Effect of Hysterectomy With Ovarian Preservation on Ovarian Function
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Women who undergo hysterectomy in the perimenopausal period are offered ovarian preservation (or concurrent elective oophorectomy). It is clear that although ovarian function continues in the short-term after hysterectomy, there does remain an increased risk for early ovarian failure with its health implications -- increased risk for osteoporosis, cardiovascular disease, and all-cause mortality.

The Prospective Research on Ovarian Function (PROOF) study was a prospective cohort study conducted at two hospitals in Durham North Carolina, to evaluate the risk for menopause among women undergoing hysterectomy as compared to women of similar age with intact uteri. The selected study participants were between 30 to 47 years of age.

Using plasma FSH to determine the onset of ovarian failure (defined as FSH levels ≥40 international units / L) data were obtained at baseline and annually for up to 5 years.

Women undergoing hysterectomy were at nearly a twofold increased risk for ovarian failure as compared to women with intact uteri (HR 1.92, 95% confidence interval [CI] 1.29 –2.86). The proportional hazards model further estimated that 14.8% of women with hysterectomies experienced ovarian failure after 4 years of follow-up compared with 8.0% of the women in the control group. Risk for ovarian failure was greater for women who had a unilateral oophorectomy along with their hysterectomy (HR 2.93, 95% CI 1.57–5.49), but also it was significantly increased for women who retained both ovaries (HR 1.74, 95% CI 1.14 –2.65).

Comparisons of Kaplan-Meier curves suggest that the increased risk was not attributable to an abrupt disruption of ovarian function after surgery, but rather a
The difference in time to ovarian failure between women with and without hysterectomy was approximately 1.88 years, based on the time in which approximately 15% of the women in each group experienced ovarian failure. Although this 2 year difference in age at ovarian failure is clinically important, these data should be interpreted cautiously because of the limited duration of follow-up of this study.

Farquhar et al. (BJOG 2005;112:956–62.) also reported an increased risk for ovarian failure after hysterectomy. The risk was more pronounced for women having unilateral oophorectomy; however, their estimate of the difference in time when 15% of women in each group experienced ovarian failure was 3.7 years, compared with the estimate of 1.88 years from current study. Other recent studies have been inconsistent in their conclusions, with two studies reporting no effect and another reporting an adverse effect of hysterectomy on ovarian function.

The causal pathways remain unknown. Hysterectomy may compromise the ovarian blood flow resulting in reduced production of hormones and earlier ovarian failure.
Another hypothesis is that the uterus has an inhibitory influence on pituitary FSH secretions. Consequently, its removal leads to increased FSH levels and accelerated follicular depletion causing earlier menopause.

It has also been suggested, that it is not the surgery itself but the condition that led to the surgery that places women at increased risk for early menopause. However, indirect evidence does not support this theory.

An important area for future research is the evaluation of ovarian reserve comparing women undergoing hysterectomy to women in the control group. AMH has been proposed as a useful marker for this purpose.

It is important that to discuss these sequelae when counselling patients regarding treatment options for benign conditions. In addition, not all women will experience overt symptoms of menopause, so women who have undergone premenopausal hysterectomy may warrant closer monitoring of bone density or cardiovascular risk factors because of their possible risk of early ovarian failure.