Periodontal changes in postmenopause


Summary. This study of 5-year changes in periodontal disease examined 1,025 postmenopausal women (ages 53-83) who completed baseline and follow-up whole mouth oral examinations. There were definitive selection and inclusion criteria: having at least six teeth present in the oral cavity, negative history of bilateral hip replacement, negative current or past bone disease other than osteoporosis, negative history of cancer within the past 10 years, and no other serious ailment. All participants enrolled from 1997 to 2001 and were re-interviewed between 2002 and 2006.

The authors looked at the following specific periodontal health indicators: periodontal pocket depth (PD), clinical attachment loss (CAL), gingival bleeding and plaque index; etiological factors for tooth loss including but not limited to caries, trauma, or periodontal disease; alveolar crestal height (ACH) from dental radiographs. If these measures change significantly from baseline to review within 5 years, they would be clinical indicators of either initiation or advancement of periodontal disease among the postmenopausal women studied. Baseline measures of periodontal disease were: 27%, no or mild periodontal disease; 58%, moderate; 15%, severe. Based on ACH, mean changes showed progression (−0.19 +/- 0.49 mm). Based on PD and CAL, changes were relatively stable (0.11 +/- 0.42 and 0.06 +/- 0.58 mm, respectively). Researchers concluded that 5-year changes in periodontal measures were small in generally healthy women and did not present a consistent progression pattern; however, women with severe periodontitis or osteoporosis might lose more oral bone.

Comment. This well-designed study was conducted via piggy-backing on the original Women’s Health Initiative Observational Study. The results showed that the alveolar bone loss (via ACH measurements) was greater in those who had severe baseline periodontal disease and osteoporosis. The systemic bone loss was a predisposing factor for increased dental bone loss around the teeth leading to loss of teeth. The study also showed that increased dental bone loss was slower among postmenopausal women who received hormone therapy as opposed to those who did not.
Overall, the results of the study revealed that periodontal disease progresses slowly among healthy older postmenopausal women. If risk factors for periodontal disease exist (like osteoporosis or smoking), then evaluation of ACH from dental radiographs should be done after a periodic clinical exam to prevent further tooth loss or advancing periodontal disease. Another recent study from Centers for Disease Control researchers showed an alarming rate of periodontal disease prevalence (over 47%) among the US adult population (>30 y). Some of the subjects in the study also advanced to a more severe classification of periodontal disease over time. In light of all this, LaMonte et al raises awareness about the importance of screening for loss of dental bone height (interdental and crestal) especially in postmenopausal women. Clinical periodontal examination and dental bitewing radiographs are the best-known methods of assessing bone loss with an appropriate follow-up protocol.

References:

**Endothelial function impaired across menopause transition**


**Level of evidence: II-2.**

**Summary.** How is endothelial function reduced across the stages of menopause? Researchers in this cross-sectional study examined 132 healthy women (22-70 y) grouped as premenopausal (n = 33, 32 +/- 6 y) early perimenopausal (n = 20, 49 +/- 3 y) or late perimenopausal (n = 22, 50 +/- 4 y), or early (n = 30, 55 +/- 3 y) or late postmenopausal (n = 27, 61 +/- 4 y). Brachial artery flow-mediated dilation (FMD) using ultrasound was used to measure endothelial-dependent vasodilation. It was significantly different among the menopausal categories, highest in premenopausal women with progressive decreases in peri- and postmenopausal women. Adjusting for risk factors, vasomotor symptoms, and sex hormones did not alter the association.

Brachial artery FMD was lower in late perimenopausal and early and late postmenopausal women ages 50 to 59, as compared with early perimenopausal women in this age group. Researchers concluded that endothelial function begins to decline in early perimenopause and worsens over time. Thus, perimenopause is critical for adverse changes in cardiovascular disease (CVD) risk.

**Comment #1.** In this study, Moreau et al present a logical extension of their research over the past decade on early arterial changes in women that may modulate subsequent postmenopausal CVD. In 2002, Moreau and her coworkers observed a protective effect of regular exercise, hormone therapy (HT), and the combination of exercise and HT on femoral arterial intima thickness. In 2003, the group again made an important contribution concerning the protective effect of HT and exercise on age-related decline in carotid artery compliance in healthy postmenopausal women. More recently, her group reported that hysterectomy with or without bilateral oophorectomy was associated with greater arterial stiffening in estrogen-deficient women. Because arterial stiffening and arterial compliance are likely associated with or even...
modulated by endothelial function, the current publication is a logical extension of the aforementioned research. This most recent study has important implications for both women’s healthcare providers and for cardiovascular researchers concerned with the early pathogenesis of CVD in pre-, peri-, and postmenopausal women.

