



Review

A review of select vitamins and minerals used by postmenopausal women

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ABSTRACT

Objectives: The purpose of this review is to summarize the effectiveness of select vitamins, minerals and trace elements in postmenopausal women for their effects on bone health, cardiovascular health, breast cancer, cognition and vasomotor symptoms.

Methods: Review of the relevant literature and results from recent clinical studies, as well as critical analyses of published systematic reviews and meta-analyses were obtained from PubMed and Cochrane Library of Reviews. Vitamin A, the B vitamins, vitamin C, calcium, vitamin D, vitamin E, vitamin K, magnesium, selenium and zinc were selected for review. In circumstances where the vitamin, mineral or trace element has not been studied for a given condition, no information was provided.

Results and discussion: All vitamins, minerals and trace elements play an important role in maintaining health and wellbeing among menopausal women. Adequate dietary intake is essential and supplementation should be considered in women with documented malabsorption syndromes or deficiencies. Based on a review of the literature, supplementation with vitamin C, D, K and calcium can also be recommended for proper maintenance of bone health. The only supplement studied for vasomotor symptoms was vitamin E and this vitamin lacked clinical support. Supplementation in healthy postmenopausal women with vitamins and minerals in diet or pill forms cannot be recommended currently for any other indications.

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1. Introduction

This review focuses on the effects of vitamin and mineral supplementation in postmenopausal women with an emphasis on bone health, cardiovascular health, breast cancer risk, cognition and vasomotor symptoms. The 2007 National Health Interview Survey identified women, ages 50–69, residing in the western United States (US) as more consistent users of complementary and alternative medicine (CAM) and estimated that 18% of adults were using non-vitamin, non-mineral natural products [1]. The sale of vitamins and minerals exceeds that of other dietary supplement categories so it can be assumed that the use of vitamins and minerals among adults exceeds the 18% reported in the NHANES survey [1]. In a survey of 563 menopausal women living in the US who had discontinued hormone replacement therapy, 45% were using CAM therapies to treat vasomotor symptoms; multi-vitamins and calcium were the most prevalent subgroup at 27% [2].

Intake recommendations for vitamins and minerals are set by the National Academy of Sciences, Institute of Medicine Food and Nutrition Board (FNB) as Dietary Reference Intakes (DRIs) [3]. Terms that healthcare providers should be familiar with include Recommended Dietary Allowance (RDA) which refers to the average daily intake needed to meet the needs of 97.5% of individuals at that particular gender and life stage, Adequate Intake (AI) which refers to the daily intake needed to meet the needs of almost all healthy individuals and Tolerable Upper Intake Level (UL) which refers to the maximum daily intake unlikely to produce adverse effects. AI values are used when there is insufficient data to formulate an RDA

recommendation. Table 1 summarizes these values for all of the vitamins and minerals reviewed, specifically among healthy postmenopausal women. Table 2 summarizes recommendations for use of these vitamins and minerals in this population.

2. Methods

PubMed (MEDLINE) and the Cochrane Library of Reviews were searched for relevant systematic reviews and meta-analyses from 1966 to February 2010. In the absence of systematic reviews or meta-analyses, individual randomized controlled trials, prospective and retrospective cohort studies were used. In circumstances where no intervention studies were available, observational/epidemiological studies were reviewed. Search terms used to capture common names and scientific names of vitamins and minerals were based on Medical Subject Heading terms and text words from previously identified key articles. The following key words were used: vitamin A, retinoids, retinol, carotenoids, B vitamins, folate, vitamin B₁₂, cyanocobalamin, vitamin B₆, pyridoxine, vitamin C, ascorbic acid, calcium, vitamin D, vitamin E, tocopherol, vitamin K, phylloquinone, menaquinone, magnesium, selenium and zinc. For each substance, the following terms were searched: menopause, postmenopausal, heart disease, cardiovascular disease, coronary heart disease, bone health, osteoporosis, bone mineral density, osteopenia, cognition, memory, dementia, vasomotor symptoms, hot flash, and breast cancer. We restricted the search to articles published in English, studies involving humans, and studies of adult women aged 45 years or older. We applied the same search strategy to both databases. In circumstances where

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