOCYTOPENIA (ITP) IN CHILDREN V3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Issued/Approved:</td>
<td>10th Nov 2017</td>
</tr>
<tr>
<td>Date Valid From:</td>
<td>10th Nov 2017</td>
</tr>
<tr>
<td>Date Valid To:</td>
<td>10th Nov 2020</td>
</tr>
<tr>
<td>Directorate / Department responsible (author/owner):</td>
<td>Dr. S. Harris – paediatric consultant</td>
</tr>
<tr>
<td>Contact details:</td>
<td>01872253041</td>
</tr>
<tr>
<td>Brief summary of contents</td>
<td>Clinical Guideline for the management of Immune Thrombocytopenia (ITP) in children.</td>
</tr>
<tr>
<td>Suggested Keywords:</td>
<td>ITP Children Immune Thrombocytopenia</td>
</tr>
<tr>
<td>Target Audience</td>
<td>RCHT PCH CFT KCCG</td>
</tr>
<tr>
<td>Executive Director responsible for Policy:</td>
<td>Medical Director</td>
</tr>
<tr>
<td>Date revised:</td>
<td>10th Nov 2017</td>
</tr>
<tr>
<td>This document replaces (exact title of previous version):</td>
<td>CLINICAL GUIDELINE FOR THE MANAGEMENT OF IMMUNE THROMBOCYTOPENIA (ITP) IN CHILDREN V2.0</td>
</tr>
<tr>
<td>Approval route (names of committees)/consultation:</td>
<td>Paediatric consultants Child health audit and guidelines meeting</td>
</tr>
<tr>
<td>Divisional Manager confirming approval processes</td>
<td>David Smith</td>
</tr>
<tr>
<td>Name and Post Title of additional signatories</td>
<td>Not Required</td>
</tr>
<tr>
<td>Name and Signature of Divisional/Directorate Governance Lead confirming approval by specialty and divisional management meetings</td>
<td>{Original Copy Signed} Name: Caroline Amukusana</td>
</tr>
<tr>
<td><strong>Signature of Executive Director giving approval</strong></td>
<td>{Original Copy Signed}</td>
</tr>
<tr>
<td><strong>Publication Location (refer to Policy on Policies – Approvals and Ratification):</strong></td>
<td>Internet &amp; Intranet ✓ Intranet Only</td>
</tr>
<tr>
<td><strong>Document Library Folder/Sub Folder</strong></td>
<td>Clinical / Paediatrics</td>
</tr>
<tr>
<td><strong>Links to key external standards</strong></td>
<td>ITP Support Association <a href="http://www.itpsupport.org.uk">www.itpsupport.org.uk</a> there is an information page both for children and teenagers About ITP for kidswwww.itpkids.org/content/about_itp.html includes advice on ITP and sport <a href="http://www.bpl.co.uk">www.bpl.co.uk</a> provides information on blood products including immunoglobulin</td>
</tr>
<tr>
<td><strong>Training Need Identified?</strong></td>
<td>No</td>
</tr>
</tbody>
</table>
## Version Control Table

<table>
<thead>
<tr>
<th>Date</th>
<th>Version No</th>
<th>Summary of Changes</th>
<th>Changes Made by (Name and Job Title)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 2012</td>
<td>V1.0</td>
<td>Initial Issue</td>
<td>Dr. S. Harris - Paediatric Consultant</td>
</tr>
<tr>
<td>Feb 2014</td>
<td>V2.0</td>
<td>Reformat only</td>
<td>Tabitha Fergus - Deputy ward manager</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reformatted only.</td>
</tr>
<tr>
<td>Nov 2017</td>
<td>V3.0</td>
<td>Reviewed with no changes</td>
<td>Sian Harris, Paediatric Consultant</td>
</tr>
</tbody>
</table>

---

**All or part of this document can be released under the Freedom of Information Act 2000**

**This document is to be retained for 10 years from the date of expiry.**

**This document is only valid on the day of printing.**

**Controlled Document**

This document has been created following the Royal Cornwall Hospitals NHS Trust Policy on Document Production. It should not be altered in any way without the express permission of the author or their Line Manager.
Appendix 2. Initial Equality Impact Assessment Form

This assessment will need to be completed in stages to allow for adequate consultation with the relevant groups.

| Name of Name of the strategy / policy / proposal / service function to be assessed |
| CLINICAL GUIDELINE FOR THE MANAGEMENT OF IMMUNE THROMBOCYTOPENIA (ITP) IN CHILDREN V3.0 |

<table>
<thead>
<tr>
<th>Directorate and service area:</th>
<th>Is this a new or existing Policy?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Health</td>
<td>existing</td>
</tr>
</tbody>
</table>

Name of individual completing assessment: Sian Harris  
Telephone: 01872252800

1. Policy Aim*  
Who is the strategy / policy / proposal / service function aimed at?  
Clinical Guideline for the management of Immune Thrombocytopenia (ITP) in children.

