

OSTEOPOROSIS PERSPECTIVES

VOLUME 1

NUMBER 1



America Responds to the Women's Health Initiative (WHI) Study

The Women's Health Initiative (WHI) study is an NIH-sponsored multicenter study that began in 1993 and enrolled 161,809 women ages 50-79.¹ It is one of the first randomized controlled trials with a study population of a size sufficient to examine the relationship between hormone replacement therapy and cardiovascular disease, thromboembolism, breast cancer, fractures, and other outcomes. The estrogen plus progestin arm of the study (n=16,608) enrolled healthy postmenopausal women (mean age 63) with an intact uterus. This arm of the WHI trial was a randomized, placebo-controlled study of daily administration of Prempro™ (conjugated equine estrogen 0.625 mg/day and medroxyprogesterone acetate 2.5 mg/day). It is the most rigorous study to date of the effect of combined estrogen and progestin on breast cancer risk and cardiovascular disease. Another arm of the study includes women who had undergone a hysterectomy and received estrogen alone or placebo (n=10,739). Additional, ongoing WHI studies are evaluating memory, dementia, calcium, vitamin D, and low-fat diets.

On July 9, 2002, the National Heart, Lung, and Blood Institute of the National Institutes of Health announced that it had halted the study arm evaluating the combined use of estrogen and progestin. After evaluating available data, they concluded that the risks of therapy, specifically the increased risk for invasive breast cancer, outweighed the benefits.

Approved for 1 hour of continuing medical education (CME) credit

Edited by

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Society (NAMS)

The estrogen-only arm is continuing, with no reported increase in the risk for breast cancer to date.

Summary of WHI study results

A major outcome measure was the risk for cardiovascular disease. The WHI results showed no benefit in the prevention of heart disease; in fact, there was a small but significant increase in the risk for cardiovascular events among

women taking combined therapy (Figure 1). There was a 29% increase in the risk for coronary heart disease (CHD) [hazard ratio: 1.29 (95% confidence interval: 1.02-1.63)]. This translates into seven additional CHD events per 10,000 women per year. The risk is cumulative over time.

The WHI results also showed a 26% increase in the risk of invasive breast cancer with combined estrogen-progestin use [hazard ratio: 1.26 (95% confidence interval: 1.00-1.59)] (Figure 2). Again, the increased risk for the individual is small, resulting in eight additional cases per 10,000 women per year. As above, the risk is cumulative over time.

There was a 41% increase in the risk for stroke [hazard ratio: 1.41 (95% confidence interval: 1.07-1.85)], while the risk for pulmonary embolism was more than doubled [hazard ratio: 2.13 (95% confidence interval: 1.39-3.25)] in women taking combined therapy. These results are consistent with those of earlier studies. For individuals, the risk remains low but is cumulative over time, resulting in eight additional cases of stroke and eight additional cases of pulmonary embolism per 10,000 women per year.

The WHI results supported the fracture benefits suggested by earlier studies. The incidence of hip fracture was reduced by 34% in women taking the combined therapy [hazard ratio: 0.66 (95% confidence interval: 0.45-0.98)]. This translates into five fewer hip fractures per 10,000 women per year.

Continued on page 3

PROGRAM FACULTY

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accordance with Accreditation Council for
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Essentials and Standards.

STATEMENT OF EDUCATIONAL NEED

This activity is designed to respond to
the needs of obstetricians/gynecologists
and other physicians who care for women
at risk for osteoporosis or with established
osteoporosis.

EDUCATIONAL OBJECTIVES

After reading this newsletter and
completing the post-test, the participant
should be able to:

- Describe the risks and benefits of
hormone replacement therapy (HRT)
based on the results of the Women's
Health Initiative (WHI) study.
- Describe the effects of the discontinu-
ation of estrogen on bone density and
bone markers.
- Compare the relative risk of fractures
in women on continuous estrogen
therapy since menopause with that in
women who took estrogen for less
than one year and that in women who
never had estrogen therapy.
- Choose appropriate alternatives to
HRT in women at risk for osteoporosis

STATEMENT OF EDUCATIONAL METHOD

The educational information is presented
in an 8-page newsletter.

