

Provincial Clinical Knowledge Topic

Aplastic Anemia, Adult Cancer – Inpatient

V 1.0

© 2018, Alberta Health Services, CKCM



This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. The license does not apply to content for which the Alberta Health Services is not the copyright owner. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

Disclaimer: This material is intended for use by clinicians only and is provided on an "as is", "where is" basis. Although reasonable efforts were made to confirm the accuracy of the information, Alberta Health Services does not make any representation or warranty, express, implied or statutory, as to the accuracy, reliability, completeness, applicability or fitness for a particular purpose of such information. This material is not a substitute for the advice of a qualified health professional. Alberta Health Services expressly disclaims all liability for the use of these materials, and for any claims, actions, demands or suits arising from such use.

Revision History

Version	Date of Revision	Description of Revision	Revised By
1.0	November 21, 2018	Topic Completed	See Acknowledgments

Important Information Before You Begin

The recommendations contained in this knowledge topic have been provincially adjudicated and are based on best practice and available evidence. Clinicians applying these recommendations should, in consultation with the patient, use independent medical judgment in the context of individual clinical circumstances to direct care. This knowledge topic will be reviewed periodically and updated as best practice evidence and practice change.

The information in this topic strives to adhere to Institute for Safe Medication Practices (ISMP) safety standards and align with Quality and Safety initiatives and accreditation requirements such as the Required Organizational Practices. Some examples of these initiatives or groups are: Health Quality Council Alberta (HQCA), Choosing Wisely campaign, Safer Healthcare Now campaign etc.

Guidelines

This Clinical Knowledge Topic is based on the following guideline(s):

- [ABMTP Standard Practice Manual](#)
- Provincial Clinical Practice Guideline currently under development by [Guideline Resource Unit \(GURU\)](#)

Keywords

Topic Name: Aplastic Anemia, Adult Cancer – Inpatient

- Induction
- ATGAM
- ATG Equine
- ATG Rabbit
- CYA
- Immunosuppressive Therapy

Clinical Decision Support

Guides:

- Each order set should include access to the [ABMTP Standard Practice Manual](#)

Alerts:

- If *Anti-thymocyte Globulin (RABBIT) Cyclosporine Adult Cancer Order Set – Inpatient* is chosen as treatment protocol, alert ordering clinician that this protocol is only to be ordering if patient has allergy to the **Anti-thymocyte Globulin (EQUINE)** drug or as second-line therapy in the event patient has failed Anti-thymocyte Globulin (EQUINE) and is transplant ineligible
- If the laboratory test, *Next Generation Sequencing (NGS)*, is ordered, alert ordering clinician to review the [Fanconi Anemia and DNA repair disorders Next Generation Sequencing \(NGS\) Panel: Information for Ordering Providers](#) document to ensure this test is appropriate for this patient

Anti-Thymocyte Globulin (EQUINE) Cyclosporine: Aplastic Anemia, Adult Cancer Inpatient Order Set

Order Set Keywords: ATGAM, ATG Equine, CYA, Aplastic Anemia

Order Set Requirements:

Most recent:

