What is the evaluation and treatment strategy for Raynaud's phenomenon?

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EVIDENCE-BASED ANSWER

Raynaud's phenomenon is diagnosed by history, which also plays a key role in distinguishing primary from secondary Raynaud's phenomenon (strength of recommendation [SOR]: **C**, based on expert opinion). The initial treatment includes conservative measures such as the use of gloves, cold avoidance, and rapid rewarming (SOR: **C**, based on expert opinion); in refractory cases, the vasodilatory agents nifedipine or prazosin alleviate symptoms (SOR: **A** for both, based on multiple randomized controlled trials) (**TABLE**).

CLINICAL COMMENTARY

Reserve pharmacotherapy for cases that are resistant to conservative measures

Raynaud's phenomenon is one of those clinical syndromes that stirs the desire to find an exotic explanation, such as systemic lupus erythematosus, but most often yields less glamorous results. Usually I must tell patients that I can't explain the cause and recommend that they keep their hands as warm as possible to avoid the symptoms. I have learned to discipline myself over the years to pursue a connective tissue cause only when other signs or symptoms of such a disease are also present. The use of the ophthalmoscope at high power to look for distorted nail-fold capillary loops is a helpful pearl.

I reserve pharmacotherapy for cases that are resistant to conservative measures due to the cost and side effects of the drug options.

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Evidence summary

Raynaud's phenomenon is diagnosed by a history of cold temperatures or emotional stress precipitating episodic digital artery vasospasm, according to expert opinion. This presents as well-demarcated digital pallor and cyanosis, often followed by reactive hyperemia occurring 15 to 20 minutes after rewarming.[1,2] No reliable office test confirms the diagnosis. By definition, primary Raynaud's phenomenon occurs in the absence of associated diseases and is considered an exaggerated vasoconstrictive response to cold. It must be distinguished from normal mottling of the digits in response to cold temperatures, effects of vasoconstrictive medications, environmental injury (frostbite, use of vibrating tools), neuropathy, and thoracic outlet syndrome.[1,2] Experts differ on whether laboratory evaluation with erythrocyte sedimentation rate and an antinuclear antibody test is necessary for patients with primary Raynaud's phenomenon.[1,3]

Patients with secondary Raynaud's phenomenon have an underlying cause or disease, such as scleroderma or systemic lupus erythematosis.[2] The finding of distorted capillaries in the nail folds using an ophthalmoscope set at 40+ diopter magnification is the best predictor of an associated connective-tissue disease.[4] A cold-water challenge to trigger

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TABLE

Primary therapies for Raynaud's phenomenon

TREATMENT	RECOMMENDATION LEVEL	COMMON ADVERSE EFFECTS
Nifedipine	A	Lower extremity edema, flushing, headache, dizziness
Prazosin	A	Dizziness, hypotension, palpitations
Conservative	C	—

FAST TRACK

Medication may be beneficial for patients not helped by conservative measures—dressing warmly, wearing gloves, avoiding cold and emotional stress

an attack of Raynaud's phenomenon produces inconsistent results and is not recommended. Research tools such as thermographic and laser Doppler imaging can measure digital artery blood flow but are rarely used clinically.[1,5] Patients with secondary Raynaud's phenomenon should have a complete blood count, biochemistry profile, and urinalysis. They may need additional tests as determined by the nature of their underlying disease.[1]

Conservative management is helpful for all patients with Raynaud's phenomenon, and may be the only treatment needed. Experts advise dressing warmly, wearing gloves when appropriate, using abortive strategies such as placing the hands into warm water, and avoiding sudden cold exposure, emotional stress, and vasoconstrictive agents such as nicotine.[6]

Medication may be helpful for patients whose symptoms are not controlled with conservative measures. Six randomized, placebo-controlled trials involving 451 people with primary Raynaud's phenomenon demonstrated that nifedipine decreases the mean frequency of vasospastic attacks. Three of these trials also showed subjective improvement in symptom severity with nifedipine vs placebo.[7] A meta-analysis of 6 randomized crossover studies compared nifedipine or nicardipine with placebo in 59 patients with secondary Raynaud's phenomenon and underlying systemic sclerosis. Nifedipine significantly decreased the frequency and severity of attacks. Nicardipine showed a trend towards reduced symptoms in 1 trial with only 15 patients.[8] Another randomized trial comparing sustained-release nifedipine to placebo showed a 66% reduction in the number of attacks in the treatment group at 1 year; 19 of the 77 people in the nifedipine group dropped out of the study, as did 24 of the 81 people in the placebo group.[9]

A systematic review of 2 randomized controlled trials with a total of 40 patients found prazosin modestly effective in secondary Raynaud's phenomenon, but it was less well-tolerated than calcium channel blockers.[10] Single, small randomized crossover trials showed improved responses to both fluoxetine[11] and losartan[12] when compared with nifedipine. In general, these medications appear to reduce attacks by 30% to 40%.

Small, prospective studies of low-level laser irradiation, palmar sympathectomy, and endoscopic thoracic sympathectomy show some benefit for patients with digital ulcers.[13–15] A randomized controlled trial showed biofeedback was ineffective for voluntary control of digital blood flow for patients with Raynaud's phenomenon.[9]

Recommendations from others

The American College of Rheumatology does not offer recommendations for the diagnosis or treatment of Raynaud's phenomenon. UpToDate recommends treatment with conservative measures; sustained-release nifedipine or amlodipine may be used if these are insufficient. Other vasodilators may be added or substituted in the event of an adverse reaction or poor response to the calcium-channel blocker.[16]

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1—Good-quality, patient-oriented evidence (eg, validated clinical decision rules, systematic reviews and meta-analyses of randomized controlled trials [RCTs] with consistent results, high-quality RCTs, or diagnostic cohort studies)

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