

Antimicrobial Prophylaxis for Targeted Oncology Treatments

Recommendations from the Oncology Clinical Institute

Background

Cancer patients have an increased risk of infection due to both their disease process and treatment. There is evidence to support the increased risk of specific infections in patients receiving select targeted agents. The use of prophylactic antimicrobials against herpes simplex, varicella zoster and *Pneumocystis jirovecii* pneumonia have proven effective in reducing the incidence of infection. The recommendations below are based on the NCCN Guidelines for the Prevention and Treatment of Cancer-Related Infections v3.2022. Consult NCCN Guidelines for specific recommendations regarding CMV surveillance and prevention strategies in select populations.

Recommendations

PJP = *Pneumocystis jirovecii* pneumonia ACV = acyclovir VZV = varicella zoster virus

Medication class	Medications	HSV/VZV Recommendations	PJP Prophylaxis
Ubiquitin-proteasome pathway inhibitors	Bortezomib (Velcade) Carfilzomib (Kyprolis) Ixazomib (Ninlaro)	Recommend VZV prophylaxis with valacyclovir during active therapy with proteasome inhibitors and 6 weeks* after the last dose. Risk of herpes zoster infection is 10-22%.	Not applicable
CD38 target	Daratumumab (Darzalex) Isatuximab (Sarclisa)	Recommend HSV/VZV prophylaxis within 1 week after starting treatment and continued for 3 months following treatment. Risk of herpes zoster infection is 2-5%.	Consider PJP prophylaxis
CD52 target	Alemtuzumab (Campath)	Recommend HSV/VZV prophylaxis minimum of 2 months after completion of alemtuzumab and until CD4 \geq 200 cells/mcL	Recommend PJP prophylaxis minimum of 2 months after completion of alemtuzumab and until CD4 \geq 200 cells/mcL
CD319 target	Elotuzumab (Empliciti)	Recommend HSV/VZV prophylaxis	Not applicable

CCR4 target	Mogamulizumab (Poteligeo)	Recommend HSV/VZV prophylaxis	Recommend PJP prophylaxis
Alkylating agents	Temozolomide (Temodar) + radiation	Not applicable	Recommend PJP prophylaxis for duration of treatment
PI3K Inhibitors	Copanlisib (Aliqopa) Idelalisib (Imbruvica) Duvelisib (Copiktra) Alpelisib (Piqray)	Not applicable	Recommend PJP prophylaxis
Janus kinase (JAK) inhibitors	Ruxolitinib (Jakafi) Fedratinib (Inrebic)	Consider HSV/VZV prophylaxis	Consider PJP prophylaxis depending on additional risk factors
CD30 target	Brentuximab (Adcetris)	Consider HSV/VZV prophylaxis	Consider PJP prophylaxis
CD19 - CD3 target	Blinatumomab (Blincyto)	Consider HSV/VZV prophylaxis	Consider PJP prophylaxis
Bruton tyrosine kinase (BTK) inhibitors	Acalabrutinib (Calquence) Ibrutinib (Imbruvica) Zanubrutinib (Brukinsa)	Consider HSV/VZV prophylaxis depending on additional risk factors	Consider PJP prophylaxis depending on additional risk factors
CD20 target	Obinutuzumab (Gazyva) Ofatumumab (Arzerra) Rituximab	Consider HSV/VZV prophylaxis	Consider PJP prophylaxis if concomitant therapy increases risk of PJP (eg, prednisone >20mg daily x 4 weeks)
Purine analogs	Fludarabine (Fludara) Cladribine (Leustatin)	Consider HSV/VZV prophylaxis during active therapy	Consider PJP prophylaxis during chemotherapy and continued at least 6 months after treatment and until CD4 >200 cells/mcL
mTOR inhibitors	Everolimus (Afinitor) Sirolimus (Rapamune) Temsilimus (Torisel)	Not applicable	Consider PJP prophylaxis depending on additional risk factors

Dosing Regimens

PJP Regimens	Antiviral Regimens
TMP/SMX DS 1 tab po TIW OR	Acyclovir 400-800 mg po BID OR
TMP/SMX SS 1 tab po Q Day	Valacyclovir 500 mg po BID (preferred over oral ACV for VZV)
Notes: <ul style="list-style-type: none">• TMP/SMX is most effective agent for PJP prophylaxis• Dose modification is required for impaired renal function<ul style="list-style-type: none">○ CrC <30 mL/min = Reduce 1 DS tab TIW to 1 SS tab TIW	Notes: <ul style="list-style-type: none">• There is variability in prophylactic doses of ACV used in clinical trials in patients with hematologic malignancies• Dose modification is required for impaired renal function<ul style="list-style-type: none">○ CrCl <25 mL/min=Acyclovir 20 mg po BID○ CrCl <30 mL/min=Valacyclovir 500 mg po Q Day

TMP/SMX = Trimethoprim-sulfamethoxazole

****Consider dapsone or pentamidine for patients intolerant to TMP/SMX**

Updated by Lise Langston, PharmD: 1/19/23

Approved by OCI Executive Council: 1/26/23

Reviewed by SCRPT ID: 1/23/23

Modified for CHI Memorial: 4/13/23