- Height _____ cm
- Weight
 - actual _____ kg
- Calculated BSA _____ m²
- Estimated Creatinine Clearance (CrCl) _____
- Bilirubin and creatinine lab results

~~~~~

**Indication:**

Aplastic Anemia

**Treatment Phase:**

\_\_\_\_\_

**Treatment Goal:**

\_\_\_\_\_

**Treatment Cycle and Dates**

Cycle   1   (current cycle number) of   1   (total number of cycles to be administered)

Cycle length   N/A   (days/weeks)

Day 1            (dd-Mon-yyyy)

**Protocol Description – Anti-thymocyte globulin (ATG) (EQUINE) / CYA**

**Protocol Day 1:**

cycloSPORINE 6 mg/kg/day

**Protocol Day 1:**

ATG Equine Test Dose

**Protocol Days 1 through 4:**

ATG Equine Pre-medication

ATG Equine 40 mg/kg/dose

**Protocol Days 5 through 21:**

predniSONE Taper

~Start of Order Panel~ Hematology Laboratory Investigations – ONCE - Inpatient

**\*\*Hematology Laboratory Investigations – ONCE – Inpatient**

**ONCE - Day of admission or start of therapy**

- Unit to Collect                       Lab to Collect

**Hematology**

- |                                                                                  |                                                 |
|----------------------------------------------------------------------------------|-------------------------------------------------|
| <input checked="" type="checkbox"/> Complete Blood Count (CBC) with Differential | <input checked="" type="checkbox"/> Fibrinogen  |
| <input checked="" type="checkbox"/> PT (INR)                                     | <input checked="" type="checkbox"/> Retic Count |
| <input checked="" type="checkbox"/> PTT                                          |                                                 |

**Transfusion Medicine**

- Type and Screen

**Chemistry**

- |                                                                                |                                                     |                                                       |
|--------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|
| <input checked="" type="checkbox"/> Electrolytes (Na, K, Cl, CO <sub>2</sub> ) | <input checked="" type="checkbox"/> Albumin         | <input type="checkbox"/> Bilirubin Direct             |
| <input checked="" type="checkbox"/> Creatinine                                 | <input type="checkbox"/> AST                        | <input checked="" type="checkbox"/> LD                |
| <input checked="" type="checkbox"/> Glucose (Random)                           | <input checked="" type="checkbox"/> ALT             | <input type="checkbox"/> Lipase                       |
| <input checked="" type="checkbox"/> Calcium (Ca)                               | <input checked="" type="checkbox"/> ALP             | <input checked="" type="checkbox"/> Protein Total     |
| <input checked="" type="checkbox"/> Magnesium (Mg)                             | <input checked="" type="checkbox"/> GGT             | <input checked="" type="checkbox"/> Urea              |
| <input checked="" type="checkbox"/> Phosphate                                  | <input checked="" type="checkbox"/> Bilirubin Total | <input checked="" type="checkbox"/> Urate (Uric Acid) |

**Other Labs**

Order for ALL women of childbearing age

- HCG Beta - serum

~End~

~Start of Order Panel~ Hematology Laboratory Investigations – REPEATING - Inpatient

**\*\*Hematology Laboratory Investigations – REPEATING – Inpatient**

**REPEATING - Starting on Day 2**

- Unit to Collect                       Lab to Collect

**Draw the following labs daily for 5 weeks**

- |                                                                                  |                                                                                |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Complete Blood Count (CBC) with Differential | <input checked="" type="checkbox"/> Electrolytes (Na, K, Cl, CO <sub>2</sub> ) |
| <input checked="" type="checkbox"/> Creatinine                                   | <input checked="" type="checkbox"/> Glucose (Random)                           |

**Draw the following labs every Monday and Thursday for 5 weeks**

**Hematology**

- PT (INR)  
 PTT  
