Ashford and St. Peter's Hospitals
NHS Foundation Trust

Guideline for the management of the patient with a likely diagnosis of leukaemia (age 12m – 18yrs)

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Guideline History		
Date	**Comments**	**Approved By**
Dec 2018	Ratified	Guidelines committee
Jan 2022	Reviewed – minor updates about who to contact only	

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Management of the patient with a likely diagnosis of leukaemia

Please refer to the Haematology & Oncology Supportive Care Protocol

Leukaemia is a group of blood cancers which normally originate in the bone marrow leading to over-production of abnormal white cells (leucocytes) usually associated with under-production of other blood cells such as red blood cells, neutrophils and platelets. There are other conditions that present with similar symptoms and a raised number of white cells.

New onset of leukaemia may present with:

- Pallor
- Petechiae, purpura, mucosal bleeding
- Lymphadenopathy +/- hepatosplenomegaly (consider abdominal pain)
- Bone pain from overproduction of blood cells
- Lethargy, breathlessness, weight loss
- Fever, night sweats (lymphoma), frequent infections
- Cutaneous manifestations (leukaemia cutis). These lesions are variable and may include flesh–colored-to-violaceous papules, plaques, or nodules

Initial investigations

Firstly routine bloods should be sent including a blood film. If the film result is suspicious of leukaemia then the following samples should be sent and a CXR performed.
Bloods required: (4x purple EDTA, 2x yellow, 1x blue coagulation, blood culture, venous gas)
Chest x-ray: to look for a mediastinal mass

	- FBC + film - EDTA for Thiopurine methytransferase - TPMT (send to RMH) - 1x EDTA +/- blood film slides (send to RMH for morphology) - 1x EDTA for immunophenotyping (send to RMH)
	- U&Es/calcium/phosphate/urate *** Beware tumour lysis syndrome*** - LFTs - LDH - Serology for CMV, EBV, Hep A, Hep B (local)

Initial treatment

1. **Hyperhydration** 2L/m2. Consider if WCC >20x10^9/L. If high WCC >100x10^9/L consider 2.5-3L/m2 or if signs of TLS (tumour lysis syndrome)
2. **Allopurinol** 100mg/m2/dose orally 3 times per day. This dose is found in the Supportive Care Protocol. If at high risk of tumour lysis syndrome consider Rasburicase 0.2mg/kg IV over 30 mins OD. Rasburicase may not be available, if so start Allopurinol.
3. **Piperacillin + Tazobactam (Tazocin)** 90mg/kg QDS (max 4.5g per dose) and Gentamicin 7mg/kg OD (take pre 2nd dose level)

4. **Transfusions**
    a. Platelets 10ml/kg over 30 mins
    b. Packed red cells 5ml/kg initially over 3-4 hours, then repeat

    * Often anaemia and thrombocytopenia are present together. In this instance replace platelets first to avoid bleeding. Slowly replace packed red cells as these patients have become anaemic over a prolonged period.

Next steps

Discuss patient with attending consultant, and the Paediatric Oncology Team if available.
Discuss patient with the paediatric team at The Royal Marsden, Sutton (0208 642 6011)
The patient will be transferred over the following few days to either RMH or SGH where they may have an LP (lumbar puncture), bone marrow aspirate and a central line inserted whilst under one general anaesthetic if the diagnosis is clear.

Tumour lysis syndrome

Beware this complication seen when large numbers of abnormal white cells are killed (lysed) releasing their cell contents into the bloodstream. This is more likely to occur following the start of chemotherapy but can occur spontaneously in patients who have a very high WCC (WCC >50) and/or if there is bulky disease with multiple/large lymph nodes and hepato-splenomegaly.

It is characterised by a raised urate, phosphate and potassium with low calcium. To avoid the high levels of urate accumulating and damaging the kidneys these patients need hyperhydration of 2.5-3L/day and either Allopurinol or Rasburicase.

