Postpartum salpingectomy: a procedure whose time has come

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Despite advances in treatment, ovarian cancer remains one of the most lethal malignancies; in the United States in 2018, there will be approximately 22,240 new cases of ovarian cancer and 14,070 ovarian cancer deaths.[1] There is increasing evidence that ovarian cancer may arise from the fallopian tube; hence, it has become routine in the last few years to perform a salpingectomy at the time of hysterectomy or sterilization procedure to decrease the woman's risk of developing this disease.[2] Piek et al[3] in 2001 found that noninvasive dysplastic areas of fallopian tubes removed from patients with BRCA mutations at the time of risk-reducing bilateral salpingo-oophorectomy resembled high-grade serous ovarian cancer.[4] The author subsequently opined that most hereditary serous carcinomas of the ovary might originate from the epithelium of the tube, whose cells then spill onto the surface of the ovary[4,5] rather than the cancer arising from the ovary itself. Supporting this hypothesis, these regions of tubal dysplasia share genetic characteristics with high-grade serous ovarian carcinomas, including the predominance of p53 mutations.[4] Kindelberger et al[6] showed that in low-risk women (without BRCA mutations or a significant family history of ovarian cancer), 75% of pelvic serous carcinomas had areas of tubal intraepithelial carcinomas, 93% of which were in the distal fimbriae.[4] While occlusion or removal of the midportion of the tube (leaving the fimbriae in situ, as in a tubal ligation), has been associated with a decreased risk of ovarian cancer,[7,8] it is far less than with a complete salpingectomy.[9]

Clinically substantiating these discoveries, a large population-based cohort study using a Swedish registry of >5.5 million women showed that women with previous tubal surgery did, in fact, have a lower risk of ovarian cancer.[10] Importantly, there was a 65% decreased risk of ovarian cancer when a bilateral salpingectomy was performed (hazard ratio, 0.35; 95% confidence interval, 0.17−0.73).[10] A 64% risk reduction after salpingectomy was also found in a retrospective study of serous ovarian cancer patients matched with controls from the Mayo Clinic.[9] The pattern of these findings led the Society of Gynecologic Oncology in 2013 to recommend discussion of salpingectomy with patients at the time of hysterectomy or sterilization and for the American Congress of Obstetricians and Gynecologists to do the same in 2015. Such recommendations led to initiatives to support salpingectomy as a routine procedure with dramatic results; in British Columbia, the uptake of bilateral salpingectomy increased significantly both at the time of hysterectomy (5−35%) and sterilization (0.4−33.3%).[11]

Despite this practice change in the field of gynecology, it has not expanded to the obstetric population. The current article entitled "Cost-effectiveness of opportunistic salpingectomy versus tubal ligation at the time of cesarean delivery" by Venkatesh et al[12] and published in this edition of the Journal, attempts to determine the potential benefits and hazards of performing a bilateral salpingectomy in lieu of a postpartum tubal ligation. Approximately 340,000 postpartum bilateral tubal ligations are performed each year in the United States, and >100,000 of these are performed at the time of cesarean.[12] This group of patients is, therefore, a large portion of the population in which the risk of developing ovarian cancer could be reduced. To analyze the impact that adoption of bilateral salpingectomy at the time of cesarean would have on the medical system and in prevention of ovarian cancer, the authors performed a cost-effectiveness analysis using estimated costs per procedure, perioperative complications, years of life expectancy gained (in quality-adjusted life-years), prevention of future pregnancies, and number of ovarian cancer cases and deaths prevented.[12] Their analysis compared 3 strategies: bilateral tubal ligation, bilateral salpingectomy, and postpartum long-acting reversible contraception. Across all outcomes, long-acting reversible contraception was costlier and less effective, both in pregnancy and ovarian cancer prevention. Tubal ligation was initially less expensive than salpingectomy ($3588 vs $3651), but was less effective, resulting in fewer quality-adjusted life-years. Furthermore, using the previously demonstrated ovarian cancer risk reduction with salpingectomy of 64%, the authors concluded that salpingectomy would result in 422 fewer ovarian cancer diagnoses and 252 fewer ovarian cancer deaths in the study population (110,000 pregnant women desiring permanent sterilization at the time of cesarean) over 10 years. As a result, the base case analysis indicates that salpingectomy is more cost-effective and beneficial than any other method.

The authors estimate an approximately 1% higher operative complication rate with salpingectomy over tubal ligation. However, if it is higher, then tubal ligation would be the preferred cost-effective strategy. They call for increased research to more precisely understand the operative risks.

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Prior to widespread adoption of salpingectomy at the time of hysterectomy or gynecologic sterilization, similar concerns were raised regarding both operative risk and postoperative implications. These were met, in turn, with several studies showing no difference in blood loss, complication rate, or ovarian function.[11,13] Retrospective studies have examined the operative risks of postpartum salpingectomy and found no difference compared to tubal ligation.[14,15] A recent randomized controlled trial by Subramaniam et al[16] aimed to evaluate the feasibility of salpingectomy at the time of cesarean; 80 women undergoing cesarean were randomized to either bilateral salpingectomy or bilateral tubal ligation. While bilateral salpingectomy was successfully completed in just 68% of cases (vs 95% successful completion of tubal ligation) and operative time was 15 minutes longer, there was no difference in total procedure estimated blood loss or in postoperative complications. The authors concluded that bilateral salpingectomy should be considered at the time of cesarean for permanent sterilization.[16]

Given the demonstrated impact that bilateral salpingectomy has in the prevention of ovarian cancer and the high number of postpartum sterilizations that are performed each year in the United States, there is a great opportunity to expand prevention of ovarian cancer to this population. While ovarian cancer treatments continue to evolve, the persistently high mortality rates obligate us to improve prevention strategies. We commend the work performed by the authors in their well-designed cost-effectiveness model to this practice change and thank them for their contribution to this effort. An analysis of this sort is exceptionally important, as any real-time intervention will take many years to reach maturity. These data indicate that we can and should do our best to prevent ovarian cancer, beginning with the adoption of postpartum salpingectomy. Hopefully, this study will lead to others that will confirm these data. ■

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