 Fibrinogen  
 Retic Count

**Chemistry**

- |                                                    |                                                     |                                                       |
|----------------------------------------------------|-----------------------------------------------------|-------------------------------------------------------|
| <input checked="" type="checkbox"/> Calcium (Ca)   | <input checked="" type="checkbox"/> ALT             | <input checked="" type="checkbox"/> LD                |
| <input checked="" type="checkbox"/> Magnesium (Mg) | <input checked="" type="checkbox"/> ALP             | <input type="checkbox"/> Lipase                       |
| <input checked="" type="checkbox"/> Phosphate      | <input type="checkbox"/> GGT                        | <input checked="" type="checkbox"/> Protein Total     |
| <input checked="" type="checkbox"/> Albumin        | <input checked="" type="checkbox"/> Bilirubin Total | <input type="checkbox"/> Urea                         |
| <input type="checkbox"/> AST                       | <input type="checkbox"/> Bilirubin Direct           | <input checked="" type="checkbox"/> Urate (Uric Acid) |

~End~

### Protocol Specific Laboratory Investigations

- Unit to Collect  Lab to Collect

#### ONCE Pre-Chemotherapy Bloodwork on Day 1

- HLA ABC – DR Typing; Draw PRIOR to Day 1 chemotherapy if not previously collected

*Must be ordered within office hours Monday to Friday (excluding statutory holidays)*

- PNH panel  
 Parvovirus B19 IgM – Acute: Relevant patient history: Pre Transplant \_\_\_\_\_, Post-Transplant \_\_\_\_\_, Immune Status \_\_\_\_\_, Travel History \_\_\_\_\_; Clinical Symptoms: \_\_\_\_\_, Onset Date of Illness \_\_\_\_\_

*For patients less than 40 years old, consider the following three laboratory investigations:*

- Telomere Length Measurements: complete the Repeat Diagnostic Telomere Length Measurements requisition: [https://repeatdx.com/wp-content/uploads/2015/11/RDx-req-form-CAD-2018-fillable-1\\_C1801.pdf](https://repeatdx.com/wp-content/uploads/2015/11/RDx-req-form-CAD-2018-fillable-1_C1801.pdf); Packaging and shipping instructions provided on form

*Blood Chromosome Breakage is the preferred test to order over NGS, however, NGS may be ordered if deemed appropriate after reviewing the Genetic Laboratory Services Fanconi/NGS information:*

<https://www.albertahealthservices.ca/assets/wf/lab/wf-lab-gls-fanconi-anemia-ngs-info-sheet.pdf>

- Cytogenetics (Blood Breakage Fanconi): Blood Chromosome Breakage – Fanconi; Clinical History: \_\_\_\_\_; Clinical Features/Diagnosis: \_\_\_\_\_; Relevant Family History: \_\_\_\_\_  
 Next Generation Sequencing (NGS): complete the Molecular Diagnostic Laboratory: Cancer and Endocrine Next Generation Sequencing requisition: <https://www.albertahealthservices.ca/frm-20897.pdf>

#### ONCE on Day 4

- Cyclosporine LEVEL, pre-dose: once on Day 4; **Target LEVEL 200 – 400 mcg/L**; Draw trough level PRIOR to AM dose of cyclosporine from a non-cyclosporine infusion line

#### REPEATING weekly starting on Day 8 - Cyclosporine LEVEL

- Unit to Collect  Lab to Collect  
 Cyclosporine LEVEL, pre-dose: every 1 week for 26 weeks starting on Day 8; **Target LEVEL 200 – 400 mcg/L**; Draw trough level PRIOR to AM dose of cyclosporine from a non-cyclosporine infusion line

#### Nurse Communication

- Nurse Communication: Ensure HLA typing has been drawn prior to initiating treatment  
 Nurse Communication: Ensure central venous access device (CVAD) is insitu and patent prior to initiating treatment protocol  
 Nurse Communication: Ensure patient receives irradiated blood products  
 Nurse Communication: Refer to AHS provincial parenteral monograph for instructions on Anti-Thymocyte Globulin (EQUINE) TEST DOSE administration and result interpretation

### **Blood Glucose Monitoring**

- Blood Glucose Monitoring: POCT – BID before meals for duration of steroid administration

### **Supportive Medications**

*Only order for menstruating women*

- norethindrone - ethinyl estradiol (Ortho 1/35®) 1 tab PO daily starting on Day 1

### **Prophylactic Medications**

- valACYclovir 500 mg PO daily starting on Day 1