Supporting Reference

- For all information regarding children with a cancer diagnosis please refer to the Supportive Care Protocol (Dec 20)

2. Guideline Governance

a. Scope

This guideline is relevant to all staff caring for all children from 0-18 years old across the emergency department, inpatient ward and outpatient department.

b. Purpose

i. This guidelines aims to facilitate a common approach to the management of children. At times deviation from the guideline may be necessary, this should be documented and is the responsibility of the attending consultant.

ii. This guideline is subject to regular review to ensure ongoing evidence based practice.

c. Duties and Responsibilities

All healthcare professionals responsible for the care of all children 0-18years should be aware of practice according to this guideline.

d. Approval and Ratification

This guideline will be approved and ratified by the Paediatric Guidelines Group.

e. Dissemination and Implementation

i. This guideline will be uploaded to the trust intranet 'Paediatric Guidelines' page and thus available for common use.
ii. This guideline will be shared as part of ongoing education within the Paediatric Department for both medical and nursing staff.
iii. All members of staff are invited to attend and give comments on the guideline as part of the ratification process.

f. Review and Revision Arrangements

a. This policy will be reviewed on a 3 yearly basis by the appropriate persons.
b. If new information comes to light prior to the review date, an earlier review will be prompted.
c. Amendments to the document shall be clearly marked on the document control sheet and the updated version uploaded to the intranet. Minor amendments will be ratified through the Paediatric Guidelines Group. A minor amendment would consist of no major change in process, and includes but is not limited to, amendments to documents within the appendices.

g. Equality Impact Assessment

Background • Who was involved in the Equality Impact Assessment
Author and the supervising consultants.
Methodology • A brief account of how the likely effects of the policy was assessed (to include race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation, age) • The data sources and any other information used • The consultation that was carried out (who, why and how?)
All groups of staff and patients were taken into consideration and there is no bias towards or against any particular group.
Key Findings • Describe the results of the assessment • Identify if there is adverse or a potentially adverse impacts for any equalities groups
There is no evidence of discrimination.
Conclusion • Provide a summary of the overall conclusions
There is no evidence of discrimination.
Recommendations • State recommended changes to the proposed policy as a result of the impact assessment • Where it has not been possible to amend the policy, provide the detail of any actions that have been identified • Describe the plans for reviewing the assessment
This guideline is appropriate for use.

h. Document Checklist

To be completed (electronically) and attached to any document which guides practice when submitted to the appropriate committee for approval or ratification.

Title of the document: Guideline for the management of the patient with a likely diagnosis of leukaemia (age 12m – 18yrs)

Policy (document) Author: Dr Claire Mitchell

Executive Director: N/A

		Yes/No/ Unsure/NA	Comments
1.	**Title**		
	Is the title clear and unambiguous?	**Y**	
	Is it clear whether the document is a guideline, policy, protocol or standard?	**Y**	
2.	**Scope/Purpose**		
	Is the target population clear and unambiguous?	**Y**	
	Is the purpose of the document clear?	**Y**	
	Are the intended outcomes described?	**Y**	
	Are the statements clear and unambiguous?	**Y**	
3.	**Development Process**		
	Is there evidence of engagement with stakeholders and users?	**N**	
	Who was engaged in a review of the document (list committees/ individuals)?		**Dr Claire Mitchell**
	Has the policy template been followed (i.e. is the format correct)?	**Y**	
4.	**Evidence Base**		
	Is the type of evidence to support the document identified explicitly?	**Y**	

		Yes/No/ Unsure/NA	Comments
	Are local/organisational supporting documents referenced?	**Y**	
5.	**Approval**		
	Does the document identify which committee/group will approve/ratify it?	**Y**	
	If appropriate, have the joint human resources/staff side committee (or equivalent) approved the document?	**N/A**	
6.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	**Y**	
	Does the plan include the necessary training/support to ensure compliance?	**Y**	
7.	**Process for Monitoring Compliance**		
	Are there measurable standards or KPIs to support monitoring compliance of the document?	**N**	
8.	**Review Date**		
	Is the review date identified and is this acceptable?	**Y**	
9.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for coordinating the dissemination, implementation and review of the documentation?	**Y**	
10.	**Equality Impact Assessment (EIA)**		
	Has a suitable EIA been completed?	Y	

Committee Approval (Paediatric Guidelines Group)			
If the committee is happy to approve this document, please complete the section below, date it and return it to the Policy (document) Owner			
Name of Chair	**Dr Claire Mitchell**	**Date**	**16/01/2022**
Ratification by Management Executive (if appropriate)			
If the Management Executive is happy to ratify this document, please complete the date of ratification below and advise the Policy (document) Owner			
Date: n/a			