STATEMENT OF EVALUATION INSTRUMENT

A 12-question, multiple-choice post-test
is used as the evaluation instrument. An
activity evaluation questionnaire will be
completed by each participant.

STATEMENT OF INTENDED, OR TARGET, AUDIENCE

This activity is intended for, but not
limited to: obstetricians/gynecologists
and other physicians who care for
patients with osteoporosis or who are
at risk for osteoporosis.

INSTRUCTIONS

To earn 1 hour of category 1 credit, read
the material in this newsletter carefully.
Complete the activity evaluation and
answer the post-test questions on the
accompanying questionnaire. Send the
questionnaire in the enclosed envelope to:
OCME REGISTRAR, P.O. Box 980048,
Richmond, VA 23298-0048. ATTN:
OSTEOPOROSIS PERSPECTIVES #1.
Your credit certificate will be returned.
Participation is confidential. Estimated
program completion time: 1 hour.

Course Number: END IN 04 101 03

Release date: April 2003.
Expiration date: March 31, 2005.

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unrestricted educational grant from
Merck & Co., Inc.

ANSWER KEY TO CME POST-TEST

1. A 2. E 3. A 4. B 5. A 6. A
7. A 8. B 9. B 10. C 11. B 12. B

Figure 1. Cumulative hazard for CHD¹

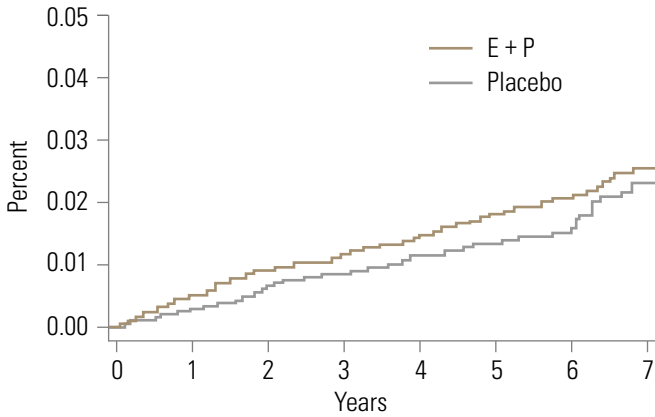
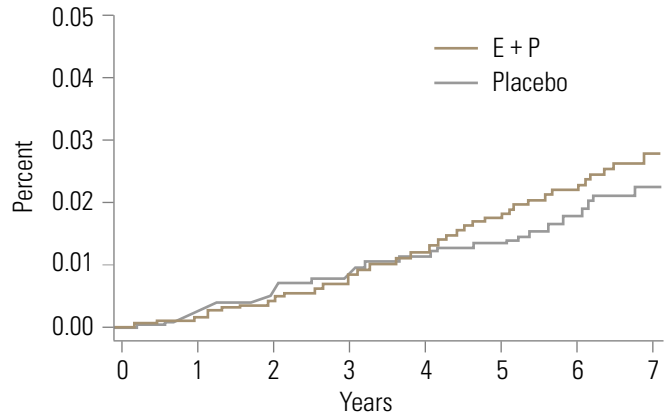


Figure 2. Cumulative hazard for invasive breast cancer¹



Vertebral fractures were also reduced by 34% [hazard ratio: 0.66 (95% confidence interval: 0.44-0.98)]. This translates into six fewer fractures per 10,000 women per year. Total fractures were reduced by 24% [hazard ratio: 0.76 (95% confidence interval: 0.69-0.85)], or 44 fewer fractures per 10,000 women per year.