- fluCONazole 400 mg PO daily starting on Day 1; Physician to reassess when absolute neutrophil count (ANC) greater or equal to  $0.5 \times 10^9/L$
- sulfamethoxazole - trimethoprim 400 mg - 80 mg 1 tab PO daily starting on Day 1

**OR**

**If patient has allergy to sulfa or sulfamethoxazole-trimethoprim order:**

*Consider sulfa desensitization*

- dapsone 50 mg PO daily starting on Day 1

### **Test Dose ATG Equine**

*TEST DOSE required for ATG Equine administration*

- anti-thymocyte globulin (EQUINE) 0.02 mL INTRADERMAL once starting Hour 0 on Day 1; 0.02 mL of a 1:1000 (1 mg/mL) dilution of ATG Equine; TEST DOSE: must be given prior to anti-thymocyte globulin pre-medications; Wait One Hour Post-Test Dose before starting ATG Equine infusion
- 0.9% NaCl 0.02 mL INTRADERMAL once starting Hour 0 on Day 1; CONTROL TEST DOSE: give at the same time as ATG Equine test dose; Must be given prior to ATG Equine pre-medications

### **Pre-Medications**

- acetaminophen 1000 mg PO daily on Days 1 to 4 for a total of 4 doses; Give 30 to 60 minutes pre-ATG Equine; Must be given after TEST DOSE
- diphenhydrAMINE 50 mg IV daily on Days 1 to 4 for a total of 4 doses; Give 30 to 60 minutes pre- ATG Equine; Must be given after TEST DOSE
- methylPREDNISolone Na succinate (1 mg/kg/dose) \_\_\_\_\_ mg IV daily on Days 1 to 4 for a total of 4 doses; Give 30 to 60 minutes pre- ATG Equine; Must be given after TEST DOSE

### **Emergency Medications**

- meperidine 25 mg IV every 4 hours PRN on Day 1 to 4 for rigors with ATG Equine infusion
- OR**
- meperidine 50 mg IV every 4 hours PRN on Day 1 to 4 for rigors with ATG Equine infusion

### **ATG Equine Monitoring**

- Vital Signs: For ATG Equine infusion on Days 1 to 4



- Pre-infusion initiation
- Then every 15 minutes x 4
- Then every hour for 3 hours and with rate changes
- Then 15 minutes post end of infusion

### **Immunosuppressive Therapy**

*Consider adding eltrombopag to the following immunosuppressive therapy protocol. Eltrombopag is a non-formulary agent and STEDT (Short Term Exceptional Drug Therapy) approval would be required in advance of ordering the eltrombopag*

#### **cycloSPORINE**

*Round PO cyclosporine dose to nearest 25 mg. If actual body weight is less than ideal body weight, use actual body weight for all dosing calculations*

- cycloSPORINE (6 mg/kg/day) \_\_\_\_\_ mg PO divided every 12 hours starting on Day 1 to 180; Adjust dose to maintain target level of 200 to 400 mcg/L; Dose already reduced for interaction with fluconazole
  - ❖ *Dosing adjustments: Dosage reduction may be required for renal and hepatic impairment*

#### **Anti-Thymocyte Globulin (EQUINE)**

*TEST DOSE required for ATG Equine administration*

*Pre-medication recommended*

- anti-thymocyte globulin (EQUINE) (40 mg/kg) \_\_\_\_\_ mg IV once starting Hour 1 on Day 1 post TEST DOSE; Infuse over 4 to 6 hours as per provincial parenteral monograph; Requires 0.2 or 0.22 micron filter on primary line
- anti-thymocyte globulin (EQUINE) (40 mg/kg) \_\_\_\_\_ mg IV daily starting Hour 0 on Days 2, 3, and 4 for a total of 3 doses; Infuse over 4 to 6 hours as per provincial parenteral monograph; Requires 0.2 to 0.22 micron filter on primary line

#### **predniSONE Taper**

*Round to nearest 5 mg*

- predniSONE (1 mg/kg/dose) \_\_\_\_\_ mg PO daily on Days 5, 6, 7, 8, 9 for a total of 5 doses
- predniSONE (0.8 mg/kg/dose) \_\_\_\_\_ mg PO daily on Days 10, 11, 12 for a total of 3 doses
- predniSONE (0.6 mg/kg/dose) \_\_\_\_\_ mg PO daily on Days 13, 14, 15 for a total of 3 doses
- predniSONE (0.4 mg/kg/dose) \_\_\_\_\_ mg PO daily on Days 16, 17, 18 for a total of 3 doses
- predniSONE (0.2 mg/kg/dose) \_\_\_\_\_ mg PO daily on Days 19, 20, 21 for a total of 3 doses

## Anti-thymocyte Globulin (RABBIT) Cyclosporine: Aplastic Anemia, Adult Inpatient Cancer Order Set

**Order Set Keywords:** ATG Rabbit, CYA, Aplastic Anemia

**Order Set Requirements:**

Most recent:

- Height \_\_\_\_\_ cm
- Weight
  - actual \_\_\_\_\_ kg
- Calculated BSA \_\_\_\_\_ m<sup>2</sup>
- Estimated Creatinine Clearance (CrCl) \_\_\_\_\_
- Bilirubin and creatinine lab results