The implications for healthcare providers are clear. Interventions such as lifestyle interventions or HT should be directed at the earliest stages of arterial pathologic changes. Based on three decades of studies using nonhuman primate models, we have developed a conceptual framework for understanding the important role of pre- and early menopausal atherosclerosis as it relates to postmenopausal atherosclerosis extent and severity. This nonhuman primate model evidence suggests that atherosclerosis burden accumulated before menopause (i.e., fatty streaks) predicts atherosclerosis progression during the menopausal transition and postmenopause.

Our conceptual framework is supported by studies on the natural history of atherosclerosis in the coronary arteries of women. The Pathobiological Determinants of Atherosclerosis in Youth (PDAY) study provided important information on the premenopausal progression of fatty streaks and early atherosclerotic lesions in the coronary arteries of young women (<35 y) dying accidental deaths. If one plots age-related premenopausal atherosclerosis progression with coronary artery atherosclerosis extent among postmenopausal women at increasing ages, there is a linear trajectory of atherosclerosis progression from pre- to postmenopause. Taken together, the evidence strongly supports early intervention of pre- and perimenopausal women at high risk.

The findings from the current paper have exciting implications for future cardiovascular research. We need to better understand whether the cellular molecular processes involved in plaque initiation differ from those processes related to plaque progression and how these processes relate to arterial function and CVD events. Moreau et al tended to discount the possibility that most if not all of the women in their study had already developed fatty streaks and some uncomplicated plaques. PDAY showed clearly that by age 35, fatty streaks were observed over ~10% of the intimal surface of the right coronary artery, ~20% of the thoracic aorta, and ~50% of the abdominal aorta. It remains to be determined whether the endothelial impairments during menopause result from pre-existing arterial lesions or whether the observations reported were independent of lesion progression. Moreau et al also found that endothelial dysfunction persisted after adjusting for low-density lipoprotein (LDL) cholesterol concentrations.

Left unexplored is whether detriments in nitric oxide synthesis and release occur in relation to changes in estrogen status (endogenous or exogenous) across the menopause transition. Such alterations could result in increased LDL oxidation and the accumulation of intimal foam cells, which in turn modulate endothelial function.

Susan E. Appt, DVM
Assistant Professor of Comparative Medicine
Wake Forest School of Medicine
Winston Salem, NC

Thomas B. Clarkson, DVM
Professor of Comparative Medicine
Wake Forest School of Medicine
Winston Salem, NC

References:
Comment #2. Moreau et al compare a surrogate marker of endothelial function among groups of women in different stages of menopause. The women were apparently healthy, mostly Caucasian, nonsmoking, normotensive, and sedentary/recreationally active. The study was done before the release of the STRAW+10 menopausal staging system,1 and it relies on self-report of menstrual characteristics. The data demonstrate a stepwise decline of brachial artery FMD, comparing women by age and menopause stage groups.

It has been unclear how changes in ovarian hormones during perimenopause influence endothelial function. In the present study, because endothelial function was worse among groups of women across the stages of the menopause transition, it provides the suggestion that endothelial protection may be lost with declines in ovarian function. Although menopause stages, particularly late perimenopause, were associated with a greater reporting of hot flashes in the previous year and with higher vasoasomatic frequency and severity scores, the investigators could not find an association between hot flashes and brachial artery FMD.

We should be mindful of several caveats regarding this study. It is cross-sectional and compares different persons grouped by menopausal status. It does not measure the same persons transitioning through menopause (ie, it is not longitudinal). The cross-sectional comparison of groups generates the hypothesis that estrogen changes may be important in declining endothelial function but it does not allow for causal inference. While endothelial function studied in the hands of excellent investigators is a convenient surrogate, it is still a surrogate for vascular disease. The biggest risk factor for CVD is aging. Given that CVD is the likely cause of death for most women, the study reminds us also that we should be very conscious that the menopause transition provides a wonderful opportunity for us to screen for CVD risk factors and to implement prevention.

