Salpingectomy, why not?

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It was with great pleasure that I read McAlpine’s article on the safety of bilateral salpingectomy as part of an initiative to decrease the incidence of ovarian cancer.1 Despite increasing awareness, symptoms of ovarian cancer are often vague and the majority of patients are not diagnosed until advanced-stage disease. Although treatment and survival has improved over the last decades, 5-year overall survival for all stages still does not exceed 50%. While there are successful screening programs for cervical and colon cancer, there is no simple and reliable screening test to detect and treat preinvasive disease in ovarian cancer. Thus, after reading this article I could not help but wonder, “salpingectomy, why not?”

The fallopian tube was first accurately described by Gabriels Fallopius (Italy, 1533 through 1562), but its function was first understood and reported on by Reinier De Graaf (The Netherlands, 1672). It was not until >300 years later that clinicians hypothesized that ovarian cancer likely originates in the fallopian tube and sheds cells onto the ovary and peritoneal surfaces. Examination of fallopian tubes collected at the time of risk-reducing bilateral salpingo-oophorectomy in high-risk women provided evidence that there may be preinvasive disease in the form of tubal intraepithelial carcinoma and “p53 signatures.” This paradigm shifting idea was originally introduced by Piek et al15 in 2001 and further developed by Kurman and Shih6 and others.7-9 This led to an impressive effort by a group of gynecologic oncologists in British Columbia, Canada, to educate obstetricians and gynecologists about the possible preventative role of bilateral salpingectomy on ovarian/fallopian tube/peritoneal cancer development. They advocated for replacement of tubal ligation by salpingectomy and to perform salpingectomy at the time of hysterectomy if conserving the ovaries. Although the authors note that they initially met fairly strong resistance from gynecologic surgeons, the education they provided proved to be effective. The uptake of bilateral salpingectomy increased steadily and resulted in an increase from 5-35% in bilateral salpingectomy at the time of hysterectomy by 2011, and 0.5-33% for salpingectomy instead of tubal ligation. The authors found no increase in blood loss, operating time, length of stay, readmission, or other complications leaving little to argue against bilateral salpingectomy based on surgical complications. Certainly the study relies on a database and coding information, but the large number of patients enrolled (n = 43,931) and detailed record keeping provides sufficient power to draw potentially paradigm-shifting conclusions. Similar, but much smaller, studies also found no additional morbidity of bilateral salpingectomy.10,11 In addition, salpingectomy certainly is a more reliable form of sterilization than clips or tubal rings using a variety of methods. Furthermore, preventative appendectomy at the time of an indicated procedure has been performed safely for many years and has been supported in young women by the American Congress of Obstetricians and Gynecologists.

So back again to why some are reluctant to perform a bilateral salpingectomy instead of a tubal ligation or at the time of hysterectomy when preserving ovarian function. There is strong evidence that bilateral salpingo-oophorectomy significantly reduces the incidence of ovarian cancer in patients with genetic susceptibility to ovarian cancer (BRCA, Lynch syndrome). In the general (low-risk) population there is also a significant reduction in ovarian cancer, but at the expense of increased cancer-related death and all-cause mortality largely attributed to an increase of cardiovascular disease in women with menopausal oophorectomy.12 As a result, the main concern about salpingectomy is the effect on ovarian blood flow and ovarian function.

In theory, removal of only the fallopian tubes and conservation of the ovaries would provide a continued hormonal benefit while reducing the risk of ovarian cancer. However, the magnitude of cancer risk reduction is not known. Additionally, if salpingectomy alters the blood flow to the ovary and could cause premature menopause, this procedure may lead to unwanted adverse effects in the long term. Some colleagues argue that in the general low-risk population (1.7% lifetime risk) the risks of decreased ovarian function and/or premature surgical menopause may outweigh the benefit of decreased ovarian cancer incidence. To try and answer that question, recent studies have evaluated changes in hormonal function after salpingectomy by measuring a variety of hormone levels such as antimüllerian hormone and follicle-stimulating hormone, and ultrasound parameters (size and blood flow). These studies have shown no significant change in ovarian function, although the small
number of patients included and a short follow up time (3-6 months) does not allow for a definitive answer on long-term effects. Fortunately, the authors are in the process of examining ovarian function and hormone levels in this large cohort. The authors could also consider evaluating for menopausal symptoms as hormone levels may fluctuate such as seen in perimenopause, and do not always correspond with menopausal symptoms and/or quality of life after surgery.

I commend the authors for taking on this important initiative in both educating the community and studying the safety of the procedure. Obviously, follow-up studies on ovarian function, cancer incidence, cancer-related mortality, and all-cause mortality in this large cohort are needed. As always, patients need to be aware of the potential risks and benefits of salpingectomy and the paucity of long-term data to support or refute this procedure.

Despite our best efforts we have not been successful in ovarian cancer screening, especially in the low-risk population, and we have been unable to detect (treatable) pre-invasive disease without surgical intervention. This simple procedure at the time of another indicated surgery, without requiring additional anesthesia or procedures and without an increase in surgical complications, has the opportunity to save women’s lives. Continued follow-up of this very valuable cohort and similar cohorts for incidence of ovarian, fallopian tube, and peritoneal cancer will have to demonstrate whether this intervention can truly be considered risk reducing. Until then, or until we find an effective way of screening for ovarian preinvasive disease, in a well-informed patient, I continue to wonder, “salpingectomy, why not?”

REFERENCES

2. Fallopius (Fallopia G.) Observationes Anatomicae. Venice, 1561.