2. Policy Objectives*  
Clinical Guideline for the management of Immune Thrombocytopenia (ITP) in children.

3. Policy – intended Outcomes*  
Evidenced based and standardised practice

4. *How will you measure the outcome?  
Patient review

5. Who is intended to benefit from the policy?  
Children and families

6a Who did you consult with?  
Workforce: x  
Patients: x  
Local groups: x  
External organisations: x  
Other: x

b). Please identify the groups who have been consulted about this procedure.  
Clinical Guideline Group  
Child Health Directorate
7. The Impact
Please complete the following table. If you are unsure/don't know if there is a negative impact you need to repeat the consultation step.

Are there concerns that the policy could have differential impact on:

<table>
<thead>
<tr>
<th>Equality Strands:</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
<th>Rationale for Assessment / Existing Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (male, female, trans-gender / gender reassignment)</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race / Ethnic communities /groups</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disability - Learning disability, physical impairment, sensory impairment, mental health conditions and some long term health conditions.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion / other beliefs</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marriage and Civil partnership</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy and maternity</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:

- You have ticked “Yes” in any column above and
- No consultation or evidence of there being consultation- this excludes any policies which have been identified as not requiring consultation. or
- Major this relates to service redesign or development.
8. Please indicate if a full equality analysis is recommended. | Yes | No X |
---|---|---|

9. If you are **not** recommending a Full Impact assessment please explain why.

No areas indicated

<table>
<thead>
<tr>
<th>Signature of policy developer / lead manager / director</th>
<th>Date of completion and submission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sian Harris</td>
<td>10th November 2017</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Names and signatures of members carrying out the Screening Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sian Harris</td>
</tr>
<tr>
<td>2. Human Rights, Equality &amp; Inclusion Lead</td>
</tr>
</tbody>
</table>

---

Keep one copy and send a copy to the Human Rights, Equality and Inclusion Lead c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Knowledge Spa, Truro, Cornwall, TR1 3HD

This EIA will not be uploaded to the Trust website without the signature of the Human Rights, Equality & Inclusion Lead.

A summary of the results will be published on the Trust’s web site.

Signed Chris Warren

Date 10/11/2017
Appendix 3: Causes of Thrombocytopenia:-

**Destructive Thrombocytopenia:-**

1. Immune Mediated;
   - Immune thrombocytopenia
   - Post-viral infection
   - HIV
   - Drug induced e.g. quinine, heparin, teicoplanin
   - Post-transfusion purpura
   - Post BMT
   - Collagen vascular disease
   - Allo immune thrombocytopenia in the newborn
   - Maternal chronic ITP
   - Post vaccination e.g. MMR (1 in 23,000)
   - Varicella Zoster infection (additional antibodies to protein S and C can cause purpura fulminans)
   - CVID

2. Vasculitis with Endothelial Cell Injury;
   - Haemolytic uraemic syndrome
   - Thrombotic thrombocytopenic purpura
   - DIC

3. Vascular Abnormalities;
   - Catheters, prosthetic heart valve
   - Congenital heart disease
   - Haemangiomas [Kasabach-Merritt syndrome]
   - Venous malformations
   - Hyposplenism

**Decreased Platelet Production:-**

1. Congenital;
   - Fanconi aplastic anaemia
   - Thrombocytopenia and absent radii [TAR]
   - Amega -karyocytic thrombocytopenia
   - Wiskott-Aldrich syndrome
   - Paroxysmal nocturnal haemoglobinuria
   - Von Willibrands type IIB

2. Acquired;
   - Neoplastic bone marrow disease particularly ALL
   - Acquired aplastic anaemia
   - Drug induced

**Bruises with Normal Platelet Counts:-**

- Child non accidental injury
• Henoch-Schonlein purpura
• Increased vascular leak
• Collagen tissue disorders eg Ehlers Danlos
### Appendix 4: Recommended safe platelet counts in adults (no equivalent Paediatric guidance available)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Platelet Count (x10^9/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dentalistry</td>
<td>&gt;10</td>
</tr>
<tr>
<td>Dental extractions</td>
<td>&gt;30</td>
</tr>
<tr>
<td>Regional dental block</td>
<td>&gt;30</td>
</tr>
<tr>
<td>Minor surgery</td>
<td>&gt;50</td>
</tr>
<tr>
<td>Major surgery</td>
<td>&gt;80</td>
</tr>
</tbody>
</table>