The risk for colon cancer was reduced by 37% among women taking combined therapy [hazard ratio: 0.63 (95% confidence interval: 0.43-0.92)], resulting in six fewer cases per 10,000 women per year. The mechanism for this apparent protective effect is unknown.

Responses to WHI results: recommendations of The American College of Obstetricians and Gynecologists (ACOG)

The WHI study results overturned much of the conventional wisdom about the benefits of combined estrogen-progestin treatment. The results, which received extensive coverage in the lay as well as the professional press, suggest that hormone replacement therapy using the Prempro™ formulation, can no longer be recommended for long-term therapy. Clinicians were flooded with phone calls from concerned patients and there was considerable debate among professionals about the clinical implications of the results.

An ACOG expert panel review of available data emphasized that the results of the WHI trial are applicable only to the estrogen-progestin regimen used in the study and cannot reasonably be extrapolated to other formulations. The panel made the following recommendations:²

The decision to use hormone replacement therapy (HRT) should be based on an evaluation of the risks and benefits for each individual patient. Physicians who prescribe HRT for vasomotor symptoms should do so for the shortest possible time at the lowest effective dose. The WHI study did not establish what constitutes a safe period for short-term use.

Women who request long-term HRT therapy for perceived quality-of-life benefits should be counseled about the risks and about available alternative therapies. If they choose to continue HRT, it should be at the lowest possible dose and the need for therapy should be reevaluated periodically. For nonhormonal alternatives may be effective; these include selective serotonin reuptake inhibitors, clonidine, or Bellerгал-S.

Combined estrogen-progestin cannot be recommended for the prevention of cardiovascular disease; if previously prescribed for this purpose, the therapy should be discontinued. Exercise, smoking cessation, and weight loss should be recommended for all women.

Alternative preventive therapies, such as bisphosphonates or raloxifene, should be

prescribed for women with osteoporosis. However, for women with osteoporosis and vasomotor symptoms, the benefits of HRT may outweigh the risks.

The benefits of HRT in preventing colorectal cancer, Alzheimer's disease, or mood disturbances have not been conclusively demonstrated, and HRT cannot be recommended for these indications.

Some women who discontinue HRT, either abruptly or incrementally, will experience vasomotor symptoms and/or vaginal bleeding. At this time, there are no definitive data to guide the withdrawal process.

Responses to WHI results: report from The North American Menopause Society (NAMS)

In response to the WHI and Heart and Estrogen/Progestin Replacement (HERS) trials, The North American Menopause Society (NAMS) recently convened an expert Advisory Panel to develop clinical recommendations regarding the use of HRT.³ The panelists developed a list of clinically relevant questions and answers and then met by conference call to attempt to reach a consensus.

HERS was a randomized, placebo-controlled trial of postmenopausal women with documented heart disease (n = 2763). The mean age of women in this study was 67 years (range: 55-79).

Patients were assigned to estrogen plus progestin or placebo. The initial study ended after 4.1 average years of follow-up, but 93% of the subjects continued treatment for an additional 2.7 years. Results showed no decreased risk for coronary heart disease, a nonsignificant increased risk for stroke, and a significantly increased risk for venous thromboembolism [hazard ratio: 2.08 (95% confidence interval: 1.28-3.40)]. HERS did not show significant differences between the groups in the risk of fracture.

The Advisory Panel reached a consensus on the following major clinical practice issues:



- The primary indication for HRT remains the treatment of vasomotor and urogenital menopausal symptoms.
- Women on estrogen therapy who have an intact uterus should receive adequate progestin to protect the endometrium. Women without a uterus should not be prescribed a progestin.
- No HRT regimen should be prescribed for the prevention of coronary heart disease.
- Because of the risks of HRT, alternative therapies should be considered for the prevention of postmenopausal osteoporosis.
- Use of HRT should be limited to the shortest duration consistent with benefits, risks, and treatment goals.
- Lower-than-standard doses of HRT should be considered.
- Candidates for HRT should be informed of known risks.