Robert A. Wild, MD, PhD, MPH, NCMP
Professor of Ob/Gyn & Clinical Epidemiology & Biostatistics
Oklahoma University Health Sciences Center
Chief of Gynecology, VA Medical Center
Oklahoma City, OK

Reference:

Recipe for postmenopausal weight loss


Summary. Weight control can be particularly challenging for postmenopausal women. To identify the dietary changes most conducive to long-term weight loss in overweight and obese women, US investigators analyzed data from 419 postmenopausal participants in the WOMAN Study. Women were randomized to "lifestyle change" intervention (regular group meetings facilitated by nutritionists, exercise physiologists, and psychologists) or a health education control group.

At 48 months of follow-up, 57% of intervention participants and 29% of controls had maintained at least a 5-pound weight loss. In multivariable
analysis that combined both groups, increased consumption of fruits and vegetables and decreased consumption of desserts, sugar-sweetened beverages, and meat and cheese were associated with long-term weight control.

**Comment.** Given that more than one third of people in the US are now obese, clinicians are frequently asked for advice about weight control. This study confirms that the recommended recipe for weight loss requires little modification as women age. Unfortunately, however, these guidelines are harder for women to practice than for clinicians to preach.

Eleanor Bimla Schwarz, MD, MS
Director, Women's Health Services Research Unit
Associate Professor of Medicine, Epidemiology, and Obstetrics, Gynecology and Reproductive Sciences
University of Pittsburgh
Pittsburgh, PA


**Menopause Editor’s picks from September 2012**

NAMS spotlights selections from the most recent issue of the Society’s official journal, *Menopause*, chosen by its Editor-in-Chief, Dr. Isaac Schiff.


A history of major depression was significantly associated with heavy bleeding in the 12 months before study entry in an ancillary study of the Study of Women’s Health Across the Nation, independent of recent major depression and perimenopause status but not independent of other menstrual bleeding problems or premenstrual symptoms.


Plasma concentrations of 25-hydroxyvitamin D₃, in conjunction with the quantity of vitamin D receptors in coronary arteries, appear to be associated with atherosclerosis.


Moderate alcohol consumption is associated with higher bone mass in postmenopausal women. This study suggests that moderate alcohol intake may slow bone loss in postmenopausal women by attenuating increased bone turnover.


This study examined the effects of a dietary intervention and weight change on changes in vasomotor symptoms in the Women’s Health Initiative. Both healthy dietary change and weight loss were related to greater odds of eliminating vasomotor symptoms.

The level of evidence indicated for each study is based on a grading system that evaluates the scientific rigor of the study design, as developed by the US Preventive Services Task Force. A synopsis of the levels is presented below.

| Level I | Properly randomized, controlled trial. |
| Level II-1 | Well-designed controlled trial but without randomization. |
| Level II-2 | Well-designed cohort or case-control analytic study. |
| Level II-3 | Multiple time series with or without the intervention (eg, cross-sectional and uncontrolled investigational studies). |
| Level III | Meta-analyses; reports from expert committees; descriptive studies and case reports. |
Two Major NAMS Initiatives to Be Unveiled at the Annual Meeting in Orlando

NAMS & APGO Collaborate
The result of a brand-new partnership between The North American Menopause Society (NAMS) and the Association of Professors of Gynecology and Obstetrics (APGO), the “Contemporary Clinical Management of Menopause” online module is now available. The goal of this educational program is to enable healthcare professionals to help midlife women improve their overall health by addressing the symptoms and physical changes that menopause can bring.

The module features a downloadable CME monograph in PDF format, four interactive CME case studies, and downloadable teaching slides.

NAMS “Menopause Basics” Slide Set Again Available
Back by popular demand, the “Menopause Basics” slide set is newly updated and designed for 2012. Covering all the important topics from loss of fertility to premature menopause to osteoporosis and hormone therapy, the more than 200 slides are perfect for menopause practitioners who make presentations about the menopause transition and beyond to both professionals and women. “Menopause Basics” is the most complete set of midlife health slides available anywhere.

For sale on a convenient flash drive, the slide set is both affordable and up to date. See you in Orlando!