Regimen Reference Order

BMT – zoledronic acid for osteoporosis/osteopenia

To order this therapy in ARIA, refer to ADDITIONAL INFORMATION

Planned Course: **Once yearly up to a maximum of 3 years (duration of therapy to be assessed annually)**

Indication for Use: **Osteoporosis/Osteopenia; post-allogeneic stem cell transplantation**

CVAD: At Provider's Discretion

Proceed with treatment if:

- ***Creatinine clearance equal to or greater than 35 mL/minute***
- ***Calcium equal to or greater than 2.15 mmol/L***
  - ❖ **Contact Physician if parameters not met**

Note: Reporting of albumin-corrected calcium has been discontinued. See ADDITIONAL INFORMATION

SEQUENCE OF MEDICATION ADMINISTRATION

Pre-treatment Requirements

Drug	Dose	CCMB Administration Guideline
Not Applicable		

Treatment Regimen – BMT – zoledronic acid for osteoporosis/osteopenia

Establish primary solution 500 mL of: normal saline

Drug	Dose	CCMB Administration Guideline
zoledronic acid	5 mg	IV in normal saline 100 mL over 15 minutes

In the event of an infusion-related hypersensitivity reaction, refer to the **'Hypersensitivity Reaction Standing Order'**

REQUIRED MONITORING

All Doses

- Serum creatinine, calcium and albumin within 21 days prior to each zoledronic acid dose as per Physician Orders
- Recent patient weight (no more than 3 months prior to zoledronic acid dose)

Recommended Support Medications

Drug	Dose	CCMB Administration Guideline
calcium carbonate	1250 mg* (500 mg elemental calcium)	Orally twice daily at physician's discretion (providing 1000 mg elemental calcium per day)
vitamin D	1000 International Units*	Orally once daily at physician's discretion
*Daily average calcium and vitamin D needs from both dietary sources and supplements		

DISCHARGE INSTRUCTIONS

- Patient should drink 8 glasses of water on the day of and day after zoledronic acid
- Patient should advise dentist/hygienist that they are receiving zoledronic acid

ADDITIONAL INFORMATION

- zoledronic acid can cause osteonecrosis of the jaw
- zoledronic acid is dosed at 5 mg once yearly provided that patient's creatinine clearance (CrCl) is at least 35 mL/minute. zoledronic acid as part of this BMT regimen is contraindicated in patients with CrCl less than 35 mL/minute
- In Manitoba, total serum calcium (reported as Calcium in ARIA) is the recommended test for monitoring calcium levels
- zoledronic acid can cause deterioration in renal function and hypocalcemia. Close monitoring of renal function and calcium level is recommended with each dose
- In a patient with reported low calcium, further interpretation of calcium level may be considered by **direct ionized calcium** determination at the prescriber's discretion, when clinically indicated. See Appendix A *Recommended Assessment of Hypocalcemia prior to zoledronic acid*
- In the presence of **hypocalcemia in a patient who is asymptomatic**, is recommended to order direct ionized calcium to confirm normocalcemia or hidden hypocalcemia (asymptomatic but associated with high cardiovascular risk and poor prognosis)
- **ARIA ordering**: Support protocols are available under **zoledronic acid** in the "Bone Marrow Transplant" folder

APPENDIX A

Recommended Assessment of Hypocalcemia prior to zoledronic acid

Calcium level	Patient assessment/ clinical setting	Further interpretation of calcium recommended
Low (total serum calcium below 2.15 mmol/L)	**Symptomatic** (patient has symptoms of hypocalcemia)	**No -** No further interpretation required; use total serum calcium results. **Delay zoledronic acid**
	Asymptomatic (patient has no symptoms of hypocalcemia)	**Yes - Direct Ionized calcium*** is recommended to confirm either normocalcemia or hidden hypocalcemia (asymptomatic but associated with high cardiovascular risk and poor prognosis)

***Note:** Direct ionized calcium requires collection in a separate anaerobic tube (normal range 1.17 to 1.32)