The Advisory Panel was not able to reach a consensus on several questions. These included: How long should HRT be prescribed for relief of menopausal symptoms? Does premature menopause represent an indication for preventive HRT? Is there a rationale for extended therapy? To the last question, a majority of the panelists believed

that extended use would be acceptable in women with menopausal symptoms who are at risk for osteoporosis, or if the patient is at increased risk for osteoporosis and is unable to tolerate other therapeutic options.

The FDA's response

The Food and Drug Administration (FDA) recently advised health care professionals about changes to the labeling of all estrogen and estrogen with progestin products.⁴ The agency's recommendations are in very close accord with those of ACOG and NAMS.

The FDA has approved new package inserts and patient information brochures for Prempro™, Premphase®, and Premarin® and has requested that all other manufacturers of HRT make similar changes to their labeling. A new "black box" warning highlights the increased risk for heart disease, heart attacks, strokes, and breast cancer and emphasizes that these products are not approved for the prevention of heart disease. Two of the indications for these products, moderate to severe vasomotor symptoms and prevention of osteoporosis have also been modified to include consideration of alternative therapies. Like ACOG and NAMS, the FDA advises health care providers to prescribe HRT products at the lowest effective dose and for the shortest possible duration.

The FDA's review of the WHI results raised some important questions for future research. These include: Will lower HRT doses have lower risks? Will different administration routes, such as transdermal patches, have different risks? And, what is the best way to stop taking HRT?

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3. www.menopause.org
4. *FDA News*. January 8, 2003.

Study shows that much of the BMD gained from osteoporosis therapy is lost after discontinuation

There have been conflicting reports on the effects of discontinuing osteoporosis therapy on bone mass. Both normal and accelerated rates of bone loss have been observed.¹⁻⁶ A recent randomized controlled trial of 489 women aged 65-77 showed that discontinuation of hormone replacement therapy and/or calcitriol results in a loss of much of the bone mineral density (BMD) gained on treatment.⁷ Most of this loss occurred in the first year after discontinuation. Results of this trial were published in *The Journal of Clinical Endocrinology & Metabolism*.

In the treatment phase of the trial, women were randomized to one of four groups: (1) ERT/HRT [conjugated equine estrogens (0.625 mg/day); medroxyprogesterone (2.5 mg/day) was added if the woman had a uterus], (2) calcitriol (0.25 µg bid), (3) the combination of both, or (4) placebo. After three years, treatment was discontinued and the women were asked to volunteer for two years of follow-up. Of the original group of 489, there were 233 who completed a fourth year of no treatment and 178 who completed a fifth year of no treatment. The BMD of the spine, proximal femur, and total body was measured at six-month intervals during the treatment phase and at 12-month intervals during the follow-up phase.

Discontinuation of ERT/HRT and the combination of ERT/HRT plus calcitriol resulted in rapid bone loss at all measured skeletal sites. Most of the bone loss occurred during the first year, with very little additional loss during the second year (Table 1). Spine BMD in the estrogen-treated groups remained higher than baseline, but this was statistically significant only on the combination treatment. Total body BMD remained significantly higher than placebo in all treatment groups (Figure 1). At year five, the mean BMD was 1.2-3.5% higher in the hormone-treated groups and 0.3-1.4% higher in the calcitriol-treated group compared with that in the placebo group. The effect of estrogen withdrawal on bone markers resulted in

