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Alopecia areata treatment

By Andrea Paola Caro-Muñiz, MD, Eduardo Michelen-Gomez, MD, and Karina J. Cancel-Artau, MD

Medication	Dosage form and strength	Frequency	Routine labs	Side effects	FDA approval
Topical and intralesional therapy					
Corticosteroids (topical and intralesional)	Topical: Potent and superpotent topical corticosteroids Intralesional: Initially 2.5-5mg/mL of triamcinolone acetonide (in subsequent doses, should not be 10 mg/mL or greater) to be injected as 0.1mL per site in solitary patch with 1cm between injection sites	Topical: Apply daily for at least 6-12 weeks up to a maximum of 3-6 months. Intralesional: as needed.	None	Purpura, telangiectasia, striae, hypertrichosis, acneiform or rosacea-like eruptions, allergic contact dermatitis, tachyphylaxis	FDA approved
Tacrolimus: calcineurin inhibitor	Ointment (0.1%)	Apply twice daily to scalp, eyebrow, or beard	None	Application site irritation, stinging, burning, or itching, folliculitis, acne, headache, upper respiratory tract infections, nausea	No FDA approval for use in alopecia areata patients
Minoxidil	Foam (5%) and solution (2%, 5%)	Apply twice daily to scalp	None	Contact dermatitis, pruritus, skin irritation, hypertrichosis	FDA approved for ages 18 and older
Ruxolitinib: JAK1 and JAK2 inhibitor	Cream (1.5%)	Apply twice daily to scalp	Hepatitis panel and tuberculosis testing at baseline	Black box warning[1,2] Nasopharyngitis, bronchitis, ear infection, tonsillitis, rhinorrhea, urticaria, folliculitis, diarrhea, eosinophilia, thrombocytopenia, application site acne/pruritus/erythema, headache, urinary tract infections, pyrexia	No FDA approval for use in alopecia areata patients
Tofacitinib: JAK1, JAK2, and JAK3 inhibitor	Cream/lotion (2%)	Apply twice daily to scalp	None	Adults: Scalp irritation, hypercholesterolemia, folliculitis Children: Leukopenia, elevated liver enzymes	No FDA approval for use in alopecia areata patients
Topical prostaglandin analogs (latanoprost, bimatoprost): PGF2α agonist	Bimatoprost ophthalmic solution (0.03%), latanoprost ophthalmic solution (0.005%)	Apply once daily to upper eyelash line	None	Burning sensation (eyelid), eye swelling, eyelid irritation and edema, eyelid pruritus, iris hyperpigmentation, lacrimation increased, madarosis and trichorrhexis, deepening of the eyelid sulcus, rash limited to the eyelids and periorbital region, periorbital skin discoloration, and blurred vision	Bimatoprost: FDA approved for ages 16 and older to treat hypotrichosis of the eyelashes by increasing their growth including length, thickness, and darkness Latanoprost: No FDA approval for use in alopecia areata patients

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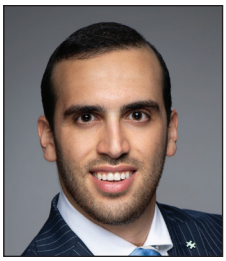

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Contact immunotherapy: iphenylcyclopropenone (DPCP) and squaric acid dibutyl ester (SADBE)	Diphenylcyclopropenone (DPCP): 2% topical solution Squaric acid dibutyl ester (SADBE): 2%-3% topical solution	No consensus; at least once every 4 weeks or less than 2 weeks if possible	None	Mild to moderate eczematous reactions, severe eczema, generalized eczema in nontreated and treated sites, lymphadenopathy, influenza-like symptoms, pigmentary changes, anaphylactoid reaction, hair curling	No FDA approval for use in alopecia areata patients
Systemic therapy					
Prednisolone (or prednisone)	5 mg, 10 mg, 15 mg, or 30 mg Tab	>13 yo: 0.4 to 0.6 mg/kg/day with gradual taper over more than 12 weeks	Baseline: CMP, lipid panel, HBV, HCV, TB, and DEXA scan if indicated Follow-up: Week 4: BMP and lipid panel, then every 12 weeks	Adrenal insufficiency, Cushing syndrome, diabetes mellitus, electrolytes imbalance, hypertension, osteoporosis, glaucoma, cataracts, growth suppression, increased intracranial pressure, hirsutism, weight gain, emotional lability, GI distress, muscle atrophy, impaired wound healing, skin atrophy, edema, menstrual irregularities, headache	No FDA approval for use in alopecia areata patients
Methotrexate	2.5 mg tablet, 25 mg/mL injection solution (0.1 mL equivalent to 2.5 mg tab)	>18 yo: 15 to 20 mg weekly <18 yo: 0.4 mg/kg/week	Baseline: CBC, LFTs, RFTs, HBV, HCV, TB. HIV, HCG, and PFTs if indicated Follow-up: CBC weekly for 2-4 weeks and 1 week after each major dose increase, then every 2 weeks for 1 month and every 2-3 months while on stable dose RFTs every 6-12 months Annual TB HCG as indicated	Pregnancy category X. Interstitial pneumonitis, pulmonary fibrosis, ulcerative stomatitis, GI disturbance, GI ulceration and bleeding, malaise, fatigue, fever, dizziness Risk of infection Risk of cutaneous and lymphoproliferative malignancy Photosensitivity, alopecia Labs: transaminitis, cytopenias	No FDA approval for use in alopecia areata patients

