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# Ovary-sparing hysterectomy: Is it right for your patient?

It may be, if her surgery is not cancer-related.

## Practice changer

Advise patients undergoing hysterectomy for benign conditions that there are benefits to conserving their ovaries. The risk of coronary heart disease (CHD) and death is lower in women whose ovaries are conserved, compared with those who have had them removed.<sup>1</sup>

**Strength of recommendation:**

**B:** A large, high-quality observational study.

Parker WH, Broder MS, Chang E, et al. Ovarian conservation at the time of hysterectomy and long-term health outcomes in the Nurses' Health Study. *Obstet Gynecol.* 2009;113:1027-1037.

## Ovarian conservation is not the norm

Data from the University Health-System Consortium Clinical Database indicate that between 2002 and 2008, about 55% of women who had a hysterectomy that was not cancer-related underwent oophorectomy. Rates of concurrent oophorectomy included:

- 68% of women ages 65 and older
- 77% of women ages 51 to 64
- 48% of women ages 31 to 50
- 3% of women ages 18 to 30.

A recent analysis from the Centers for Disease Control and Prevention found that among women who underwent hysterectomy for any reason between 1994 and 1998, 55% also had their ovaries removed.<sup>3</sup>

## ILLUSTRATIVE CASE

A 44-year-old woman with a family history of early CHD is considering hysterectomy for painful uterine fibroids. She's thinking about undergoing concurrent bilateral oophorectomy to prevent ovarian cancer and asks for your input. How would you advise her?

**H**ysterectomy is the most common gynecologic surgery in the United States. In 2003, more than 600,000 hysterectomies were performed; 89% were not associated with malignancies.<sup>2</sup>

## Hormones and CHD: An unanswered question

Over the last several decades, there has been a great deal of interest in the relationship between hormones and CHD, much of it stemming from the controversy about hormone replacement therapy (HRT). The findings of the Women's Health Initiative implicated combined exogenous hormones (estrogen and progestin) as a risk factor for CHD.<sup>4</sup> Endogenous hormone production, however, may protect against CHD; some studies have demon-

**PURLs methodology**

This study was selected and evaluated using FPIN's Priority Updates from the Research Literature (PURL) Surveillance System methodology. The criteria and findings leading to the selection of this study as a PURL can be accessed at [www.jfponline.com/purls](http://www.jfponline.com/purls).

strated a decreased risk of cardiovascular death with later age of menopause.<sup>5,6</sup>

**Current oophorectomy recommendations are age-specific.** The American College of Obstetricians and Gynecologists (ACOG) recommends that strong consideration be given to ovarian conservation in premenopausal women who are not at risk for ovarian cancer. For postmenopausal women, however, ACOG recommends consideration of oophorectomy as prophylaxis.<sup>7</sup> These recommendations are based on expert opinion. Previous studies suggest that ovarian conservation may improve survival in specific age groups.<sup>8,9</sup> The large, high-quality observational study reviewed here provides further guidance about the role of ovarian conservation across all age groups.

**STUDY SUMMARY**

**■ Oophorectomy increases risk of CHD and death**

This observational study<sup>1</sup> was part of the Nurses' Health Study. It included 29,380 women, of which 16,345 (55.6%) underwent hysterectomy with bilateral oophorectomy and 13,035 (44.4%) had hysterectomy with ovarian conservation. Women with unilateral oophorectomy were excluded, as were those who had a history of CHD or stroke, and women for whom pertinent data, such as age, were missing. A follow-up survey was sent to participants every 2 years for 24 years, with an average return rate of 90%.

Women who had undergone bilateral oophorectomy had an increased risk of CHD and all-cause mortality (TABLE). The authors estimated that with a postsurgical life span of approximately 35 years, every 9 oophorectomies would result in 1 additional death. The authors also pointed out there were no age exceptions: Ovarian-sparing surgery was linked to improved survival in every age group.

Oophorectomy did have a protective effect against breast cancer, ovarian cancer (number needed to treat=220), and total cancer incidence, but it was associated with an increased incidence of lung

<b>TABLE</b>	
<b>Oophorectomy (vs ovarian conservation) increases key risks<sup>1</sup></b>	
<b>RISK FACTOR</b>	<b>MULTIVARIATE-ADJUSTED HR (95% CI)</b>
CHD (fatal and nonfatal)	<b>1.17</b> (1.02-1.35)
Breast cancer	0.75 (0.68-0.84)
Lung cancer	<b>1.26</b> (1.02-1.56)
Ovarian cancer	0.04 (0.01-0.09)
Total cancer	0.90 (0.84-0.96)
<b>Total cancer mortality</b>	<b>1.17</b> (1.04-1.32)
<b>All-cause mortality</b>	<b>1.12</b> (1.03-1.21)

CHD, coronary heart disease; CI, confidence interval; HR, hazard ratio.

cancer (number needed to harm=190) and total cancer mortality. There was no significant difference in rates of stroke, pulmonary embolus, colorectal cancer, or hip fracture.