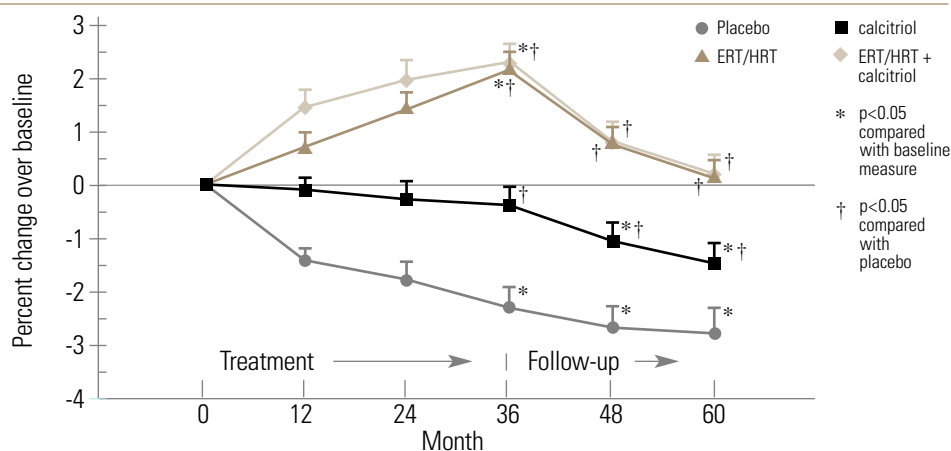
Table 1. Change in total body BMD over baseline at 3, 4, and 5 years⁷

Treatment group	3 years % change	p-value vs. baseline	4 years % change	p-value vs. baseline	5 years % change	p-value vs. baseline
Calcitriol	-0.40±0.34 ^a	0.2901	-1.05±0.34 ^a	0.0084	-1.47±0.39 ^b	0.0007
ERT/HRT	+2.07±0.35 ^a	<0.2901	+0.70±0.41 ^a	0.1693	+0.11±0.41 ^a	0.8611
ERT/HRT + calcitriol	+2.20±0.35 ^a	<0.0001	+0.66±0.40 ^a	0.0788	+0.03±0.39 ^a	0.7238
Placebo	-2.29±0.38	<0.0001	-2.67±0.40	<0.001	-2.78±0.47	<0.001

^a p < 0.001 compared with corresponding placebo group value

^b p < 0.05 compared with corresponding placebo group value

Figure 1. Changes in total body BMD over time⁷



a return to baseline of both urine N-telopeptides and serum osteocalcin, confirming correlation with the increase in bone resorption. Calcitriol withdrawal also led to an increase in urinary N-telopeptides. In addition, the serum PTH (suppressed by calcitriol therapy) returned to baseline and calcium absorption (increased by the therapy) returned to baseline.

The authors conclude that withdrawal of ERT/HRT and/or calcitriol treatment in late postmenopausal women results in increased bone resorption and accelerated bone loss. However, two years after discontinuation, a small residual beneficial effect on bone mass remained; this effect was greater in the combination treatment group. The results of this trial are of particular interest in the context of the WHI trial, the results of which have led to the cessation of ERT/HRT in millions of American women.

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Fractures remain common in elderly women on continuous estrogen

A study published in the November 2002 issue of *Archives of Internal Medicine* demonstrated that, although estrogen use is associated with a lower prevalence of fractures, osteoporosis and fractures remain common even in older women who have used estrogen continuously since menopause.¹

tially from menopause until baseline (926 of them were using estrogen at baseline), and 5977 had never used estrogen for at least one year.

Results

After adjusting for age and weight using the Cox proportional hazards model, the ten-year rate for any nonvertebral fracture for continuous estrogen users was 19.6%. The rate was similar for current partial users (22.4%), but lower than that for past users (29.6%) and never users (30.9%; $p < 0.001$). The ten-year rate for hip fractures was 2.8% for both continuous and current partial users, 5.5% for past users and 5.3% for never users ($p < 0.05$; *Figure 1*). For wrist fractures, the ten-year rate was 3.3% for continuous users, 3.5% for current partial users, 6.4% for past users, and 7.5% for never users ($p < 0.05$).

