Sulfamethoxazole and Trimethoprim (sulfamethoxazole/trimethoprim) - Drug Summary

Teva Parenteral Medicines, Inc.

Related Drug Information ▼

Sulfamethoxazole/Trimethoprim (sulfamethoxazole/trimethoprim)

COMMON BRAND NAMES

Bactrim, Bactrim DS, Sulfatrim, Sulfamethoxazole/Trimethoprim

THERAPEUTIC CLASS

Sulfonamide/tetrahydrofolic acid inhibitor

DEA CLASS

RX

ADULT DOSAGE & INDICATIONS

Traveler's Diarrhea

Sus/Tab:
Usual: One 800mg/160mg tab or two 400mg/80mg tabs or 4 tsp (20mL) sus q12h for 5 days

Urinary Tract Infections

Inj:
Severe Infections: 8-10mg/kg/day (based on the trimethoprim component) given in 2 or 4 equally divided doses q6h, q8h, or q12h for up to 14 days
Max: 60mL/day

Sus/Tab:
Usual: One 800mg/160mg tab or two 400mg/80mg tabs or 4 tsp (20mL) sus q12h for 10-14 days

Acute Bacterial Exacerbation of Chronic Bronchitis

Sus/Tab:
Usual: One 800mg/160mg tab or two 400mg/80mg tabs or 4 tsp sus (20mL) q12h for 14 days

Shigellosis

Inj:
8-10mg/kg/day (based on the trimethoprim component) given in 2 or 4 equally divided doses q6h, q8h, or q12h for up to 5 days
Max: 60mL/day

Sus/Tab:
Usual: One 800mg/160mg tab or two 400mg/80mg tabs or 4 tsp (20mL) sus q12h for 5 days

Pneumonia

***Pneumocystis jiroveci* Pneumonia Treatment:**
Inj:
15-20mg/kg/day (based on the trimethoprim component) given in 3 or 4 equally divided doses q6-8h for up to 14 days
Sus/Tab:
75-100mg/kg sulfamethoxazole and 15-20mg/kg trimethoprim per 24 hrs given in equally divided doses q6h for 14-21 days

***P. jiroveci* Pneumonia Prophylaxis in Immunosuppressed Patients:**
Sus/Tab:
One 800mg/160mg tab or 4 tsp (20mL) sus daily

PEDIATRIC DOSAGE & INDICATIONS

Pneumonia

≥2 Months of Age:

***P. jiroveci* Pneumonia Treatment:**
Inj:
15-20mg/kg/day (based on the trimethoprim component) given in 3 or 4 equally divided doses q6-8h for up to 14 days
Sus/Tab:
75-100mg/kg sulfamethoxazole and 15-20mg/kg trimethoprim per 24 hrs given in equally divided doses q6h for 14-21 days

***P. jiroveci* Pneumonia Prophylaxis in Immunosuppressed Patients:**
Sus/Tab:
750mg/m^2/day sulfamethoxazole w/ 150mg/m^2/day trimethoprim given in equally divided doses bid, on 3 consecutive days/week
Max: 1600mg/day sulfamethoxazole and 320mg/day trimethoprim

Acute Otitis Media

Use only when sulfamethoxazole/trimethoprim offers some advantage over the use of other antimicrobial agents

≥2 Months of Age:
Sus/Tab:
40mg/kg sulfamethoxazole and 8mg/kg trimethoprim per 24 hrs, given in 2 divided doses q12h for 10 days

Shigellosis

≥2 Months of Age:

Inj:
8-10mg/kg/day (based on the trimethoprim component) given in 2 or 4 equally divided doses q6h, q8h, or q12h for up to 5 days
Max: 60mL/day

Sus/Tab:
40mg/kg sulfamethoxazole and 8mg/kg trimethoprim per 24 hrs, given in 2 divided doses q12h for 5 days

Urinary Tract Infections

≥2 Months of Age:

Inj:
Severe Infections: 8-10mg/kg/day (based on the trimethoprim component) given in 2 or 4 equally divided doses q6h, q8h, or q12h for up to 14 days
Max: 60mL/day

Sus/Tab:
40mg/kg sulfamethoxazole and 8mg/kg trimethoprim per 24 hrs, given in 2 divided doses q12h for 10 days

DOSING CONSIDERATIONS

Renal Impairment
CrCl 15-30mL/min: 1/2 the usual regimen
CrCl <15mL/min: Use not recommended

ADMINISTRATION

IV/Oral route

IV
Must be diluted prior to administration.
Administer by IV infusion over 60-90 min; avoid rapid infusion or bolus inj.
Do not mix w/ other drugs or sol.

