Pregnancy Levels of Estrogen and Progesterone: The Double-Edged Sword

In Response: As Dr. Ferretti et al. emphasize, it is essential to distinguish between short-term and long-term effects of pregnancies on the risk of breast cancer. A main result from our study on association between clinical stage of breast cancer and time since last full-term birth (1) was that the proportion of breast cancer patients presenting with advanced disease, among women diagnosed 2 to 6 years after birth, was similar to, or even higher than, the proportion among women diagnosed during pregnancy or within 2 years after birth. This pattern, however, was seen only in certain categories defined by parity and maternal age at delivery, apparently coinciding with subgroups and time periods with the most pronounced postpartum transient increase in risk of breast cancer (2). This finding indicates that pregnancy-related factors may have a progressive effect on breast cancer tumors, in addition to a potential promoting effect.

Pregnancy estrogens have been hypothesized to have a growth-enhancing effect on premalignant breast cells (3). However, pregnancy-related breast cancer tumors are often estrogen-receptor negative. A direct effect of estrogens is thus less likely, and this led us to speculate that other pregnancy hormones, possibly prolactin, may be of importance (1). As discussed in our paper (1), prolactin levels have been found to increase with increasing maternal age, and experimental research has shown a promoting as well as progressive effect of prolactin. As Ferretti et al. point out, however, other mechanisms have also been suggested.

Ferretti et al. outline the next logical step that could bring us to a better understanding of pregnancy-related breast cancer. Actually, an initial step has already been taken. We are now in the planning phase of a collaboration work with Dr. Pepper Schedin to explore the involution-inflammation hypothesis (4, 5). An interaction between inflammation and endogenous hormones is also possible (6). Results from our study may provide new knowledge that can be used in prevention and treatment of pregnancy-related breast cancer.

Grethe Albrektsen
Ivar Heuch
Department of Mathematics, University of Bergen, Norway
Steinar Thoresen
Cancer Registry of Norway, Oslo, Norway
Gunnar Kvale
Center for International Health, University of Bergen, Norway

References
Pregnancy Levels of Estrogen and Progesterone: The Double-Edged Sword

Grethe Albrektsen, Ivar Heuch, Steinar Thoresen, et al.

Cancer Epidemiol Biomarkers Prev 2007;16:634.