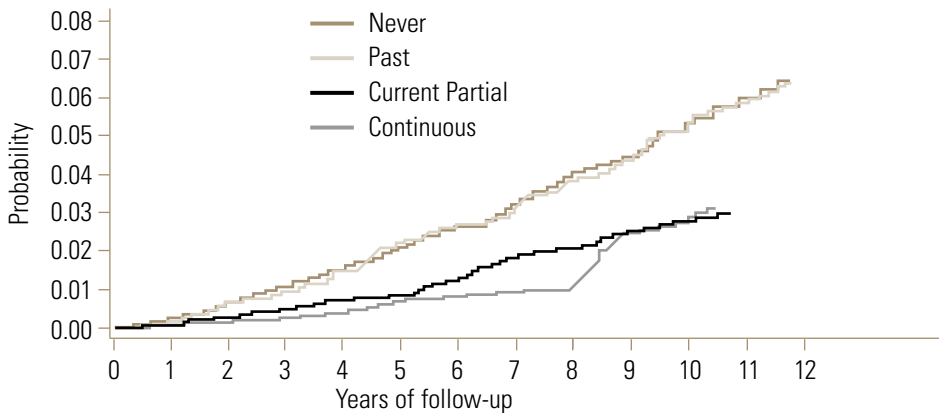
To determine if the continuous users who sustained fractures were different from those who did not, the investigators compared their baseline characteristics. They found that estrogen users who had fractures were slightly older, were more likely to have smoked cigarettes, and more likely to take sedative or anxiolytic medications.

The results of this study were consistent with previous findings that women who take estrogen have a lower risk of fractures than those who do not. Nevertheless, approximately one in five women in the continuous user group experienced a fracture during a ten-year period, indicating that clinicians cannot assume that women using estrogen are fully protected from osteoporotic fractures.

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Figure 1. Probability of hip fractures



Half of all postmenopausal women will have an osteoporosis-related fracture during their lives and 15% will experience a hip fracture.^{2,3} Previous observational studies have shown that women who use estrogen are somewhat protected from fractures, but they have not shown the extent to which estrogen users remain at risk. The investigators in the present study examined data from the Study of Osteoporotic Fractures, a prospective cohort study of 8816 women 65 years of age and older. The study design included 10 years of follow-up. The primary objective was to determine the long-term incidence of fractures among women who (1) had used estrogen continuously since menopause, (2) were past users of estrogen, (3) were partial users (they had taken estrogen for at least one year but not continuously), or (4) had never taken estrogen. Partial users were further categorized based on current or past use. Of the total of 8816 enrolled women, 373 had used estrogen continuously, 2466 had used estrogen par-

CASE STUDY 1

A 57-year-old woman at risk for osteoporosis

Patient profile

Ellen G. is a married, retired elementary school teacher, aged 57 years. She is 5' 2" in height and her weight is 124 lbs. She has had two pregnancies with normal outcomes. Her history includes a diagnosis of Hashimoto's thyroiditis at age 40, for which she currently takes levothyroxine sodium. She was also diagnosed with multiple sclerosis at age 40 and currently takes metaxalone for musculoskeletal pain. At age 46, she had bilateral breast biopsies; focal mild atypia were found. She also has several small uterine fibroids.

Ellen has been on continuous, combined hormone replacement therapy (estradiol 1 mg plus medroxyprogesterone acetate 2.5 mg qd) since menopause at age 48. She also takes calcium supplements and vitamin D. Like many postmenopausal women taking HRT, she reacted to the news of the Women's Health Initiative results with concern. She called her physician to discuss the discontinuation of her HRT, as well as potential alternatives to prevent bone loss. After discussion, it was agreed that she should be tapered off HRT. Her physician also recommended a bone mineral density (BMD) test; the results are shown in Table 1.

