Management Strategies for the Ovaries at the Time of Hysterectomy for Benign Disease

Catherine A. Matthews, MD, FACOG, FACS

KEYWORDS

- Elective bilateral salpingo-oophorectomy • BSO • Ovarian removal
- Ovarian conservation • Mortality • Cardiovascular disease • Sexual function
- Hip fracture

KEY POINTS

- For premenopausal women with no evidence for a hereditary ovarian or breast cancer syndrome, elective bilateral salpingo-oophorectomy (BSO) should be discouraged based on an increased risk of cardiovascular disease and sexual dysfunction.
- For postmenopausal women, no conclusive evidence for ovarian conservation exists for coronary heart disease prevention, hip fracture prevention, or improved sexual function. Leaving the ovaries in situ increases the risk of incident breast and ovarian cancer and need for subsequent adnexal surgery for benign and malignant disease.
- Opportunistic salpingectomy should be universally encouraged.
- Age 65 is an artificial cutoff value for ovarian removal based on a mathematical decision model and likely has little relevance in clinical practice.

INTRODUCTION

Every woman undergoing hysterectomy for benign disease is faced with the complex and controversial decision of what to do with the ancillary uterine structures, the fallopian tubes, ovaries, and cervix. Many women feel inadequately informed about their treatment options.[1] Gynecologic surgeons will likely play the most influential role in a woman's medical decision-making. Over the past 15 years, a dramatic shift has been observed in national trends of adnexal surgeries at the time of hysterectomy. A recent cross-sectional analysis of all hysterectomies for benign disease performed in the United States reported a 3.6% annual decline in bilateral salpingo-oophorectomy

Department of Obstetrics and Gynecology, Wake Forest University Medical Center, 1 Medical Center Boulevard, Winston Salem, NC 27157, USA
E-mail address: camatthe@wakehealth.edu

Obstet Gynecol Clin N Am 43 (2016) 539–549
http://dx.doi.org/10.1016/j.ogc.2016.04.011 **obgyn.theclinics.com**
0889-8545/16/$ – see front matter

(BSO) rates from 49.7% in 2001 to 33.4% in 2011.[2] The impetus for this practice change largely hinged on analyses reported from the Nurses' Health Study.[3,4]

Unfortunately, despite more than 600,000 hysterectomies performed annually in the United States, no prospective randomized trials exist to provide the gold-standard evidence on the effects of ovarian conservation versus removal in women deemed average risk for ovarian cancer. Medical counseling and decision making regarding BSO, therefore, is largely based on observational studies or models that are inherently limited by the potential for bias and confounding. As evidenced by the disparate outcomes of a prospective randomized trial on postmenopausal estrogen replacement therapy compared with the multitude of prior epidemiologic studies, we are currently not well equipped with level I evidence to objectively counsel women about this issue.

The principal motivation for elective BSO is a reduction in risk of subsequent ovarian abnormality. Ovarian cancer remains the most lethal gynecologic malignancy with no effective screening method. Despite advances in medical and surgical treatments of this disease, long-term survival remains poor with a 5-year overall survival of 45%.[5] Hysterectomy with BSO has also demonstrated a beneficial effect on total cancer risk, largely driven by a protective effect on incident breast cancer.[6]

The beneficial effects of elective BSO on ovarian and breast cancer, however, must be weighed against the potential negative effects of premature withdrawal of ovarian hormones on cardiovascular disease, hip fracture, sexual function, and overall mortality.[7] Reluctance to prescribe long-term estrogen replacement therapy in the wake of the Women's Health Study has likely also affected the decision to proceed with BSO.[8]

The purpose of this article is to summarize the existing evidence on elective ovarian removal at the time of hysterectomy for benign disease to maximize shared decision making regarding this important topic. The author evaluates the impact of BSO on the specific health issues of total cancer risk, ovarian and breast cancer, heart disease, overall mortality, sexual and cognitive function, and osteoporotic hip fractures. A suggested algorithm for management is provided in **Fig. 1** based on summary recommendations.

ELECTIVE VERSUS RISK-REDUCING BILATERAL SALPINGO-OOPHORECTOMY AND OVARIAN CANCER

In 2012, there were approximately 239,000 new cases of ovarian cancer reported worldwide.[9] When considering the question of elective BSO at the time of routine hysterectomy, it is imperative to correctly identify those women who are indeed "low risk" and have no increased genetic susceptibility for breast or ovarian cancer.[10] Women with a strong family history of breast or ovarian cancer may be carriers of a BRCA1 or BRCA2 germline mutation that accounts for 95% of hereditary ovarian cancer cases. Women with 2 first-degree relatives with either breast or ovarian cancer should be considered as potentially having this autosomal-dominant germline mutation even in the absence of genetic testing.[11]

BRCA1 or BRCA2 germline mutations are associated with a 15% to 60% lifetime risk of developing ovarian cancer compared with only 1.4% in the general population.[12] Women with these mutations should be counseled about risk-reducing BSO as soon as childbearing is complete.[13–15]

Gynecologists are responsible for accurately soliciting a comprehensive family history to detect possible cases of hereditary cancer syndromes. Family history can easily be forgotten when focused on the primary indication for the hysterectomy, such as complicated uterine fibroids. The American Cancer Society estimates that almost 22,000 women will be diagnosed with ovarian cancer in the United States