Oral sildenafil for the treatment of Raynaud's phenomenon and digital ulcers secondary to systemic sclerosis

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Raynaud's phenomenon (RP) with or without digital ulcer formation is a significant cause of morbidity for patients with systemic sclerosis (SSc, scleroderma). Lichtenstein reported oral sildenafil as a treatment of RP for patients with SSc, systemic lupus erythematosus, and idiopathic RP.[1] His report included 10 patients from his community office practice given sildenafil, 50 mg once orally at bedtime.

METHODS AND RESULTS

We performed a retrospective chart review of 10 patients with SSc seen at a tertiary care referral centre who were offered sildenafil after standard treatments (calcium channel blockers, α blockers, angiotensin converting enzyme (ACE) inhibitors, aspirin, dipyridamole, pentoxifylline, and/or topical nitrates) had failed. Of the 10 patients, four had limited disease and six had diffuse disease. The mean (SD) age of the patients was 49.9 (9.9) years, and the mean (SD) duration of SSc was 9.5 (6.5) years. The mean (SD) duration of RP was 9.5 (7.5) years. Seven were female and three were male. Eight were white, one was African-American, and one was Hispanic. The starting dose of sildenafil varied among the patients, ranging from 12.5 mg/day to 100 mg/day, in single or divided doses.

Eight of the ten patients treated with sildenafil had a response within a few weeks, with significant reduction in the frequency and severity of RP. Of the eight patients who had digital ulcers refractory to conventional treatment, six experienced complete healing of the ulcers.

One patient, who had recently had a normal coronary arteriogram, did have some chest discomfort after taking the sildenafil. She had taken sildenafil for four months previously without any complaints. Nevertheless, the medicine was discontinued and her chest discomfort resolved. Otherwise, the medicine was well tolerated.

DISCUSSION

Sildenafil is a phosphodiesterase V inhibitor that allows accumulation of cyclic guanosine monophosphate (cGMP). cGMP causes a decrease in intracellular calcium, and the result is vascular smooth muscle relaxation and dilatation.[2] Perhaps in those patients whose digital ulcers failed to heal while they were receiving sildenafil, the failures were the result of fibrosis and/or occlusion of vessels that did not allow further vasodilatation.

The dose prescribed was limited by the availability of the drug. Four patients were allowed only eight tablets a month and so were prescribed 100 mg tablets that were divided into quarters. This allowed the patients to take the medicine daily, albeit in small doses. We present this experience with patients with SSc with RP and digital ulcers in the hopes that further studies will be carried out to examine this new and potentially effective treatment. Clearly, traditional medical and surgical treatments for severe RP and digital ulceration are not adequate for all patients with SSc.

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REFERENCES

1 **Lichtenstein JR**. Use of sildenafil citrate in Raynaud's phenomenon: *Arthritis Rheum* 2003;**48**:282–3.
2 **Rybalkin S**, Yan C, Bornfeldt K, Beavo J. Cyclic GMP phosphodiesterases and regulation of smooth muscle function. *Circ Res* 2003;**93**:280–91.