

Publication

Is age at menopause increasing across Europe? : results on age at menopause and determinants from two population-based studies

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OBJECTIVE: To investigate the variability and determinants of menopause age in two European cohort studies, the European Respiratory Health Survey and the Swiss Air Pollution and Lung Disease in Adults Cohort. **METHODS:** Age at menopause was estimated in 5,288 women, aged 30 to 60 years, randomly selected in nine European countries between 1998 and 2002. Determinants of natural and surgically induced menopause were investigated by Cox regression and heterogeneity by meta-analysis. Follicle-stimulating hormone and luteinizing hormone levels were assessed in a subsample. **RESULTS:** A quarter of the women were postmenopausal by age 50.8 years. Median age of natural menopause was 54 years. Hormone levels were within expected ranges for premenopausal and postmenopausal women. Surgically induced menopause was highly prevalent (22%-47%), associated with earlier timing of menopause. Determinants of earlier menopause were current smoking (hazard ratio [HR], 1.59; 95% CI, 1.27-1.98), body mass index greater than 30 kg/m (HR, 1.32; 95% CI, 1.02-1.70), and low physical activity (HR, 1.37; 95% CI, 1.12-1.67). The determinant for later menopause was multiparity (HR, 0.74; 95% CI, 0.62-0.89). Predictors were similar for naturally and surgically induced menopause. Oral contraceptive use yielded heterogeneous effects on timing of menopause. Later birth was associated with later menopause (HR, 0.934; 95% CI, 0.91-0.96). This evidence of a secular trend is heterogeneous across countries. **CONCLUSIONS:** Age at menopause varies across Europe, shifting toward higher ages. This secular trend seems paradoxical because several adult determinants, that is, overweight, smoking, sedentarity, and nulliparity, associated with early menopause are on the rise in Europe. The heterogeneity of the secular trend suggests additional country-specific factors not included in the study, such as improved childhood nutrition and health, that have an influence on reproductive aging.

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