Bisphosphonates for cardiovascular risk reduction: A systematic review and meta-analysis.


BACKGROUND AND AIMS: Bisphosphonates might be effective in reducing cardiovascular events due to their ability to reduce calcification in arterial walls. We aimed to investigate the effects of treatment with bisphosphonates on the prevention of atherosclerotic processes and cardiovascular disease. METHODS: Pubmed, Embase and the Cochrane Library were systematically reviewed by two independent investigators for randomized controlled studies published up to January 2016, in which the effect of bisphosphonates on arterial wall disease, cardiovascular events, cardiovascular mortality or all-cause mortality were reported. There was no restriction for the type of population used in the trials. Random-effects models were used to calculate the pooled estimates. RESULTS: 61 trials reporting the effects of bisphosphonates on the outcomes of interest were included. Bisphosphonates had beneficial effects on arterial wall disease regarding arterial calcification (pooled mean percentage difference of 2 trials -11.52 (95% CI -16.51 to -6.52, p < 0.01, I² 13%), but not on arterial stiffness (pooled mean percentage difference of 2 trials -2.82; 95% CI -10.71-5.07; p = 0.48, I² 59%). No effect of bisphosphonate treatment on cardiovascular events was found (pooled RR of 20 trials 1.03; 95% CI 0.91-1.17, I² 16%), while a lower risk for cardiovascular mortality was observed in patients treated with bisphosphonates (pooled RR of 10 trials 0.81; 95% CI 0.64-1.02; I² 0%) although not statistically significant. Patients treated with bisphosphonates had a reduced risk of all-cause mortality (pooled RR of 48 trials 0.90; 95% CI 0.84-0.98; I² 53%). CONCLUSIONS: In this systematic review and meta-analysis it is shown that bisphosphonates reduce arterial wall calcification but have no effect on arterial stiffness or on cardiovascular events. Bisphosphonates tend to reduce the risk of cardiovascular mortality and reduce all-cause mortality in various patient groups, including osteoporosis and cancer patients.
We evaluated individual grain-containing foods and whole and refined grain intake during adolescence, early adulthood, and premenopausal years in relation to breast cancer risk in the Nurses' Health Study II. Grain-containing food intakes were reported on a baseline dietary questionnaire (1991) and every 4 years thereafter. Among 90,516 premenopausal women aged 27-44 years, we prospectively identified 3235 invasive breast cancer cases during follow-up to 2013. 44,263 women reported their diet during high school, and from 1998 to 2013, 1347 breast cancer cases were identified among these women. Cox proportional hazards regression was used to estimate relative risks (RR) and 95% confidence intervals (95% CI) of breast cancer for individual, whole and refined grain foods. After adjusting for known breast cancer risk factors, adult intake of whole grain foods was associated with lower premenopausal breast cancer risk (highest vs. lowest quintile: RR 0.82; 95% CI 0.70-0.97; P trend = 0.03), but not postmenopausal breast cancer. This association was no longer significant after further adjustment for fiber intake. The average of adolescent and early adulthood whole grain food intake was suggestively associated with lower premenopausal breast cancer risk (highest vs lowest quintile: RR 0.74; 95% CI 0.56-0.99; P trend = 0.09). Total refined grain food intake was not associated with risk of breast cancer. Most individual grain-containing foods were not associated with breast cancer risk. The exceptions were adult brown rice which was associated with lower risk of overall and premenopausal breast cancer (for each 2 servings/week: RR 0.94; 95% CI 0.89-0.99 and RR 0.91; 95% CI 0.85-0.99, respectively) and adult white bread intake which was associated with increased overall breast cancer risk (for each 2 servings/week: RR 1.02; 95% CI 1.01-1.04), as well as breast cancer before and after menopause. Further, pasta intake was inversely associated with overall breast cancer risk. Our results suggest that high whole grain food intake may be associated with lower breast cancer risk before menopause. Fiber in whole grain foods may mediate the association with whole grains.

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**Antihypertensive drugs and the risk of femur fracture in hypertensive patients in Swedish primary health care. Results from the Swedish primary care cardiovascular database (spccd).**


**OBJECTIVE:** Hypertension and osteoporosis are major public health problems that often coexist in the aging population. This study aimed to examine the associations between exposure to different antihypertensive drug classes and the risk of femur fracture in hypertensive men and women in Swedish primary health care. **DESIGN AND METHOD:** This retrospective cohort study includes 63591 individuals, 50 years and older, diagnosed with hypertension during 2001-2008 in the Swedish Primary Care Cardiovascular Database (SPCCD). All patients were followed 1 Jan 2006 (or the date of their first diagnosis of hypertension if that date came later) until they had their first femur fracture, died, or reached the end of the database on 31 December 2012, whichever came first. Cox proportional hazards models were used to calculate the relative risk of femur fracture across types of antihypertensive medications. Analyses were adjusted for age, sex, comorbidity, medications and socioeconomic factors. **RESULTS:** A total of 2737 femur fractures were observed during follow-up. Current use of thiazides was associated with a reduced risk of femur fracture (HR 0.83; 95% CI 0.74-0.93), as well as use of fixed drug combinations containing a thiazide (ACE-inhibitors+thiazide or angiotensin-receptor blocker+thiazide) (HR 0.67; 95% CI 0.56-0.80). Current use of loop-diuretics was associated with an increased risk of femur fracture (HR 1.23; 95% CI 1.09-1.38). No significant associations were found between femur fracture and current exposure to beta-blockers, alfa-blockers, aldosterone-receptor blockers, ACE-inhibitors, angiotensin-receptor blockers or calcium-channel blockers. **CONCLUSIONS:** In this large observational study of hypertensive patients, we could identify a protective effect on femur fracture risk in users of thiazide diuretics or combination pills containing a thiazide, whereas use of loop-diuretics was associated with an increased risk. Exposure to any other antihypertensive agent was associated with neither a decrease nor increase in fracture risk. In conclusion, the risk of femur fracture appear to differ across users of different antihypertensive agents, a knowledge that could have practical applications in primary health care to prevent adverse outcomes from both hypertension and osteoporosis in the aging population.

