Donna Harrison examines the evidence for an abortion-breast cancer link

ABORTION & BREAST CANCER

WOMEN HAVE A RIGHT TO KNOW THE FACTS

key points

- Huge academic, political and financial pressure exists to promote elective abortion and to suppress concerns about the health of women who undergo elective abortion.
- A previous meta-analysis rejecting a link between abortion and risk of breast cancer has serious methodological errors, which undermine its conclusions.
- Evidence increasingly indicates that abortion keeps a woman's breasts in a developmental stage which increases breast susceptibility to carcinogenic changes.

To make a fully informed choice about reproductive health decisions, women need to understand the effect of reproductive factors on their risk of developing of breast cancer. Understanding basic breast physiology makes understanding the risk factors simple.

Before a first pregnancy, a woman's breast contains immature breast tissue, which is incapable of producing milk, and which is very susceptible to forming cancer. During the first 20 weeks of pregnancy, hormones from the pregnancy (oestrogen) cause the immature breast tissue to grow rapidly, giving symptoms of breast tenderness. It is not until the third trimester that this immature breast tissue begins to mature (differentiate) into breast tissue capable of lactation. And it is not until 32 weeks that the mature breast tissue predominates. Breast tissue that is capable of producing milk is resistant to forming cancer. Two simple corollaries follow:

1. The longer a woman has immature breast tissue rather than mature breast tissue, the higher her risk of cancer. This makes sense of the risk profiles for breast cancer: the low risk woman is one who avoids hormonal contraception in her teens, bears several children from her early twenties onward, breastfeeds each child for at least six months, and has few or no interruptions of a pregnancy before 32 weeks gestation. The high risk woman is one who is exposed to more than one year of hormonal contraception in her teens, is nulliparous or delays childbearing until after age 30, has pregnancy losses before 32 weeks and before a term pregnancy, has few total children and does not breastfeed.
2. Ending a pregnancy prior to 32 weeks gestation, then delaying subsequent term pregnancy arrests the breast tissue in an immature state, susceptible to subsequent mutational changes resulting in breast cancer. Studies have demonstrated that ending a pregnancy before 32 weeks, especially in a woman whose breast tissue has not been matured by completing a term pregnancy, results in an increased risk of breast cancer.[1] Thus a woman with a second trimester loss from abruption or traumatic loss from a motor vehicle accident, is at higher risk for subsequent breast cancer. And so is the woman who voluntarily interrupts her pregnancy in either first or second trimester.

But this corollary is exceedingly inconvenient. Tremendous academic, political and financial pressure exists to promote elective abortion and to suppress concerns that may arise about the health of women who undergo elective abortion. Studies designed to investigate the association between breast cancer and abortion often resort to errant methodology which obscures the actual scientific question they were purported to answer. One excellent example of errant methodology is a frequently cited meta-analysis by Beral et al (2004)[2] on which the RCOG leans heavily in formulating its abortion guidance.[3] The authors report no association between abortion and breast cancer. But how did they arrive at that conclusion?

The Beral study incorporated a number of

different methodological errors, three of which are briefly discussed here:

1. **Biased data selection**: The studies reviewed were divided into two types: retrospective and prospective. Analysis of the 39 retrospective studies demonstrated an increased risk of breast cancer with induced abortion. Analysis of the 13 prospective studies showed a decreased risk of breast cancer with induced abortion. The authors handled this conflict by discarding the retrospective studies on the unsubstantiated grounds that the 39 studies all had 'recall bias' and were thus unreliable. Interestingly the authors also admitted that it was possible that recall bias also could have taken place in the prospective studies, but did not reject the prospective studies. The authors offer no substantiation for discarding 39 studies in favor of a sub-analysis of 13 studies. Further, they excluded 13 peer-reviewed studies and failed to note the existence of at least five additional datasets.[4]
2. **Unsuitable comparison group**: The authors compared the breast cancer risk of women who aborted with the risk of women 'never having had that pregnancy'. If by this obscure wording, the authors meant women who have never been pregnant, then both sets of women are at increased risk of breast cancer. The appropriate comparison should have been between women who completed their pregnancy to term and women who elected to abort.
3. **No stratification for the gestational age of the abortion**: The expected effect of an elective abortion on breast cancer risk depends upon stimulation of the immature breast tissue by pregnancy hormones. Thus one would expect a much greater effect from second vs first trimester terminations of pregnancy. Without this subgroup analysis, the authors cannot correctly conclude that induced abortion has no effect on the risk of breast cancer.

