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File: ■ Turmeric (*Curcuma longa*)
■ Curcumin
■ Knee Osteoarthritis

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RE: Curcumin Used with Nonsteroidal Anti-inflammatory Drug Diclofenac Helps Improve Symptoms of Knee Osteoarthritis

Pinsornsak P, Niempoog S. The efficacy of *Curcuma longa* L. extract as an adjuvant therapy in primary knee osteoarthritis: A randomized control trial. *J Med Assoc Thai*. 2012;95(Suppl 1):S51-S58.

In Thailand, home to these authors, people are living longer, and the incidence of knee osteoarthritis (OA) is increasing. Medical treatment for knee OA includes acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs). The prolonged use of NSAIDs can cause, among other conditions, peptic ulcers and liver and kidney impairment. Thai traditional medicine offers a safer alternative—curcumin from turmeric (*Curcuma longa*)—which has potent antioxidant, anti-inflammatory, antimicrobial, and anticarcinogenic properties. Research supports the combined therapy of curcumin and NSAIDs to increase efficacy and decrease the adverse side effects seen with the use of NSAIDs alone. These authors conducted a double-blind, prospective, randomized, control trial from October 2008 to October 2010 to evaluate the efficacy of curcumin as an adjuvant therapy with the NSAID diclofenac for primary knee OA.

The authors recruited 88 patients aged between 38 and 80 years who met the diagnostic criteria for knee OA established by the American College of Rheumatology. The patients were randomly assigned to take 2 placebo capsules twice daily and diclofenac (25 mg) 3 times daily for 3 months (group 1; n=44). In group 2, 44 patients took 2 curcuminoid capsules (250 mg) twice daily and diclofenac (25 mg) 3 times daily for 3 months. Each curcuminoid capsule (Government Pharmaceutical Organization; Bangkok, Thailand) contained turmeric extract equivalent to 250 mg curcuminoids.

To measure the outcomes, the authors used a pain visual analog scale (VAS) and the Knee Injury and Osteoarthritis Outcome Score (KOOS) at baseline and after 1, 2, and 3 months of treatment. KOOS evaluates knee injury and OA in five categories: symptoms, pain, function in daily living, function in sport and recreation, and knee-related quality of life.

Of the original 88 patients, 7 from group 1 and 6 from group 2 dropped out of the study.

Comparing the scores on the VAS, the authors discovered that both groups had significant improvement in pain at the end of the study compared with baseline. The between-group changes were not significant. Comparing KOOS scores, the authors report greater symptom improvement in group 2, but comparing the groups in a repeated analysis of variance (ANOVA) showed no statistical significance. Pain improvement also tended to be greater in group 2 at 1, 2, and 3 months after medication, but no statistical significance was seen.

Function in daily living, which was worse in group 2 at baseline, improved to the same level as group 1 at months 1 and 2 and was better at the end of the study compared with baseline ($P<0.05$), but no statistically significant between-group changes were seen. Group 1 patients had no statistically significant improvement compared with baseline. The sport and recreation function showed sequential improvement in both groups, but, again, no significant between-group differences were noted. The knee-related quality-of-life score in both groups was better after medication; no significant between-group differences were reported.

Overall, both groups experienced clinical improvement after medication. A greater improvement in VAS scores was seen in group 2, which implies an additive effect in pain reduction using curcumin with the NSAID. In the KOOS, when looking at all 5 aspects, group 2 had superior or equal improvement at the end of the study.

Among the adverse effects reported in the control group were renal function deterioration in 2 patients and facial swelling in 1 patient. In group 2, 1 patient reported hair loss. The authors conclude that the combination therapy showed a "low complication rate and high safety margin."

The results are limited by the dropout rate caused by a lack of transportation for those living in remote areas, as well as the authors' lack of knowledge of the optimal dose of curcumin for combination therapy with diclofenac. " … In the near future we hope to use the higher dose of curcumin combination with lower dose of diclofenac for treatment of osteoarthritis patient to lessen the gastrointestinal, and renal complications of NSAIDs," they write.

The authors conclude that the adjuvant therapy of curcumin with diclofenac has a potential beneficial effect compared with diclofenac alone; however, their statistical analysis showed no significance.

—Shari Henson

The American Botanical Council has chosen not to include the original article.