Discussion

Bone density measurements differ among the various measurement technologies used and, for that reason, actual bone mineral density is not used for diagnosis. Instead, standardized scores (T-scores or Z-scores) compare the patient's BMD with that of a reference population of adults. The result is expressed in standard deviations (SD) above or below the mean BMD for that population. According to World Health Organization guidelines, osteoporosis is defined as having a BMD ≥ 2.5 SDs below the mean for young adults. A BMD between 1 and 2.5 SDs below the mean is defined as osteopenia, or low bone mass. Treatment is currently recommended for women with BMD T-scores < -2 if no additional risk factors are present and < -1.5 if one or more additional risk factors (especially prior fractures) are present. Women with osteopenia who do not meet these criteria may also be candidates for treatment if they have several risk factors. Ellen meets the criteria for osteopenia at several skeletal points and was clearly a candidate for treatment, which was initiated with a once-weekly bisphosphonate. She was not considered to be a good candidate for raloxifene because she continued to experience moderate-to-severe vasomotor symptoms after HRT was withdrawn. The therapy is well tolerated and she continues to take supplemental calcium and vitamin D.

CASE STUDY 2

A 61-year-old woman on HRT for 15 years

Patient profile

Nancy C. is a 61-year-old, unmarried, nulligravida, Caucasian female, who works as a buyer for a large department store chain. She has been on HRT (most recently conjugated estrogens 0.625 mg/medroxyprogesterone 2.5 mg) for 15 years. She is 5' 2 3/4" in height (formerly 5' 3") and 220 lbs in weight. Her history includes hypothyroidism, kidney stones, gastroesophageal reflux disease (GERD), and surgery on her left foot. Her current medications include levothyroxine sodium, fexofenadine HCl, lansoprazole, calcium, and vitamin D. Her father died of an aneurysm at age 85; her mother is alive and well, with a heart valve replacement. Nancy stopped taking HRT after news was released about the WHI results. However, she has always taken an active role in matters regarding her health and was determined not to be at risk for fractures. After consultation, her physician referred her for a BMD test; the results are shown in Table 2.

Discussion

Bone mass accounts for approximately 80% of bone strength and is the single strongest predictor of osteoporotic fractures in postmenopausal women. The availability of simple and safe methods for measuring BMD make it possible to detect osteoporosis in its earliest stages and monitor the effectiveness of treatment. Knowledge of bone density also appears to enhance patient compliance with therapies for the prevention and treatment of bone loss. Ideally, bone densitometry would be available for all postmenopausal women. In practice, cost-containment issues have led various organizations to develop guidelines limiting its use. Medicare, for example, covers bone densitometry for all estrogen-deficient women over age 65. In general, it is reasonable to measure bone density in all Caucasian women over age 60-65 regardless of risk factors. Healthy women between

Table 1. BMD Results

Skeletal site	BMD (g/cm ³)	T-score	Z-score
PA spine L1-L4	0.936	-2.0	-1.0
Femoral neck (left)	0.734	-2.1	-1.0
Femoral neck (right)	0.741	-2.0	-1.0
Trochanter (left)	0.690	-0.9	-0.4
Trochanter (right)	0.673	-1.1	-0.6
Total hip (left)	0.854	-1.2	-0.4
Total hip (right)	0.852	-1.2	-0.4

Table 2. BMD Results

Skeletal site	BMD (g/cm ³)	T-score	Z-score
PA spine L1-L4	0.907	-1.3	0.3
Femoral neck (left)	0.708	-1.3	0.1
Femoral neck (right)	0.830	-0.3	1.2
Trochanter (left)	0.720	0.2	1.1
Trochanter (right)	0.671	-0.3	0.6
Total hip (left)	0.934	-0.1	1.0
Total hip (right)	0.918	-0.2	2.3

the ages of 50 and 65 should also be tested if they have a history of low trauma fracture, weigh < 127 lbs, if they smoke, have a family history of osteoporotic fracture, or if they have a known secondary cause of bone loss.

Nancy C. was judged not to be at high risk for fracture. She was encouraged to continue calcium and vitamin D along with initiating an exercise program. Her BMD test will be repeated in two to five years.

