Review: S-adenosylmethionine treats osteoarthritis as effectively as nonsteroidal anti-inflammatory drugs with fewer adverse effects


**Question**
In patients with osteoarthritis (OA), is treatment with S-adenosylmethionine (SAMe) effective and safe?

**Data Sources**
Studies in all languages were identified by searching MEDLINE (1966 to September 2000), EMBASE/Excerpta Medica (1987 to 2000), CAMPAIN, Science Citation Index, International Pharmaceutical Abstracts, the Cochrane Complementary Medicine Field Registry, National Institutes of Health Office of Dietary Supplements Database, and Micromedex using the term arthritis and all synonyms for SAMe. 3 rheumatology journals and relevant English-language and complementary medicine journals were hand-searched. Web sites, bibliographies of relevant studies, and books were examined, and manufacturers of SAMe were contacted.

**Study Selection**
Studies were selected if they were randomized controlled trials (RCTs) that included patients with a diagnosis of OA; compared SAMe with placebo or nonsteroidal anti-inflammatory drugs (NSAIDs); and reported ≥ 1 of the outcomes of pain, functional limitation, or adverse effects.

**Extraction**
Data were extracted on study characteristics and quality, interventions, and outcomes. For pain and functional limitation, differences in mean responses between treatment and control groups were standardized to account for differences in the measurement scales across studies and expressed as a difference in effect size (ES), with a positive ES favoring SAMe.

**Main Results**
20 studies were identified, and 11 (1442 patients, mean age 60 y, 70% women) met the inclusion criteria. The SAMe dosage was 1200 mg/d orally in 6 studies, 600 mg/d orally in 3 studies, and 400 mg/d intravenously in 1 study; in 1 study, the dosage varied. Treatment duration ranged from 10 to 84 days. NSAIDs were used as active comparators in several studies, and placebo was used in 2 studies. SAMe was more effective than placebo in reducing functional limitation (mean ES 0.31, 95% CI 0.098 to 0.52; 1 study) but not pain (weighted mean ES 0.22, CI –0.25 to 0.69; 2 studies, random-effects model). SAMe and NSAIDs did not differ for functional limitation (weighted mean ES 0.025, CI –0.13 to 0.18; 8 studies, fixed-effects model) or pain (weighted mean ES 0.12, CI –0.029 to 0.27; 8 studies, fixed-effects model). SAMe was associated with fewer adverse effects than NSAIDs (weighted odds ratio 0.42, CI 0.29 to 0.61; 7 studies, fixed-effects model); adverse effects did not differ for SAMe and placebo.

**Conclusions**
In patients with osteoarthritis, S-adenosylmethionine (SAMe) is as effective as nonsteroidal anti-inflammatory drugs in reducing pain and improving functional limitation and is associated with fewer adverse effects. Compared with placebo, SAMe is more effective in improving functional limitation but not pain and does not differ for adverse effects.

**Source of funding:** National Center for Complementary and Alternative Medicine.

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**Commentary**
OA affects >50% of persons ≥ 35 years of age (1), causing direct and indirect costs to the social system and dramatically reducing quality of life. Nonsteroidal antiinflammatory drugs are standard therapy for relieving OA symptoms and prognosis and have lower associated risks than drug interventions (4). These treatments should be optimized before starting long-term drug therapy.

SAMe is up to 50-fold more expensive than paracetamol and should be superior to paracetamol in long-term efficacy and safety before being accepted as an alternative for OA. Weight reduction in obesity, physical training, and local therapy are effective and inexpensive in improving OA symptoms and prognosis and have lower associated risks than drug interventions (4). These treatments should be optimized before starting long-term drug therapy.

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**References**