These types of methodological errors are not confined to the Beral study. A recently released paper[5] reviews published research to date, and includes a discussion of twelve common methodological errors found in papers on breast cancer and abortion including the following :

1. Incomplete questionnaires, low user response and unsuitable circumstances for data collection.
2. Incorrect time frames for obtaining data (It takes 8-10 years after an abortion for a breast cancer initiated by the abortion to reach clinically detectable 1cm size)
3. Unsuitable comparison groups
4. Combining data from induced and spontaneous abortions
5. Publication bias (excluding data without scientific grounds for exclusion)
6. Insufficient sample populations
7. No distinction between first and second trimester abortions

One may also find that the data published give information not mentioned in the author's conclusions. Dolle[6] and researchers from the National Cancer Institute in the US published a study in 2009 which included a table of the relative risk of triple negative breast cancer in relation to reproductive factors. Table 1 in their study reveals a relative risk of 1.4 (ie 40% increased risk) for women who reported any induced abortion compared to women who reported no induced abortion.

A new 2014 meta-analysis of 36 studies by Huang et al looked specifically at the relationship between induced abortion (IA) and breast cancer. It found that IA is significantly associated with an increased risk of breast cancer among Chinese females, and that the risk of breast cancer increases as the number of IAs increases. Women who had had at least one IA had a relative risk of 1.44 (ie. 44% increased risk). For those who had had at least two or at least three IAs the figures were 1.76 and 1.89 respectively.[7]

Lecarpentier, using a database from the French National BRCA cohort, confirmed the association between terminations of pregnancies before the first term pregnancy and breast cancer in women who have genetic susceptibility to breast cancer (BRCA mutations). They found that in women who carry the breast cancer gene, full term pregnancies lower the risk of breast cancer. But, when women who carry the breast cancer gene end their pregnancy before having a full term pregnancy, then these women are at much higher risk of breast cancer. For women who had terminated three pregnancies before a term pregnancy, their risk increased 239% [HR 2.39 95% CI 1.28-4.45].[8]

This is critically important information that women who have a BRCA gene mutation have a right to be made aware of when considering terminating their pregnancies.

As research on the association between breast cancer and a woman's reproductive history continues, it is becoming increasingly evident that elective abortion not only robs a woman of the protection of a full term pregnancy, but also arrests her breasts in a developmental stage which increases breast susceptibility to carcinogenic changes. In a society that values informed consent, it is essential that women be made aware of this increased risk prior to obtaining an induced abortion, and that the risk be appropriately stratified by the gestational age of the fetus at the time of abortion. In order for women to control their reproductive capabilities, they must be informed of the implications that their reproductive choices may have on their future health.

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Studies examining the association between breast cancer and abortion often resort to errant methodology which obscures the scientific question they were purported to answer

references

1. Innes KE, Byers TE. First pregnancy characteristics and subsequent breast cancer risk among young women. *Int J Cancer* 2004;112:306-311
2. Beral V. A Collaborative reanalysis of data from 53 studies, including 83,000 women from 16 countries. *Lancet* 2004; 363:1007-16 *1.usa.gov/OI3BXE*
3. RCOG. The care of women requesting induced abortion: evidence-based clinical guideline number 7, Section 5.4. RCOG 2011:42-43 *bit.ly/1gknzMH*
4. Fagan, P and Lanfranchi A. Induced abortion and breast cancer. Marriage and Religion Research Institute, 2013. *bit.ly/1cSNWoA*
5. *Ibid*
6. Dolle, JM, Daling JR, White E, Brinton LA, Doody DR, Porter PL and Malone KE. Risk Factors for Triple-Negative Breast Cancer in Women Under the Age of 45 Years. *Cancer Epidemiol Biomarkers Prev* 2009;18(4):1157-1166
7. Huang Y, Zhang X, Li W, Song F, Dai H, Wang J, Gao Y, Liu X, Chen C, Yan Y, Wang Y, Chen K. A meta-analysis of the association between induced abortio n and breast cancer risk among Chinese females. *Cancer Causes Control* 2014; 25(2):227-36.
8. Lecarpentier J, Nogues C, Mouret-Fourme E, Gauthier-villars M, Lasset C, Fricker JP, Caron O, Stoppa-Lyonnet D *et al*. Variation in breast cancer risk associated with factors related to pregnancies according to truncating mutation location, in the French National BRCA1 and BRCA2 mutations carrier cohort (GENEPSO). Open access *BMJ* available at *bit.ly/1fTyLkO*