Hysterectomy for Benign Conditions: Prophylactic Oophorectomy or Ovary Conservation

Editorial

Hysterectomy is one of the most common gynecologic surgeries. More than 600,000 hysterectomies are performed annually in the United States for benign disease [1]. Prophylactic bilateral oophorectomy is done concomitantly with hysterectomy in 55–80% of cases [2].

Prophylactic oophorectomy involves removal of the ovaries as an addition to hysterectomy. Historically, many gynecologists routinely recommended bilateral salpingo-oophorectomy to all postmenopausal women and suggested it in perimenopausal women, undergoing hysterectomies for benign conditions, to reduce the incidence of ovarian cancer. The apparent reason for this was the belief that hormonal activity of ovaries in postmenopausal women is minimal and removal of the ovaries will be beneficial as a preventive measure for ovarian cancer.

Prophylactic oophorectomy to prevent benign disease, such as fibromyomas, uterine prolapse, pelvic pain or endometriosis, can be regarded as an addition to the surgery which involves no extra time, cost or risk. Removal of both ovaries as a preventive measure for ovarian cancer appeared to be simple and effective. Compared to women with intact reproductive organs, the incidence of oophorectomy after hysterectomy is 9.2% higher at 30-year follow-up [3]. Conserved ovaries after hysterectomy commonly become cystic, develop residual ovary syndrome with severe pelvic pain, or other benign pathology that require repeat surgery, which mostly is difficult to perform due to firmly adherent ovaries to the pelvic side wall, bowels or urinary bladder. Removal of residual adherent ovaries carries high risk of urethral injury, which is reported to be at least 30% [4].

In hysterectomies to treat benign conditions, removing both of the ovaries in addition to the fallopian tubes has been used as a way to reduce ovarian cancer risk, although only few patients meet the high-risk criteria for developing ovarian cancer: prophylactic oophorectomy at age >40 and >45 would have prevented 5.2% and 3.3% of ovarian cancer, respectively [5,6]. Prophylactic oophorectomy at the time of hysterectomy for benign gynecologic diseases has been proven to be helpful as a preventive measure for ovarian cancer, but it would be considered risk-reducing, not elective [7,8], because it is clear that a small fraction of such women will subsequently develop primary peritoneal carcinoma [9].

The majority of cases with ovarian cancer are sporadic, not hereditary. Women with no documented germ line mutation or family history suspicious for genetic risk for ovarian cancer are considered to be at average risk. Women at increased genetic risk for ovarian cancer, especially those with BRCA1 and BRCA2 germ line mutations are at high risk of ovarian cancer and Lynch syndrome, and it is preferred to undergo risk-reducing bilateral salpingo-oophorectomy [10].

Several studies suggest a generally negative health effect when prophylactic bilateral salpingo-oophorectomy is performed before the age of menopause. Bilateral oophorectomy causes immediate drop in hormone levels of ovary that may affect long-term health.

| Risk                     | Factor Multivariate-Adjusted HR (95% CI) |
|--------------------------|------------------------------------------|
| CHD (Fatal and Nonfatal) | 1.17 (1.02-1.35)                         |
| Breast Cancer            | 0.75 (0.68-0.84)                         |
| Lung Cancer              | 1.26 (1.02-1.56)                         |
| Ovarian Cancer           | 0.04 (0.01-0.09)                         |
| Total Cancer             | 0.90 (0.84-0.96)                         |
| Total Cancer Mortality   | 1.17 (1.04-1.32)                         |
| All-Cause Mortality      | 1.12 (1.03-1.21)                         |

Oophorectomy increases key risks.
Whether to perform bilateral oophorectomy at the time of hysterectomy for benign disease has long been debated. For women without a strong family history of ovarian cancer or genetic predisposition, it is important to weigh the benefits of decreased cancer risk, due to ovarian preservation during hysterectomy for benign conditions, against the potential risks of ovarian damage and complications. It is essential to consider the impact of ovarian removal on the quality of life and potential long-term effects, such as hormone deficiency, cardiovascular or neurological disease, and osteoporosis. 

However, it was also shown that premenopausal women who undergo a hysterectomy are more likely to enter menopause after the surgery, with the onset of menopause being advanced 1.9 years earlier, due to surgery-induced ovarian damage [22-25]. On the other hand, it has been reported that individuals at increased hereditary risk developed primary peritoneal carcinoma indistinguishable from ovarian cancer or widespread intra-abdominal carcinomatosis, which mimics metastatic ovarian serous carcinoma, following surgery [26].

**Conclusion**

Prophylactic bilateral oophorectomy during hysterectomy for benign conditions in a premenopausal woman with sufficient ovarian reserve is still subject to debate. Women of all age groups should be thoroughly counseled regarding the risks and benefits of ovarian preservation. In women age 40 or older, with a history of familial ovarian cancer, bilateral oophorectomy may result in a significant decrease in the death rate from ovarian cancer. For women at average risk of ovarian cancer, the decision to perform prophylactic bilateral salpingo-oophorectomy should be individualized, because this may cause sudden hormonal imbalance, aggravation of menopausal symptoms, and decrease in libido. Ovarian conservation in young women may be especially important in patients with a personal or strong family history of cardiovascular or neurological disease. Negative effects of ovarian hormone deficiency in these women outweigh the beneficial effects on ovarian cancer. If ovaries were preserved, it is important to protect the ovarian blood supply as much as possible while performing hysterectomy, because ovaries may be damaged. Ovarian conservation until age 65 may benefit long-term survival and it would be advisable to offer prophylactic oophorectomy only to women older than 65 years, who are undergoing hysterectomy for benign disease.

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