IV Preparation/Dilution:
Each 5mL of the drug should be added to 125mL D5W; use w/in 6 hrs after dilution and do not refrigerate.
If 5mL/100mL D5W dilution is desired, use w/in 4 hrs.
If fluid restriction is desired, each 5mL of the drug may be added to 75mL D5W; administer w/in 2 hrs.
Multidose vials must be used w/in 48 hrs after initial entry into vial.

Compatible Infusion Systems:
Unit-dose glass containers, unit-dose polyvinyl chloride and polyolefin containers.

Sus
Shake well before using.
Refer to PI for specific weight-dose recommendations for sus/tab use in pediatrics.

HOW SUPPLIED

Sulfamethoxazole/Trimethoprim (SMX/TMP) **Inj:** (80mg/16mg)/mL [5mL, 10mL, 30mL]; **Sus:** (Sulfatrim) (200mg/40mg)/5mL [473mL]; **Tab:** (Bactrim) 400mg/80mg*, (Bactrim DS) 800mg/160mg* *scored

CONTRAINDICATIONS

Documented megaloblastic anemia due to folate deficiency, history of drug-induced immune thrombocytopenia w/ use of TMP and/or sulfonamides, and pediatrics <2 months of age. **Inj/Sus:** Pregnant and nursing women. **Sus/Tab:** Marked hepatic damage or severe renal insufficiency when renal function status cannot be monitored.

WARNINGS/PRECAUTIONS

Fatalities, although rare, have occurred due to severe reactions, including Stevens-Johnson syndrome, toxic epidermal necrolysis, fulminant hepatic necrosis, agranulocytosis, aplastic anemia, thrombocytopenia, and other blood dyscrasias; d/c at the 1st appearance of skin rash or any sign of adverse reaction. Cough, SOB, and pulmonary infiltrates reported. Do not use for treatment of group A β-hemolytic streptococcal infections. *Clostridium difficile*-associated diarrhea (CDAD) reported; may need to d/c if CDAD is suspected or confirmed. May result in bacterial resistance if used in the absence of proven or suspected bacterial infection or a prophylactic indication. Caution w/ hepatic/renal impairment, possible folate deficiency (eg, the elderly, chronic alcoholics, those receiving anticonvulsant therapy, malabsorption syndrome, malnutrition states), severe allergies or bronchial asthma, porphyria, and thyroid dysfunction. Hematological changes indicative of folic acid deficiency may occur in the elderly, or w/ preexisting folic acid deficiency or kidney failure; effects are reversible by folinic acid therapy. Hemolysis may occur in patients w/ G6PD deficiency. Cases of hypoglycemia in nondiabetic patients reported rarely; increased risk w/ renal dysfunction, liver disease, malnutrition, and high doses. TMP may impair phenylalanine metabolism. AIDS patients may not tolerate or respond to therapy in the same manner as non-AIDS patients; increased incidence of side effects, particularly rash, fever, leukopenia, and elevated transaminase values in AIDS patients being treated for *P. jiroveci* pneumonia; reevaluate therapy if skin rash or any sign of adverse reaction develops. May cause hyperkalemia in patients receiving high dosage of TMP, w/ underlying disorders of K^+ metabolism, w/ renal insufficiency, or when used concomitantly w/ drugs known to induce hyperkalemia; closely monitor serum K^+. Ensure adequate fluid intake and urinary output during treatment to prevent crystalluria. Slow acetylators may be more prone to idiosyncratic reactions to sulfonamides. D/C if a significant reduction in the count of any formed blood element is noted. Lab test interactions may occur. **Inj:** Contains sodium metabisulfite, which may cause allergic-type reactions, including anaphylactic symptoms and life-threatening or less severe asthmatic episodes in certain susceptible people. Contains benzyl alcohol, which has been associated w/ an increased incidence of neurological and other complications (sometimes fatal) in newborns. Local irritation and inflammation due to extravascular infiltration of the infusion reported; d/c infusion and restart at another site if these occur. **Tab:** Severe and symptomatic hyponatremia may occur, particularly in patients treated for *P. jiroveci* pneumonia; evaluation for hyponatremia and appropriate correction is necessary in symptomatic patients to prevent life-threatening complications. Use during pregnancy may be associated w/ an increased risk of congenital malformations.

ADVERSE REACTIONS

GI disturbances (N/V, anorexia), allergic skin reactions (eg, rash, urticaria).