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**Drospirenone with estradiol for postmenopausal women with hypertension: a systemic review and meta-analysis.**

Zhao X, Yu J.
OBJECTIVE: To assess the efficacy and safety of a novel hormone therapy drospirenone combined 17-β-estradiol (DRSP/E2) in postmenopausal hypertensive women. DESIGN AND METHOD: We searched the following databases including PubMed, Cochrane Library, EMBASE, Web of Science and added literature by manual retrieval. The randomized controlled trials (RCT) about the drospirenone with 17-β-estradiol for postmenopausal women with hypertension were included. Studies were screened independently by two researches according to the inclusion and exclusion criteria; data were extracted; the methodological quality was evaluated by Cochrane handbook 5.1.0 and meta-analyses were conducted by using RevMan 5.3.0 software. RESULTS: Five studies involving 1263 patients were included. The results of Meta-analysis showed that DRSP/E2 was superior in reducing blood pressure (BP), the clinic BP was reduced significantly compared with the control group (systolic BP, MD=-5.74, 95% CI: -7.67 to -3.82, P<0.00001; diastolic BP:MD=-5.62, 95% CI: -6.82 to -4.41, P<0.00001). The change of 24-h mean BP in DRSP/E2 shows a statistically significant difference (24-h systolic BP, MD=-5.77, 95% CI: -7.85 to -3.68, P<0.00001; 24-h diastolic BP:MD=-3.59, 95% CI: -4.92 to -2.27, P<0.00001); There were no significant changes from baseline in potassium levels (SD=0.02, 95% CI: -0.07 to 0.04, P=0.50) on DRSP/E2 compared with control group. There was no statistical difference in the incidence of adverse events (RR=0.59, 95% CI: 0.24 to 1.44, P=0.25) between DRSP/E2 and control group. CONCLUSIONS: The current evidences indicate that DRSP/E2 can significantly lower both systolic blood pressure and diastolic blood pressure in postmenopausal women with hypertension. This characteristic may lead to benefit for blood pressure reduction in this population. As the sample of included RCT is not large enough, the follow-up is short, the larger sample randomized, and controlled trials are required to prove further the curative effect and safety of Drospirenone with 17-β-Estradiol for postmenopausal hypertension.


Long-term Effects on Cognitive Trajectories of Postmenopausal Hormone Therapy in Two Age Groups.

Espeland MA, Rapp SR, Manson JE. Goveas JS, Shumaker SA, et al; WHIMSY and WHIMS-ECHO Study Groups. BACKGROUND: Postmenopausal hormone therapy may have long-term effects on cognitive function depending on women's age. METHODS: Postintervention follow-up was conducted with annual cognitive assessments of two randomized controlled clinical trial cohorts, beginning an average of 6-7 years after study medications were terminated: 1,376 women who had enrolled in the Women's Health Initiative when aged 50-54 years and 2,880 who had enrolled when aged 65-79 years. Women had been randomly assigned to 0.625mg/d conjugated equine estrogens (CEE) for those with prior hysterectomy (mean 7.1 years), CEE with 2.5mg/d medroxyprogesterone acetate for those without prior hysterectomy (mean 5.4 years), or matching placebos. RESULTS: Hormone therapy, when prescribed to women aged 50-54 years, had no significant long-term posttreatment effects on cognitive function and on changes in cognitive function. When prescribed to older women, it was associated with long-term mean (SE) relative decrements (standard deviation units) in global cognitive function of 0.081 (0.029), working memory of 0.070 (0.025), and executive function of 0.054 (0.023), all P < .05. These decrements were relatively stable over time. Findings did not vary depending on the hormone therapy regimen, prior use, or years from last menstrual period. Mean intervention effects were small; however, the largest were comparable in magnitude to those seen during the trial's active intervention phase. CONCLUSIONS: CEE-based hormone therapy delivered near the time of menopause provides neither cognitive benefit nor detriment. If administered in older women, it results in small decrements in several cognitive domains that remain for many years.

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Use of systemic hormone therapy in BRCA mutation carriers.

Domchek S, Kaunitz AM.
As more women are being counseled and tested, clinicians increasingly encounter women with identified BRCA1 and BRCA2 gene mutations. Existing, albeit limited, data indicate that risks of breast cancer are not increased with use of systemic hormone therapy by menopausal BRCA mutation carriers with intact breasts. Young mutation carriers with or without intact breasts should not defer or avoid risk-reducing (and lifesaving) bilateral salpingo-oophorectomy because of concerns that subsequent use of systemic hormone therapy will elevate breast cancer risk.