

Monitoring Systemic Dermatology Medications

By Jeffrey Collins, DO, and William Steffes, MD

Medication	Dosage	Lab screening	Lab monitoring	Medical history to screen for	Main toxicities to watch for with use
Methotrexate	7.5-25 mg Q weekly, folic acid 1 mg daily (except MTX day)	CBC w/ diff, CMP, hepatitis panel (B and C), quant gold, preg test, +/- HIV	Week 2: CBC Week 4: CBC, CMP Month 2: CBC, CMP Q3 months: CBC, CMP Consider liver bx 3.5-4.0 g cumulative dose	Liver dz, renal dz, preg/lactation, use of Bactrim is contraindicated, NSAIDs, alcoholism, obesity	Pancytopenia (risk increases with renal dz), idiosyncratic pulmonary fibrosis, hepatotoxicity, teratogen
Cyclosporine	Modified: 2-4 mg/kg a day split BID Non modified: 2-5 mg/kg/day split BID	CBC, CMP, hepatitis panel, fasting lipid panel, Mg, uric acid, quant gold, UA, blood pressure, preg test	Month 1: CBC, CMP, lipid panel, UA, blood pressure, Mg Month 2: repeat month 1 Q3 months: CBC, CMP, lipid panel, Mg, uric acid, UA, BP	Renal dz, malignancy, infections, HTN, preg/lactation	Renal disease (decrease dose if Cr increases >30% over baseline), gingival hyperplasia, hypertrichosis, ↑K, ↑uric acid, ↓Mg hyperlipidemia, max 1 yr use
Dapsone	25-200 mg QD	G6PD, CBC with diff, CMP, UA, +/- preg test	Week 2: CBC with diff Month 1: CBC with diff, CMP, retic count Month 2: CBC with diff, CMP, +/- retic count Q3 months: CBC with diff, CMP, +/-retic count	CV dz, liver dz, anemia, neuropathy, MTX or Bactrim usage	Hemolytic anemia, methemoglobinemia, hypersensitivity syndrome (DRESS), agranulocytosis (weeks 2-12), motor neuropathy
Azathioprine	50-150 mg QD	TMPT, CBC, CMP, UA, preg test, quant gold	Month 1: CBC with diff, CMP Month 2: CBC with diff, CMP Q3 months: CBC with diff, CMP	Allopurinol use, malignancy (including SCC), preg/lactation	GI upset, bone marrow suppression, new onset malignancy, hypersensitivity syndrome (rare)
Mycophenolate mofetil	2-3 g a day split BID Myfortic-enteric ↑bioavailability, ↓GI side effects	CMP, CBC, Hep B, Hep C, quant gold, preg test	Month 1: CMP, CBC with diff Month 2: CMP, CBC with diff Q3 months: CMP, CBC with diff	Preg/lactation	GI upset (dose dependent), bone marrow suppression, NO renal or hepatic toxicity
Corticosteroids	Many forms and doses; screening and monitoring only needed for long-term use (>1 month); add vit D/Ca and PPI for protection	CMP, hepatitis panel, lipid panel, quant gold, DEXA scan (for at risk patients), ophthalmologic exam	Month 1: ht and wt for children, BP, fasting BMP and lipid panel Q3 months: ht and wt for children, BP, fasting BMP and lipid panel Annual: ophthalmology exam, DEXA	Glaucoma, cataracts, mental health dz, DM, HTN, osteoporosis risk	HTN, hyperlipidemia, glaucoma and cataracts, psychiatric dz, PUD, growth retardation DM, osteoporosis, bone and eye complications not mitigated by alternate day dosing
Hydroxychloroquine	200-400 mg QD Max 6.5 mg/kg	Retinal screen, CBC, CMP, +/- G6PD	Month 1: CBC, CMP (then Q3-6 months) Annual: ophthalmology exam	Retinal dz, cardiac dz	Ocular toxicity, blue-gray hyperpigmentation, cardiomyopathy, GI upset
Acitretin	25-50 mg QD	CBC, CMP, lipid panel, preg test	Month 1: CBC, CMP, lipid panel Q3 months: CBC, CMP, lipid panel, pregnancy test if applicable	Hyperlipidemia, liver dz, preg/lactation	Transaminitis, hyperostosis, hyperlipidemia, ↓night vision, xerosis/cheilitis, pyogenic granulomas, pseudotumor cerebri, teratogen - avoid preg for 3 yrs after, secondary to esterification to etretinate