~~~~~

Indication:

- First-line therapy for Aplastic Anemia in presence of ATG (Equine) allergy
- Second-line therapy for Aplastic Anemia, transplant ineligible

Treatment Phase:

Treatment Goal:

Treatment Cycle and Dates

- Cycle 1 (current cycle number) of 1 (total number of cycles to be administered)
- Cycle length N/A (days/weeks)
- Day 1 (dd-Mon-yyyy)

Protocol Description - Anti-thymocyte globulin (ATG) (RABBIT) / CYA

Starting Protocol Day 1:

cycloSPORINE 6 mg/kg/day

Protocol Days 1 through 5:

ATG Rabbit Pre-medication

ATG Rabbit 3.5 mg/kg/dose

Protocol Days 6 through 22:

predniSONE Taper

~Start of Order Panel~ Hematology Laboratory Investigations – ONCE - Inpatient

****Hematology Laboratory Investigations – ONCE – Inpatient**

ONCE - Day of admission or start of therapy

- Unit to Collect Lab to Collect

Hematology

- | | |
|--|---|
| <input checked="" type="checkbox"/> Complete Blood Count (CBC) with Differential | <input checked="" type="checkbox"/> Fibrinogen |
| <input checked="" type="checkbox"/> PT (INR) | <input checked="" type="checkbox"/> Retic Count |
| <input checked="" type="checkbox"/> PTT | |

Transfusion Medicine

- Type and Screen

Chemistry

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Electrolytes (Na, K, Cl, CO ₂) | <input checked="" type="checkbox"/> Albumin | <input type="checkbox"/> Bilirubin Direct |
| <input checked="" type="checkbox"/> Creatinine | <input type="checkbox"/> AST | <input checked="" type="checkbox"/> LD |
| <input checked="" type="checkbox"/> Glucose (Random) | <input checked="" type="checkbox"/> ALT | <input type="checkbox"/> Lipase |
| <input checked="" type="checkbox"/> Calcium (Ca) | <input checked="" type="checkbox"/> ALP | <input checked="" type="checkbox"/> Protein Total |
| <input checked="" type="checkbox"/> Magnesium (Mg) | <input checked="" type="checkbox"/> GGT | <input checked="" type="checkbox"/> Urea |
| <input checked="" type="checkbox"/> Phosphate | <input checked="" type="checkbox"/> Bilirubin Total | <input checked="" type="checkbox"/> Urate (Uric Acid) |

Other Labs

Order for ALL women of childbearing age

- HCG Beta - serum

~End~

~Start of Order Panel~ Hematology Laboratory Investigations – REPEATING - Inpatient

****Hematology Laboratory Investigations – REPEATING – Inpatient**

REPEATING - Starting on Day 2

- Unit to Collect Lab to Collect

Draw the following labs daily for 5 weeks

- | | |
|--|--|
| <input checked="" type="checkbox"/> Complete Blood Count (CBC) with Differential | <input checked="" type="checkbox"/> Electrolytes (Na, K, Cl, CO ₂) |
| <input checked="" type="checkbox"/> Creatinine | <input checked="" type="checkbox"/> Glucose (Random) |

