

## Safety of pregnancy following breast cancer diagnosis

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### To the Editor

Kroman et al. recently published on *Acta Oncologica* [1] an update for their previous work on pregnancy following breast cancer diagnosis. In the current paper, they confirm their previous results [2] on a much larger patient population and conclude that pregnancy subsequent to breast cancer treatment does not have a negative effect on patients' survival. In the present paper, the relative risk (RR) of death after a full term pregnancy is 0.73 (95% CI = 0.54–0.99) with a p-value of 0.04. The authors noted that the impressive 27% reduced RR of death might be to a selection bias including the well known "healthy mother effect" phenomenon. However, on restricting the analysis to non-relapsing controls or to low risk disease patients, the protective value was still observed.

An alternative explanation would be that subsequent pregnancies have a real therapeutic effect, thus reducing the RR of death for women with previously diagnosed breast cancer.

One possible mechanism is immunological and relies on the hypothesis that foetal antigens are present also on the tumour cells and that pregnancy acts as a kind of tumour vaccination [3].

The second hypothesis is endocrinal. Breast cancer cells expressing oestrogen or progesterone receptors undergo apoptosis when exposed to high doses of oestrogens [4,5]; which is the case during pregnancy. In this regard it would be interesting to analyse the Danish Breast Cancer Cooperative Group (DBCCG) data for hormone receptor status at diagnosis to see if there is any correlation with improved survival.

Other evidences correlate subsequent oestrogen deprivation with further inhibitory effect [6]. We have analyzed the data from the IBCSG study [7] and found that women who were reported by their physicians to have breast fed their babies after breast cancer (a natural way of keeping oestrogen levels low

after pregnancy) had an even better prognosis compared to those who did not lactate [8]. Again, it would be interesting to know if women who had a subsequent term pregnancy after breast cancer breast fed their babies and if this correlated with a further reduced RR of death in the DBCCG data set.

In the treatment of cancer, every single improvement in the understanding of tumour biology adds precious information about new possible therapeutic means. It would be amazing to find hints to improve breast cancer cure in the biologic mystery of giving life.

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