DRUG INTERACTIONS

Increased incidence of thrombocytopenia w/ purpura reported in elderly concurrently receiving certain diuretics, primarily thiazides. May prolong PT w/ warfarin; caution w/ anticoagulants. May inhibit the hepatic metabolism of phenytoin; monitor for possible excessive phenytoin effect. May increase free methotrexate concentrations. Marked but reversible nephrotoxicity reported w/ cyclosporine in renal transplant recipients. May increase digoxin levels, especially in the elderly; monitor digoxin levels. Increased SMX levels w/ indomethacin. Megaloblastic anemia may develop if used in patients receiving pyrimethamine as malaria prophylaxis in doses >25mg/week. May decrease efficacy of TCAs. Potentiates the effect of oral hypoglycemics. Toxic delirium reported w/ amantadine. Hyperkalemia in elderly patients reported after concomitant use w/ an ACE inhibitor. **Inj/Tab:** Treatment failure and excess mortality reported when used concomitantly w/ leucovorin for the treatment of HIV positive patients w/ *P. jiroveci* pneumonia; avoid coadministration during treatment of *P. jiroveci* pneumonia. **Tab:** Caution w/ drugs that are substrates of CYP2C8 (eg, pioglitazone, repaglinide, rosiglitazone), CYP2C9 (eg, glipizide, glyburide), or OCT2 (eg, memantine, metformin).

PREGNANCY AND LACTATION

Pregnancy: (Inj/Sus) Category C; contraindicated. (Tab) Category D.
Lactation: (Inj/Sus) Contraindicated. (Tab) Levels of drug in breast milk are approx 2-5% of the recommended daily dose for infants >2 months of age; caution in nursing due to potential risk of bilirubin displacement and kernicterus.

MECHANISM OF ACTION

SMX: Sulfonamide; inhibits bacterial synthesis of dihydrofolic acid by competing w/ para-aminobenzoic acid.
TMP: Tetrahydrofolic acid inhibitor; blocks the production of tetrahydrofolic acid from dihydrofolic acid by binding to and reversibly inhibiting the required enzyme, dihydrofolate reductase. Thus, this combination blocks 2 consecutive steps in biosynthesis of nucleic acids and proteins essential to many bacteria.

PHARMACOKINETICS

Absorption: (PO) Rapid. T_{max}=1-4 hrs. (Inj) SMX: C_{max}=46.3mcg/mL. TMP: C_{max}=3.4mcg/mL. **Distribution:** Crosses placenta; found in breast milk. Plasma protein binding (70% [SMX], 44% [TMP]). **Metabolism:** SMX: N_4-acetylation. TMP: 1- and 3-oxides, 3'- and 4'-hydroxy derivatives (major metabolites). **Elimination:** (PO) Urine (84.5% total sulfonamide [30% as free SMX and remaining as N_4-acetylated metabolite], 66.8% free TMP). SMX: $T_{1/2}$=10 hrs. TMP: $T_{1/2}$=8-10 hrs. (Inj) Urine (7-12.7% free SMX, 17-42.4% free TMP, 36.7-56% total SMX). SMX: $T_{1/2}$=12.8 hrs. TMP: Refer to PI for $T_{1/2}$.

ASSESSMENT

Assess for hypersensitivity to the drug, megaloblastic anemia, history of drug-induced immune thrombocytopenia, hepatic/renal impairment, folate deficiency, severe allergies, bronchial asthma, G6PD deficiency, porphyria, thyroid dysfunction, underlying disorders of K^+ metabolism, pregnancy/nursing status, and possible drug interactions.

MONITORING

Monitor for hypersensitivity and other fatal reactions, CDAD, folate deficiency, hypoglycemia, hyperkalemia, and other adverse reactions. Monitor hydration status. Perform CBC frequently, and urinalysis w/ careful microscopic exam and renal function tests. **Inj:** Monitor for infusion reactions. **Tab:** Monitor for hyponatremia.

PATIENT COUNSELING

Advise that therapy should only be used to treat bacterial, not viral, infections. Instruct to take exactly ud even if

patient feels better early in the course of therapy. Inform that skipping doses or not completing the full course of therapy may decrease effectiveness of treatment and increase bacterial resistance. Instruct to maintain an adequate fluid intake. Inform that diarrhea is a common problem caused by therapy, which usually ends when therapy is discontinued. Instruct to immediately contact physician if watery and bloody stools (w/ or w/o stomach cramps and fever) occur, even as late as ≥2 months after having taken the last dose.

STORAGE

20-25°C (68-77°F). **Inj:** Do not refrigerate. **Sus:** Protect from light.

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