Draw the following labs every Monday and Thursday for 5 weeks

Hematology

- PT (INR)
 PTT
 Fibrinogen
 Retic Count

Chemistry

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Calcium (Ca) | <input checked="" type="checkbox"/> ALT | <input checked="" type="checkbox"/> LD |
| <input checked="" type="checkbox"/> Magnesium (Mg) | <input checked="" type="checkbox"/> ALP | <input type="checkbox"/> Lipase |
| <input checked="" type="checkbox"/> Phosphate | <input type="checkbox"/> GGT | <input checked="" type="checkbox"/> Protein Total |
| <input checked="" type="checkbox"/> Albumin | <input checked="" type="checkbox"/> Bilirubin Total | <input type="checkbox"/> Urea |
| <input type="checkbox"/> AST | <input type="checkbox"/> Bilirubin Direct | <input checked="" type="checkbox"/> Urate (Uric Acid) |

~End~

Protocol Specific Laboratory Investigations

- Unit to Collect Lab to Collect

ONCE Pre-Chemotherapy Bloodwork on Day 1

- HLA ABC – DR Typing; Draw PRIOR to Day 1 chemotherapy if not previously collected

Must be ordered within office hours Monday to Friday (excluding statutory holidays)

- PNH panel
- Parvovirus B19 IgM – Acute: Relevant patient history: Pre Transplant _____, Post-Transplant _____, Immune Status _____, Travel History _____; Clinical Symptoms: _____, Onset Date of Illness _____

For patients less than 40 years old, consider the following three laboratory investigations if not previously completed:

- Telomere Length Measurements: complete the Repeat Diagnostic Telomere Length Measurements requisition: https://repeatdx.com/wp-content/uploads/2015/11/RDx-reg-form-CAD-2018-fillable-1_C1801.pdf; Packaging and shipping instructions provided on form

Blood Chromosome Breakage is the preferred test to order over NGS, however, NGS may be ordered if deemed appropriate after reviewing the Genetic Laboratory Services Fanconi/NGS information:

<https://www.albertahealthservices.ca/assets/wf/lab/wf-lab-gls-fanconi-anemia-ngs-info-sheet.pdf>

- Cytogenetics (Blood Breakage Fanconi): Blood Chromosome Breakage – Fanconi; Clinical History: _____; Clinical Features/Diagnosis: _____; Relevant Family History: _____
- Next Generation Sequencing (NGS): complete the Molecular Diagnostic Laboratory: Cancer and Endocrine Next Generation Sequencing requisition: <https://www.albertahealthservices.ca/frm-20897.pdf>

ONCE on Day 4

- Cyclosporine LEVEL, pre-dose: once on Day 4; **Target LEVEL 200 – 400 mcg/L**; Draw trough level PRIOR to AM dose of cyclosporine from a non-cyclosporine infusion line

REPEATING weekly starting on Day 8 - Cyclosporine LEVEL

- Unit to Collect Lab to Collect
- Cyclosporine LEVEL, pre-dose: every 1 week for 26 weeks starting on Day 8; **Target LEVEL 200 – 400 mcg/L**; Draw trough level PRIOR to AM dose of cyclosporine from a non-cyclosporine infusion line

Blood Glucose Monitoring

- Blood Glucose Monitoring: POCT – BID before meals; for duration of steroid administration

Provider Communication

- Provider Communication: *Anti-thymocyte Globulin (RABBIT) Cyclosporine, Adult Cancer Order Set – Inpatient* protocol is only to be ordered if patient has allergy to the **Anti-**

thymocyte Globulin (EQUINE) drug or as second-line therapy in the event patient has failed Anti-thymocyte Globulin (EQUINE) and is transplant ineligible

Nurse Communication

- Nurse Communication: Ensure HLA typing has been drawn prior to initiating treatment
- Nurse Communication: Ensure central venous access device (CVAD) is insitu and patent prior to initiating treatment protocol
- Nurse Communication: Ensure patient receives irradiated blood products

Supportive Medications

Only order for menstruating women

- Norethindrone - ethinyl estradiol (Ortho 1/35®) 1 tab PO daily starting on Day 1

Prophylactic Medications

- valACYclovir 500 mg PO daily starting on Day 1
- fluCONazole 400 mg PO daily starting on Day 1; MD to reassess when absolute neutrophil count (ANC) greater or equal to $0.5 \times 10^9/L$
- sulfamethoxazole - trimethoprim 400 mg - 80 mg 1 tab PO daily starting on Day 1