**WHAT'S NEW**

**■ Ovarian conservation: Better for all ages**

The evidence is clear: Conserving the ovaries, rather than removing them, during hysterectomy is associated with a lower risk of CHD and both all-cause and cancer-related mortality.

**What about the patient's age?** A 2005 analysis suggested that ovarian conservation conferred a survival benefit compared to oophorectomy in women <65 years.<sup>8</sup> Similarly, a 2006 cohort study found increased mortality in women <45 years who underwent concurrent oophorectomy.<sup>9</sup> But this is the first study to demonstrate that ovarian-sparing surgery is associated with improved survival in women of every age group.

**CAVEATS**

**■ Study sample and HRT use could affect outcome**

The average age of patients in the treatment (oophorectomy) arm was higher than that of patients in the control group; the women in the treatment group were older at the time of hysterectomy (46.8 vs 43.3 years), as well. This should not bias the results, which were adjusted by age



**Do you advise women undergoing hysterectomy for benign conditions to:**

- Undergo concurrent oophorectomy
- Opt for ovarian conservation
- Opt for one or the other, depending on whether they are pre- or postmenopausal
- Follow the recommendation of their gynecologist
- Other

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**FAST TRACK**

**Tell patients undergoing hysterectomy for benign reasons that women are nearly 30 times more likely to die of cardiovascular disease than ovarian cancer.**

and many other variables.

**Nonrepresentative sample.** This group of nurses is not representative of the general population in several important aspects, including socioeconomic status, educational level, and race (94% Caucasian). This may limit the generalizability of the findings.

**Study design.** The observational design and the fact that the patients themselves decided whether or not to undergo oophorectomy also raise the possibility of unmeasured confounding factors.

**Cancer risk.** Women with known BRCA mutations were not studied separately, but the results were adjusted for family history of breast or ovarian cancer. The authors stated that a subgroup analysis of women with a family history of ovarian cancer had similar outcomes, although the data were not included

**HRT use.** As might be expected, patients in the oophorectomy arm of the study were more likely to use HRT. Since the completion of the study in 2000, practice recommendations have shifted against combined HRT use. Unopposed estrogen, which is not thought to increase the incidence of cardiovascular disease, remains a treatment option for women who have undergone hysterectomy and oophorectomy. But the overall effect of unopposed estrogen on survival is still uncertain.<sup>4</sup> It is unclear how the recent decline in the use of exogenous hormones would affect these results.

**BARRIERS TO IMPLEMENTATION**  
**■ FP-GYN communication can be difficult**

This study provides important information for primary care physicians to discuss with female patients and their gynecologists. However, some doctors may not have relationships with the gynecologists in their community, or have limited (or no) influence or input into which specialists their patients see. In addition, some gynecologists may hesitate to perform hysterectomy without oophorectomy in some cases for technical reasons.<sup>10</sup>

Concern about prevention of ovarian cancer must be balanced with increased risk of mortality and CHD events. It may be helpful to tell patients who are about to undergo hysterectomy for a benign condition that women are nearly 30 times more likely to die of cardiovascular disease (CHD or stroke) than ovarian cancer (413,800/year vs 14,700/year).<sup>11</sup> ■

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**References**

1. Parker WH, Broder MS, Chang E, et al. Ovarian conservation at the time of hysterectomy and long-term health outcomes in the Nurses' Health Study. *Obstet Gynecol.* 2009;113:1027-1037.
2. Wu JM, Wechter ME, Geller EJ, et al. Hysterectomy rates in the United States, 2003. *Obstet Gynecol.* 2007;110:1091.
3. Agency for Healthcare Research and Quality. Healthcare Cost and Utilization Project (HCUP), 1988-2001: a federal-state industry partnership in health data. July 2003. Available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5105al.htm>. Accessed June 8, 2009.
4. Anderson GL, Limacher M, Assaf AF, et al. Effect of conjugated equine estrogen in postmenopausal women with hysterectomy: the Women's Health Initiative randomized controlled trial. *JAMA.* 2004; 291:1701.
5. Ossewaarde ME, Bots ML, Verbeek AL, et al. Age at menopause, cause-specific mortality and total life expectancy. *Epidemiology.* 2005;16:556-562.
6. Atsma F, Bartelink M, Grobbee D, et al. Postmenopausal status and early menopause as independent risk factors for cardiovascular disease: a meta-analysis. *Menopause.* 2006;13:265-279.
7. American College of Obstetricians and Gynecologists. Elective and risk-reducing salpingo-oophorectomy. ACOG Practice Bulletin No 89. Washington, DC: ACOG; 2008.
8. Parker WH, Broder MS, Liu Z, et al. Ovarian conservation at the time of hysterectomy for benign disease. *Obstet Gynecol.* 2005;106:219-226.
9. Rocca W, Grossardt B, de Andrade M, et al. Survival patterns after oophorectomy in premenopausal women: a population-based cohort study. *Lancet Oncol.* 2006;7:821-828.
10. Priver D. Oophorectomy in young women may not be so harmful. *OBG Management.* 2009;21(8):11.
11. Kung H, Hoyert D, Xu J, et al. Deaths: final data for 2005. *Natl Vital Stat Rep.* 2008;56:1-120.