

## CLINICAL INQUIRIES

# What is the best way to diagnose menopause?

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### EVIDENCE-BASED ANSWER

No single test for menopause is highly sensitive and specific. The best predictors that a woman will enter menopause within 4 years include age at least 50 years, amenorrhea for 3 to 11 months, and menstrual cycle irregularity within 12 months (strength of recommendation [SOR]: **B**; based on

multiple prospective cohort studies).

For diagnosing perimenopause, the level of follicle-stimulating hormone (FSH) is most useful for clinical situations in which the pretest probability, as based on history, is midrange (SOR: **B**, based on 1 systematic review and 2 cross-sectional studies).

### CLINICAL COMMENTARY

#### Take an active approach, reassure patients they are experiencing a normal transition

Women usually come to our practice when they start experiencing perimenopausal symptoms and seek relief. After ruling out clinically similar conditions like diabetes or thyroid disease, we can take an active approach of patient education. We reassure patients that they are experiencing a normal hormonal transition that can take 6 to 7 years. It is important to emphasize any needed lifestyle changes in such areas as smoking, substance use, diet and exercise, weight management, bone loss prevention, and bladder control. We can discuss with our patients ways of alleviating

symptoms. In our practice, we do not frequently use hormonal lab tests (FSH, luteinizing hormone, estrogen), since they can be unreliable and do not usually affect our clinical approach. In addition to the perimenopausal syndrome, diagnosing the patient's condition as "menopause" only describes cessation of fertility. We encourage women to use safe methods of contraception until they experience 12 months of amenorrhea. Before that time, barrier methods (IUDs, condoms, etc) are options of choice, since oral contraceptives may mask perimenopausal symptoms and invalidate any hormonal measurements.

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#### ■ Evidence summary

Since natural menopause is clinically defined as the final menstrual period, the best way to diagnose it is to retrospectively observe 12 consecutive months of amenorrhea. Several studies followed women longitudinally and found the characteristics that best predicted actual transition to menopause within 4 years were amenorrhea of between 3 and 12 months duration (sensitivity=0.16–0.32; specificity=0.98–1.0; positive likelihood ratio [LR+]=14.4–∞; negative likelihood ratio [LR–]=0.69–0.84), cycle irregularity within 12 months (sensi-

tivity=0.65–0.66; specificity=0.77–0.85; LR+ =2.84–4.17; LR– =0.42–0.84), and age ≥50 years (sensitivity=0.35; specificity=0.98; LR+ =15.4; LR– =0.66).<sup>1–3</sup> Change in the amount of flow is more sensitive but less specific (sensitivity=0.81; specificity=0.30; LR+ =1.15; LR– =0.65).<sup>3</sup> A woman's global perception of being perimenopausal can also be useful for "ruling-in" transition to menopause within the next several years (sensitivity=0.18; specificity=1; LR+ =∞; LR– =0.82).<sup>1,5</sup> No studies were identified that prospectively studied the usefulness of laboratory or radiologic findings

TABLE

**Symptoms and laboratory tests for diagnosing perimenopause**

SYMPTOM/LAB TEST	SENSITIVITY	SPECIFICITY	LR+	LR-
Elevated FSH* <sup>4,6,7</sup>	0.65–0.74	0.79–0.94	3.06–11.32	0.29–0.45
Inhibin (immunoreactive) <sup>4</sup>	0.07	0.96	1.90	0.97
Inhibin A <sup>4</sup>	0.61	0.54	1.31	0.73
Inhibin B <sup>4</sup>	0.46	0.78	2.05	0.70
Hot flashes <sup>1,4</sup>	0.22–0.59	0.83–0.91	2.12–4.06	0.54–0.87
Night sweats <sup>4</sup>	0.20–0.50	0.74–0.87	1.90	0.67–0.92
Vaginal dryness <sup>4</sup>	0.11–0.29	0.80–0.97	1.48–3.79	0.92
Self-perceived perimenopausal status <sup>1,4</sup>	0.77–0.95	0.39–0.64	1.53–2.13	0.10–0.36

LR+, likelihood ratio if the test is positive; LR-, likelihood ratio if the test is negative; FSH, follicle-stimulating hormone.

\*Two studies defined elevated FSH as  $\geq 20$  IU/L, one study defined elevated FSH as  $\geq 24$  IU/L.

among perimenopausal women for predicting transition to postmenopausal state.

Because the perimenopause marks the entry into the menopausal transition, whether a woman has entered perimenopause is often the more relevant diagnosis to be made. Factors often used to diagnose perimenopause include age, maternal age at menopause, vasomotor and vaginal symptoms, FSH level, and a patient's global perception of being perimenopausal. Other proposed methods include vaginal ultrasound to measure ovarian volume and number of antral follicles and assays for inhibins, but currently the test characteristics for these are inferior to less invasive and less costly methods.

Age alone can be a useful predictor for perimenopause; most women have either entered or completed the menopausal transition by age 50, and almost all by age 55.

The TABLE summarizes test characteristics for a variety of symptoms and lab assays to diagnose perimenopause. No one test is highly sensitive and specific. Typical symptoms of hot flashes, night sweats, and vaginal dryness are about as specific as laboratory tests, but are generally less sensi-

tive.<sup>1,4,6-7</sup> Self-perceived menopausal status is moderately to highly sensitive, but the range of specificity estimates are wide. The LR+ and LR- for FSH, which are of mid-high magnitude, would suggest it to be the best single diagnostic test.<sup>4,6,7</sup> However, because laboratory tests are usually ordered after some determination of pretest probability based on history and physical, FSH may be of less utility where the pretest probability for perimenopause is already high, such as the case of a 52-year-old woman seeking "confirmation" for perimenopausal symptoms. FSH levels are highly varied within individuals during perimenopause; and further variation due to body-mass index and ethnicity make defining diagnostic thresholds difficult.<sup>8</sup>

**Recommendations from others**

The American Academy of Family Physicians, American College of Physicians, and American College of Obstetricians and Gynecologists do not address the diagnosis of menopause in any recommendations.

The North American Menopause Society states that estradiol and FSH are of limited value in confirming perimenopause

**FAST TRACK**

**For diagnosing perimenopause, FSH level is most useful when the pretest probability is midrange**

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due to extreme monthly fluctuations. They say perimenopausal women are not protected from unplanned pregnancy until amenorrhea of at least 1 year's duration or consistently elevated FSH levels (>30 IU/L) are demonstrated. Confirmation of perimenopause relies on medical history and symptoms.

The American Association of Clinical Endocrinologists recommends a detailed history, exam, and measurement of FSH. The diagnosis of menopause is confirmed by FSH levels >40 IU/L; however, they note in perimenopause, FSH elevation is intermittent and not reliable for establishing the onset of menopause. ■

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