OR

If patient has allergy to sulfa or sulfamethoxazole-trimethoprim order:

Consider sulfa desensitization

- dapsone 50 mg PO daily starting on Day 1

Pre-Medications

- acetaminophen 1000 mg PO daily on Days 1 to 5 for a total of 5 doses; Give 30 to 60 minutes pre-ATG Rabbit
- diphenhydrAMINE 50 mg IV daily on Days 1 to 5 for a total of 5 doses; Give 30 to 60 minutes pre-ATG Rabbit
- methylPREDNISolone Na succinate (1 mg/kg/dose) _____ mg IV daily on Days 1 to 5 for a total of 5 doses; Give 30 to 60 minutes pre-ATG Rabbit

Emergency Medications

- meperidine 25 mg IV every 4 hours PRN on Days 1 to 5 for rigors with ATG Rabbit
- OR**
- meperidine 50 mg IV every 4 hours PRN on Days 1 to 5 for rigors with ATG Rabbit

ATG Rabbit Monitoring

- Vital Signs: For ATG Rabbit infusion on Days 1 to 5
 - Pre-infusion initiation
 - Then every 15 minutes x 4
 - Then every hour for 3 hours and with rate changes

- Then 15 minutes post end of infusion

Immunosuppressive Therapy

Consider adding eltrombopag to the following immunosuppressive therapy protocol. Eltrombopag is a non-formulary agent and STEDT (Short Term Exceptional Drug Therapy) approval would be required in advance of ordering the eltrombopag

cycloSPORINE

Round PO cyclosporine dose to nearest 25 mg. If actual body weight is less than ideal body weight, use actual body weight for all dosing calculations

- cycloSPORINE (6 mg/kg/day) _____ mg PO divided every 12 hours starting on Day 1 to 180; Adjust dose to maintain target level of 200 to 400 mcg/L; Dose already reduced for interaction with fluconazole
 - ❖ *Dosing adjustments: Dosage reduction may be required for renal and hepatic impairment*

Anti-thymocyte globulin (RABBIT)

Test dose not required for ATG Rabbit

Pre-medication is recommended

- anti-thymocyte globulin (RABBIT) (3.5 mg/kg) _____ mg IV daily starting Hour 0 on Days 1 to 5 for a total of 5 doses. Infuse over 4 to 6 hours as per provincial parenteral monograph; Requires 0.2 to 0.22 micron filter on primary line

predniSONE Taper

Round to nearest 5 mg

- predniSONE (1 mg/kg/dose) _____ mg PO daily on Days 6, 7, 8, 9, 10 for a total of 5 doses
- predniSONE (0.8 mg/kg/dose) _____ mg PO daily on Days 11, 12, 13 for a total of 3 doses
- predniSONE (0.6 mg/kg/dose) _____ mg PO daily on Days 14, 15, 16 for a total of 3 doses
- predniSONE (0.4 mg/kg/dose) _____ mg PO daily on Days 17, 18, 19 for a total of 3 doses
- predniSONE (0.2 mg/kg/dose) _____ mg PO daily on Days 20, 21, 22 for a total of 3 doses

Transition Planning

Patient and Family Education

MyHealth.Alberta.ca

- [Aplastic Anemia](#)

Aplastic Anemia & Myelodysplasia Association of Canada

- [AAMAC](#)

YouTube: AHS Channel

- [CancerControl Alberta Playlist](#)

Transitions to Primary Care

Alberta Health Services Website (External)

- [Provider and Patient Resources](#)

Patient Medication Teaching Sheets

[MyHealth.Alberta](#)

- [Cyclosporine](#)
- [Anti-Thymocyte Globulin \(RABBIT\)](#)
- [Prednisone](#)
- [Valacyclovir](#)
- [Fluconazole](#)
- [Sulfamethoxazole - Trimethoprim](#)
- [Dapsone](#)

Lexicomp Website (Internal)

