

Management of Respiratory Syncytial Virus (RSV) Infections in immunocompromised adults



RSV frequently causes a self-limited upper respiratory infection in adults but may progress to severe lower respiratory tract infection (LRTI) in immunocompromised patients.

RSV infection in Hematopoietic Cell Transplant (HCT) recipients has been associated with progression to LRTI in close to 50% of HCT recipients, with high morbidity and mortality.

Treatment of RSV in HCT recipients can reduce progression from URTI to LRTI to approximately 20%. Benefits of treatment for RSV in Solid Organ Transplant recipients and in neutropenic patients are not well known.

Diagnostic workup:

HCT recipients (allo or auto), patients with hematologic malignancies getting induction/consolidation chemotherapy AND presenting with symptoms of respiratory tract infection:

- NP swab for respiratory virus testing (PCR)
- CXR / chest imaging
- Immunodeficiency Scoring Index (ISI)

Immunodeficiency Scoring Index

Criterion	ISI
ANC < 500	3
ALC < 200	3
Age > 40	2
Myeloablative conditioning regimen used	1
GVHD, acute or chronic	1
Corticosteroids within the past 30 days	1
Engraftment <30d, or pre-engraftment	1
Risk of progression from URI to LRI	
Low ISI	0-2
Moderate ISI	3-6
High ISI	7-12

<p>RSV + URTI</p> <p>(NO evidence of LRTI on CXR):</p> <p>Treatment decision is based on ISI</p> <p>If admitted, Isolation with Droplet and Contact precautions</p>	<p>ISI <3: Observe (low risk of progression to LRTI; outpatient follow-up)</p>
	<p>ISI ≥3: close follow-up as outpatient or consider admission (ISI > 7 should be admitted)</p> <ul style="list-style-type: none"> - If normal Hb, LFTs and Creat: RIBAVIRIN* loading dose 15mg/kg po then 22.5mg/kg/day po divided in 3 doses (round to the nearest tablet size) x 7 days - Low Hb or abnormal LFTS or Creat: Ribavirin 600mg po q8h (max daily dose 1800mg) x 7 days

<p>RSV + LRTI</p> <p>(evidence of LRTI on CXR, and/or O₂ Sat < 90%)</p> <p><i>Isolation with Droplet and Contact precautions</i></p>	<p>Admission to hospital</p> <p>If tolerates po</p> <ul style="list-style-type: none"> - Normal Hb, LFTs and Creat: Ribavirin* loading dose 15mg/kg po then 22.5mg/kg/day po divided in 3 doses (round to the nearest tablet size) x 7-10 days - Low Hb, abN LFTS or Creat: Ribavirin* 600mg po q8h (max daily dose 1800mg) x 7-10 days -
	<p>If po not tolerated: aerosolized (inhaled) Ribavirin (step down to po when possible).</p> <ul style="list-style-type: none"> • Aerosolized ribavirin 2 g every 8 hours for 5 days (longer duration may be required depending on clinical course). See OHS protocol (SOP) for ribavirin handling. • IVIG 1 g/kg every 2 days for 4 doses can be considered, in consultation with Infectious Diseases and Hematology

***RENAL DOSE ADJUSTMENT FOR RIBAVIRIN**

- Cr Cl 30-50 ml/min: loading dose 15mg/kg x 1 then 200mg po q8h
- Cr CL < 30 and Hemodialysis: 15 mg/kg x 1, then 200 mg po die

Potential adverse events associated with RIBAVIRIN (monitor closely, q2-3 days):

- Hemolytic anemia
- Increase in LFTs
- Increase in Creatinine

Relative contra-indications (use ribavirin only if the benefits are judged to outweigh the risks)

- Pregnant women or women of child-bearing potential
- Patients with a previous convincing history of hypersensitivity to ribavirin
- Patients with pre-existing anemia, or comorbidities which increases their risk of complications from anemia.

REFERENCES

1. Foolad F et al: Oral Versus Aerosolized Ribavirin for the Treatment of Respiratory Syncytial Virus Infections in Hematopoietic Cell Transplant Recipients. Clin Infect Dis. 2019 May 2;68(10):1641-1649.
2. Chemaly RF et al: Management of respiratory viral infections in hematopoietic cell transplant recipients and patients with hematologic malignancies. Clin Infect Dis. 2014 Nov 15;59 Suppl 5:S344-51.

Drafted by Dr Don Vinh and Dr Makeda Semret

Revised by ASP committee on September 18th, 2019; approved by P&T committee October 2019



Antimicrobial
Stewardship
Program

Centre universitaire
de santé McGill



McGill University
Health Centre