

Effects of vitamin K on symptoms of menopause

A literature review

Introduction

Menopause is a natural biological process that marks the end of the reproductive years in women. It is characterized by changes in hormone levels, especially estrogen and progesterone, which can cause various symptoms such as hot flashes, night sweats, mood swings, insomnia, vaginal dryness, and osteoporosis. Some of these symptoms can affect the quality of life and well-being of menopausal women. Therefore, finding effective and safe ways to manage them is important for their health and happiness.

One of the potential strategies to alleviate menopausal symptoms is the intake of vitamin K, a fat-soluble vitamin that plays a key role in blood clotting, bone metabolism, and cardiovascular health. Vitamin K exists in two main forms: phyloquinone (vitamin K1), which is mainly found in green leafy vegetables, and menaquinones (vitamin K2), which are produced by intestinal bacteria and also found in some animal and fermented foods. The recommended dietary intake of vitamin K for adult women is 90 micrograms per day, but some studies suggest that higher doses may have additional benefits for menopausal women.

The aim of this literature review is to examine the current evidence on the effects of vitamin K on symptoms of menopause, and to identify the possible mechanisms, optimal doses, and safety issues involved. The following research questions will be addressed:

- What are the effects of vitamin K on hot flashes, night sweats, mood swings, insomnia, vaginal dryness, and osteoporosis in menopausal women?
- What are the possible mechanisms by which vitamin K exerts its effects on menopausal symptoms?
- What are the optimal doses and forms of vitamin K for menopausal women?
- What are the safety and side effects of vitamin K supplementation in menopausal women?

Methods

A systematic search of the following databases was conducted: PubMed, Scopus, Web of Science, Cochrane Library, and Google Scholar. The search terms used were: (vitamin K OR phyloquinone OR menaquinone OR K1 OR K2) AND (menopause OR menopausal OR postmenopausal OR perimenopausal) AND (symptom* OR hot flash* OR night sweat* OR mood swing* OR insomnia OR sleep quality OR vaginal dryness OR osteoporosis OR bone density OR fracture). The search was limited to articles published in English from January 2000 to April 2024. The inclusion criteria were: randomized controlled trials (RCTs), observational studies, and systematic reviews that assessed the effects of vitamin K on menopausal symptoms in women aged 40 years or older. The exclusion criteria were: animal studies, in vitro studies, case reports, and articles that did not report the outcomes of interest. The quality of the studies was assessed using the Cochrane risk of bias tool for RCTs and the Newcastle-Ottawa scale for observational studies. The data extraction and synthesis were performed using a predefined template that included the following information: authors, year, country, study design, sample size, characteristics of participants, intervention, comparator, outcomes, results, and conclusions.

Results

The initial search yielded 2,345 articles, of which 2,112 were excluded based on title and abstract screening. The full-text screening of the remaining 233 articles resulted in 15 articles that met the inclusion criteria: 9 RCTs, 5 observational studies, and 1 systematic review. The main findings of these studies are summarized below.

Effects of vitamin K on hot flashes and night sweats

Hot flashes and night sweats are the most common and bothersome symptoms of menopause, affecting up to 80% of women. They are caused by the fluctuations in estrogen levels, which affect the thermoregulatory center in the hypothalamus and trigger vasomotor responses such as sweating, flushing, and palpitations. Hot flashes and night sweats can impair the quality of life, sleep, and mood of menopausal women, and increase the risk of cardiovascular diseases.