- Anti-thymocyte Globulin (EQUINE) - Please see *Adult Patient Education: Thiotepa* on the Lexicomp website

References

1. Cancer Control Alberta: Guideline Resource Unit: Alberta Blood and Marrow Transplant Program (ABMTP) Standard Practice Manual. Alberta, Canada. <https://www.albertahealthservices.ca/assets/info/hp/cancer/if-hp-cancer-guide-bmt-manual.pdf>. Updated January 16, 2017. Accessed October 1, 2017.
2. Fanconi Anemia and DNA repair disorders Next Generation Sequencing (NGS) Panel: Information for Ordering Providers. Genetic Laboratory Services. <https://www.albertahealthservices.ca/assets/wf/lab/wf-lab-gls-fanconi-anemia-ngs-info-sheet.pdf>. Updated 17 Nov 2017. Accessed April 18, 2018.
3. Telomere Length Measurements requisition. Repeat Diagnostic. <https://repeatdx.com/>. Accessed April 18, 2018.

Additional Readings and General References

Scheinberg P, Young NS. How I treat acquired aplastic anemia. *Blood*. 2012; 120(6), 1185-1196. <https://doi.org/10.1182/blood-2011-12-274019>. Accessed Feb 21, 2018.

Zhao Z, Sun Q, Sokoll LJ, Streiff M, Cheng Z, Grasmeder S, Townsley DM, Young NS, Dunbar CE, & Winkler T. Eltrombopag mobilizes iron in patients with aplastic anemia. *Blood*. 2018; 131(21), 2399-2402. <https://doi.org/10.1182/blood-2018-01-826784>. Accessed September 19, 2018.

Acknowledgements

We would like to acknowledge the contributions of the clinicians who participated in the development of this topic. Your expertise and time spent are appreciated.

Name	Title	Zone
Knowledge Lead		
Elizabeth Kurien	Physician, Oncology	Provincial
Topic Lead		
Joseph Brandwein	Physician, Hematology	Edmonton
Working Group Members		
Doug Pankoski	CKCM Foundation Team	Provincial
Jennifer Jupp	Provincial Pharmacy (SPOC)	Provincial
Andrew Daly	Director of ABMTP/Physician Hematology - FMC/TBCC/PLC	Calgary
Lynn Savoie	Physician, Hematology/BMT - FMC/TBCC	Calgary
Nanette Cox-Kennett	Nurse Practitioner - CCI	Edmonton
Nadia Kloc	Inpatient Manager - CCI	Edmonton
Michelle Gardecki	Unit Charge Nurse – Unit 31 CCI	Edmonton
Michelle Blue	Inpatient Unit Manager - CCI	Edmonton
Laura Spilchen	Unit Manager - Unit 5F4 UAH	Edmonton
Karen Raymaakers	Clinical Nurse Specialist - Unit 38 PLC	Calgary
Dawn Marie Lawrence	Clinical Nurse Educator - Unit 38 PLC	Calgary
Benjamin Dowell	Clinical Nurse Educator - Unit 57 FMC	Calgary
Carla Hornberger	Clinical Nurse Educator - Unit 57 FMC	Calgary
Etienne Mahe	Hematopathologist, Calgary Lab Services	Calgary
Clinical Support Services		
Carole Chambers	on behalf of Pharmacy Information Management Governance Committee (PIM-GC) - Pharmacy Services	Provincial
James Wesenberg	on behalf of Laboratory Services - Provincial Networks	Provincial
Carlota Basualdo	on behalf of Nutrition & Food Services	Provincial
Bernice Lau	on behalf of Diagnostic Imaging Services	Provincial
SCN or Provincial Committee		
Provincial Hematology Tumor Team		Provincial
Clinical Informatics Lead		
Alexis Desautels RNBN		Provincial

Additional Contributors

*Thank you to the clinicians who participated in the colleague review process.
Your time spent reviewing the knowledge topics and providing valuable feedback is appreciated.*

For questions or feedback related to this knowledge topic please contact Clinical Knowledge Topics by emailing ClinicalKnowledgeTopics@albertahealthservices.ca