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File: ■ Turmeric (*Curcuma longa*, Zingiberaceae)
■ Plaque Psoriasis

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RE: Topical Application of Turmeric Extract Reduces the Severity of Psoriasis Lesions

Sarafian G, Afshar M, Mansouri P, Asgarpanah J, Raoufinejad K, Rajabi M. Topical turmeric microemulgel in the management of plaque psoriasis; a clinical evaluation. *Iran J Pharm Res*. Summer 2015;14(3):865-876.

Plaque psoriasis is an autoimmune, inflammatory skin disorder that causes patches of inflamed, thickened skin lesions. Many patients with psoriasis have other inflammatory disorders, such as metabolic syndrome, Crohn's disease, and cardiovascular disease. Mildly to moderately severe psoriasis is often treated effectively with prescription topical and systemic medications. Topical medications may have undesirable side effects, which include burning, atrophy, and staining of skin and clothes. Turmeric (*Curcuma longa*, Zingiberaceae) has been used in traditional medicine and found to have anti-inflammatory, antimicrobial, and antioxidant properties. Turmeric extract can decrease the cytokine pro-inflammatory response by inactivating and decreasing the expression of key enzymes in the pro-inflammatory pathway in human cells. Several studies have shown that turmeric extract applied topically can reduce the severity of psoriasis lesions. The goal of this double-blind, placebo-controlled study was to measure the efficacy of turmeric extract microemulgel on the symptoms of psoriasis in patients with mild to moderate plaque psoriasis.

Forty patients between the ages of 18 and 60 years of age with mild to moderate psoriasis on their legs and arms were recruited for the study. Patients were included if the extent and severity of their psoriasis had been stable for at least 2 months. Patients could be taking systemic treatments for psoriasis but were excluded if they were using topical psoriasis treatments. Patients were also excluded if they were taking beta-blockers, had lymphoma, or were pregnant or lactating. Lesions were assessed on each patient. Lesions that were similar in appearance were chosen from the left and right arm and leg. Patients applied a placebo cream to either the left or right side and the turmeric treatment cream to the opposite side. The authors note that the side of the body chosen was randomized, but not whether randomization was done within each patient. The data presented suggest that the turmeric microemulgel was always applied to the right arm and leg and that the placebo was applied to the left side of each patient. The microemulgel was applied twice per day for 9 weeks. The placebo contained only the

microemulgel, whereas the treatment contained the microemulgel plus 0.5% of turmeric extracted with water and alcohol (SOHA JISSA Co.; Salman Shahr, Mazandaran, Iran). Curcuminoid concentration of the extract was measured with high-performance liquid chromatography. The redness, thickness, scaling, and area of lesions in each body area were measured with the Psoriasis Area and Severity Index (PASI) every 3 weeks. In addition, patient quality of life was measured at the same time with the Dermatology Life Quality Index (DLQI). Compliance was checked weekly. Data were analyzed with t-tests and chi-squared tests.

Thirty-four patients completed the study. Reasons were not given for the loss of the other patients from the study. The patients noted that stress, changes in temperature, and sun exposure were the most important psoriasis triggers. Within this group of patients, 14.7% had metabolic syndrome, and another 11.8% had diabetes. The number of patients experiencing itching, pain, and social discomfort decreased over the course of the study (P values not given). The redness, thickness, and scaling of lesions on the arms decreased significantly with turmeric treatment over the course of the study ($P < 0.05$). The scaling of lesions on the legs also decreased significantly with turmeric treatment ($P < 0.05$). The mean PASI score with turmeric treatment decreased significantly from 3.6 to 1.4 over the course of the study ($P < 0.05$). The mean PASI score was also significantly lower with the turmeric treatment than with the placebo ($P < 0.05$). The placebo microemulgel did result in a decrease in the PASI score metrics over the first 3 weeks of the study, but this decrease was not significant. Adverse effects were similar between the turmeric and placebo microemulgels and included dryness and burning.

Turmeric microemulgel significantly reduced the symptoms of psoriasis over a 9-week course of treatment. This treatment also improved quality-of-life indices, although statistical analysis of these indices was not provided. In addition, the turmeric microemulgel was well tolerated with few adverse effects. Other studies have found that phosphorylase kinase (PK) expression is higher in patients with psoriasis and that curcuminoids inhibit PK activity. PK is integral to the pro-inflammatory response, and its inhibition should result in a decrease in inflammation. This study may have been limited by the small sample size and type of randomization used. The type of randomization is not adequately described, but the results suggest that the use of the turmeric microemulgel was randomized to the right side of the body for all patients. This may cause unwanted bias. The results of this study suggest that turmeric may be an effective topical treatment for psoriasis with few side effects.

—Cheryl McCutchan, PhD

Referenced article can be accessed at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4518115/.