POST-TEST

- The Women's Health Initiative (WHI) trial was one of the first studies sufficiently powered to examine the relationship between hormone therapy and breast cancer, cardiovascular disease, thromboembolism, and fractures.
 - A. True
 - B. False
- Which of the following are topics of continuing study in the WHI trial?
 - A. Memory
 - B. Dementia
 - C. Calcium
 - D. Low-fat diets
 - E. All of the above
 - F. A, B, and C above
- What was the increase in risk of invasive breast cancer among women using combined HRT in the WHI trial?
 - A. 26%
 - B. 35%
 - C. 50%
- What was the increase in risk of stroke among women using combined HRT in the WHI trial?
 - A. 26%
 - B. 41%
 - C. 55%
- According to the ACOG WHI review panel, SSRIs may be effective alternatives to HRT for controlling vasomotor symptoms.
 - A. True
 - B. False

- In the HERS study of postmenopausal women with heart disease, the risk for thromboembolism in women taking HRT was approximately doubled.
 - A. True
 - B. False
- The NAMS Advisory Panel recommended the consideration of lower-than-standard doses of HRT for women taking this therapy for vasomotor and/or urogenital symptoms.
 - A. True
 - B. False
- In its review of the labeling of estrogen and estrogen-plus-progestin products, the FDA has recommended a protocol for tapering and withdrawing HRT therapy.
 - A. True
 - B. False
- A recent study published in the *Journal of Clinical Endocrinology & Metabolism* showed that, when ERT/HRT or ERT/HRT plus calcitriol is discontinued after three years of treatment, the BMD gained from treatment is conserved for at least one year.
 - A. True
 - B. False

- What percentage of all postmenopausal women will have an osteoporosis-related fracture during their lives?
 - A. 25%
 - B. 35%
 - C. 50%
- The principal reason for the early discontinuation of the WHI trial was:
 - A. An increased risk for colorectal cancer in the estrogen-only treatment arm.
 - B. A significantly increased risk for invasive breast cancer in the estrogen-progestin treatment arm.
 - C. An increased risk for venous thromboembolism in the estrogen-progestin treatment arm.
- Which of the following is the World Health Organization's (WHO) definition of osteopenia?
 - A. A BMD \geq 2.5 SDs below the mean for young adults
 - B. A BMD between 1 and 2.5 SDs below the mean for young adults
 - C. A T-score < -3

Nine correct answers are required for credit

ACTIVITY EVALUATION

Activity Evaluation

1. As a result of the information contained in this activity, will you make any changes in your practice? Yes _____ No _____
If yes, what changes? _____
2. In your opinion, how could this activity be improved? (e.g., change format, more details, fewer details, discuss other topics, change length) _____
3. Please rate the educational value/clinical relevance of this activity:
____ Excellent/outstanding ____ Very good ____ Good/above average
____ Fair/acceptable ____ Poor/unacceptable
4. Please rate the extent to which the learning objectives were met.
____ Excellent/outstanding ____ Very good ____ Good/above average
____ Fair/acceptable ____ Poor/unacceptable
5. Was the material presented objectively and did it avoid commercial bias?
Yes _____ No _____ Comments: _____
6. Suggestions for future topics: _____
7. Other comments: _____

Personal Information

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Signature _____ Date _____

POST-TEST ANSWERS

O S T E O P O R O S I S

P E R S P E C T I V E S

Volume 1 ✨ Number 1

Activity Number: END IN 04 101 03

Expiration date: 03-31-05

To earn one (1) hour of category 1 CME credit after reading this newsletter, please mail the completed post-test answers, activity evaluation, and personal information questionnaire in the enclosed envelope.

Post-Test Answers

(Circle the appropriate letter for each question.)

1. A B 2. A B C D E F 3. A B C 4. A B C 5. A B 6. A B

7. A B 8. A B 9. A B 10. A B C 11. A B C 12. A B C