Jeffrey Collins, DO, PGY-3 is a dermatology resident at Dermatology Residency of Orlando-ADCS



William Steffes, MD, is an attending physician at Dermatology Residency of Orlando-ADCS

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Isotretinoin	0.5-1 mg/kg split BID; some sources up to 2 mg/kg	Pregnancy, lipid panel, LFTs Day 1: repeat neg preg test	Q month: Pregnancy Month 2: Lipid panel and LFTs Additional testing no longer indicated unless abnormalities on screening	Suicide attempts, depression, IBD, two methods of contraception	Transaminitis, hyperlipidemia, ↓night vision, depression xerosis/cheilitis hyperostosis, myalgias, pyogenic granulomas, pseudotumor cerebri, teratogen - avoid preg for one month after
Spirolactone	50-200 mg QD	+/-: K, blood pressure, preg test	+/-: K, blood pressure, preg test	Renal disease, family Hx of breast cancer, preg/lactation	Breast tenderness, menstrual irregularity, dizziness, hyperkalemia (rarely significant)
Ortho Tri Cyclen Yaz	Fixed graduated dosing, start on 1 st Sunday after onset of menses	Preg test	N/A	Smoking, CVA/DVT, CAD, ovarian/breast CA, migraines	Nausea, weight gain, headaches, menstrual irregularities, breast tenderness, CVA/DVT
Finasteride	1 mg QD	+/-PSA for baseline	N/A	Prostate CA, preg/lactation	↓libido, ejaculate volume, impotence, teratogen, depression, gynecomastia/breast CA, permanent sexual dysfunction
Glycopyrrolate	1-2 mg BID-TID	No monitoring needed	N/A	Dry mouth and eyes, blurred vision, glaucoma, constipation, urinary retention	Dry mouth and eyes, blurred vision, glaucoma, constipation, urinary retention
Terbinafine	250 mg QD x 12 weeks: toenail 6 weeks: fingernails 2-4 weeks: cutaneous	AST, ALT, +/-BMP	6 weeks: AST, ALT	Liver dz Cr clearance <50	Liver, headache, metallic taste, drug-induced SCLE, headache
Itraconazole	200 mg QD-BID	AST, ALT	Month 1: AST, ALT Long-term use: periodic LFTs	Liver dz, CHF, renal dz	Med interactions, significant CYP inhibitor, liver, cardiac
Griseofulvin	20 mg/kg/day divided BID with greasy foods x 6 weeks	+/-: CBC, CMP	+/-: CBC, CMP	Liver dz	Drug-induced SCLE
Etanercept	50 mg 2x week til month 3; then 50 mg Q week	CBC, CMP, hepatitis panel, quant gold	Q6 months: CBC, CMP Q1 yr: quant gold	CHF, IBD, MS	Infections, malignancy
Adalimumab	PSO: 80 mg x1, 40 mg day 8, then 40 mg Q2 weeks HS: 160 mg x1 80 mg week 2 then 40 mg Q week	CBC, CMP, hepatitis panel, quant gold	Q6 months: CBC, CMP Q1 yr: quant gold	CHF, IBD, MS	Infections, malignancy