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Cyclosporine	25 mg, 50 mg, 100 mg capsules	>18yo: 3 to 5 mg/kg/day for up to 12 months	Baseline: CBC, CMP, hepatitis panel, fasting lipid panel, pregnancy test, UA, Mg, uric acid, TB, and blood pressure Follow-up: Week 4 and 8: CBC, CMP, fasting lipid panel, UA, Mg, blood pressure Week 12 and every 3 months: CBC, CMP, fasting lipid panel, UA, Mg, uric acid, and blood pressure	Pregnancy category C. Renal dysfunction, hepatotoxicity, tremor, hirsutism, hypertension, gum hyperplasia, nausea, vomiting, headache, paresthesia, edema, arthralgia, flushing, dizziness, immunosuppression, electrolyte abnormalities, diabetes mellitus, hemolytic anemia, malignancy, seizures, encephalopathy, posterior reversible encephalopathy syndrome, neurotoxicity, hypersensitivity reaction, pancreatitis, depression	No FDA approval for use in alopecia areata patients
Baricitinib: JAK1 and JAK2 inhibitor	1 mg, 2 mg, 4 mg tablets	2 mg tablet orally once daily. May scale therapy to 4 mg daily if response not adequate.	Baseline: CBC, LFTs, RFTs, viral hepatitis panel, TB. Follow-up: Week 4 and 8: CBC, LTFs, RFTs. Week 12: CBC, LTFs, RFTs, lipid panel. Every 3 months: CBC, LTFs, RFTs, lipid panel Annual TB	Black box warning[1,2] Gastrointestinal perforation, hypersensitivity reactions (urticaria, angioedema, rash), upper and lower respiratory tract infections, headache, acne, hyperlipidemia, creatine phosphokinase increase, urinary tract infections, liver enzyme elevations, folliculitis, fatigue, nausea, genital *Candida* infections, anemia, neutropenia, lymphopenia, abdominal pain, herpes zoster, and weight increase	FDA approved for adult patients (18 years and older) with severe alopecia areata

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Ritlecitinib: JAK3 and tyrosine kinase inhibitor	50 mg capsule	One capsule orally once daily.	Baseline: CBC, LFTs, RFTs, viral hepatitis panel, TB. Follow-up: Week 4: CBC Periodic follow-up: CBC, LTFs, RFTs Annual TB	Black box warning[1] Hypersensitivity reactions (urticaria, angioedema, rash), headache, diarrhea, acne, rash, urticaria, folliculitis, pyrexia, atopic dermatitis, dizziness, blood creatine phosphokinase increase, herpes zoster, red blood cell count decrease, and stomatitis.	FDA approved for adults and adolescents 12 years and older with severe alopecia areata

[1] Bacterial, mycobacterial, invasive fungal, viral, and opportunistic infections. Malignancies (lymphomas, lung cancer, non-melanoma skin cancer). Higher rate of all-cause mortality including sudden cardiovascular death with another Janus kinase inhibitor. Non-fatal myocardial infarction, non-fatal stroke. Thromboembolic events (pulmonary embolism, venous and arterial thrombosis).

[2] Anemia, neutropenia. Increase in total cholesterol, LDL cholesterol, triglycerides.

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