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Medication	Dosage	Lab screening	Lab monitoring	Medical history to screen for	Main toxicities to watch for with use
Ustekinumab	>100 kg -90 mg <100 kg -45 mg Day 1, month 1, then Q3 months	CBC, CMP, hepatitis panel, quant gold	Q6 months: CBC, CMP Q1 yr: quant gold	IBD	Infections, malignancy
Ixekizumab	160 mg x1 80 mg Q2 weeks til week 12 then 80 mg Q month	CBC, CMP, hepatitis panel, quant gold	Q6 months: CBC, CMP Q1 yr: quant gold	IBD	Infections, malignancy, IBD exacerbation
Secukinumab	300 mg Q week x5 then 300 mg Q month	CBC, CMP, hepatitis panel, quant gold	Q6 months: CBC, CMP Q1 yr: quant gold	IBD	Infections, malignancy, IBD exacerbation
Apremilast	Standard fixed dosing to reach 30 mg BID	No monitoring needed, +/- BMP	N/A	Depression, suicide history, renal disease	GI upset, headaches
Dupilumab	600 mg x1 then 300 mg Q2 weeks	+/- CBC with diff, hepatitis panel, preg test, no labs required on package insert	+/- CBC with diff Q6 months	Parasitic infec- tion	Conjunctivitis, kerati- tis, blepharitis, HSV
Vismodegib	150 mg QD	Pregnancy test	Periodic pregnancy test- ing if appropriate	Preg/lactation, men need to wear condoms	Dysgeusia, muscle cramps, alopecia, GERD, teratogen - avoid preg for 2 years after
Colchicine	0.6 mg BID-TID	BMP, CBC	CBC and UA Q3 months	Renal dz, liver dz	Diarrhea, bone mar- row suppression
Bexarotene	300 mg/m ² daily	Preg test, TSH, fasting lipid panel, CBC, CMP	Q monthly for 3 months: CBC, CMP, TSH, fasting lipids; Q3 months: CBC, CMP, TSH, fasting lipids	Liver dz, pan- creatitis, thyroid dz	Med interactions, central hypothyroid- ism, hypertriglyceride- mia (avoid gemfibro- zil), teratogenicity
Pentoxifylline	400 mg PO TID	BMP	N/A	Hx hemorrhage	GI upset, arrhythmia
Propranolol	2-3 mg/kg divid- ed TID, give with feeding	None	BP, HR 2hr after 1 st dose	CV dz, PHACES	Lethargy/hypoglyce- mia, hypotension, brady- cardia
Tofacitinib	5 mg BID	CBC with diff, CMP, lipids, hepatitis panel, HIV, quant gold	Q3 months: CBC with diff, CMP, lipids	Anemia, leukopenia	Infections, malignancy

The above chart does not include antibiotics, antifungals, or antivirals that do not require labs.

REFERENCES

1. Wolverson S. Comprehensive Dermatologic Drug Therapy: Saunders Elsevier; 2013.
2. Bologna J, Jorizzo J, Schaffer J. Dermatology. Philadelphia: Elsevier; 2012.
3. Caplan A, Fett N, Rosenbach M, Werth VP, Micheletti RG. Prevention and management of glucocorticoid-induced side effects: A comprehensive review: Ocular, cardiovascular, muscular, and psychiatric side effects and issues unique to pediatric patients. *J Am Acad Dermatol* 2017;76:201-7.
4. Fernandez AP. Updated recommendations on the use of hydroxychloroquine in dermatologic practice. *J Am Acad Dermatol* 2017.
5. Fertig R, Shapiro J, Bergfeld W, Tosti A. Investigation of the Plausibility of 5-Alpha-Reductase Inhibitor Syndrome. *Skin Appendage Disord* 2017;2:120-9.
6. Shea B, Swinden MV, Tanjong Ghogomu E, Ortiz Z, Katchamart W, Rader T et al. Folic acid and folinic acid for reducing side effects in patients receiving methotrexate for rheumatoid arthritis. *Cochrane Database Syst Rev* 2013:CD000951.
7. Hansen TJ, Lucking S, Miller JJ, Kirby JS, Thiboutot DM, Zaenglein AL. Standardized laboratory monitoring with use of isotretinoin in acne. *J Am Acad Dermatol* 2016;75:323-8.
8. Warsaw EM, Fett DD, Bloomfield HE, Grill JP, Nelson DB, Quintero V et al. Pulse versus continuous terbinafine for onychomycosis: a randomized, double-blind, controlled trial. *J Am Acad Dermatol* 2005;53:578-84.