Breast Cancer and Abortion: Compelling Evidence-- Official Denial

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N.B. These notes have not been reviewed by the speaker.

- The science of epidemiology is very new. It involves the study of populations of people, and tries to approximate controlled experiments. Epidemiologists have found various risk factors for breast cancer, including childlessness, early menstruation, having a first child late in life, family history of the illness, chronic alcohol consumption - and abortion. All of these factors involve increased exposure to the hormone estrogen.

- The first evidence of a link between abortion and breast cancer was published in April 1957 in the well-known Japanese Journal of Cancer Research, (vol.48) which is published in English. So the "news" of a link is not new.

- True controlled experiments can be done on animals, with the additional advantage that you can cut them up at any point during the experiment. The possibility of an abortion-breast cancer link was tested on a group of rats. The study involved groups of nine rats. One group was given abortions. Virtually all of the aborted rats got cancer, whereas none of the control group did. 70% of the rats that never became pregnant also got cancer.

- The cells in the breasts that develop for lactation are called TEBs (terminal end buds) and are undifferentiated until the end of a pregnancy. If pregnancy does not occur these cells tend to grow and are susceptible to becoming cancerous. The fully developed cells, called lobules, that result from full-term pregnancy are more or less immune to cancer.

- Carcinogenesis is a two-stage process: 1) exposure to a carcinogen that damages cell DNA and 2) a tumor promotion stimulus that makes cells grow. When TEB cells are exposed to a carcinogen they tend to become cancerous, whereas mature cells likewise exposed can be injured, but will not become cancerous.

- The level of estradiol (ovarian estrogen, the most common form of estrogen) is much higher in conceptive than in non-conceptive women, and it increases dramatically during the course of the pregnancy. By the seventh or eighth week of pregnancy, the estradiol level has already reached a level more that double that of the pre-ovulatory peak. In non-viable pregnancies, however, the level of estradiol is much lower. These pregnancies result in spontaneous abortions, or what are commonly called miscarriages. Spontaneous abortions are quite common; it is estimated that some 30 - 50% of pregnancies end in this manner. In one study, doctors were able to predict 90% of miscarriages based on estradiol levels. Based on this, one would expect to find no link between spontaneous abortion and breast cancer, since over-exposure to estrogen does not occur in these instances.

- In the case of induced abortions, however, the level of estrogen exposure is much higher, for two

reasons. One is that, since the fetus is viable, there is the same increase in estrogen levels that is found in healthy pregnancies. The second is that whereas spontaneous abortions usually occur in the first trimester, induced abortions are generally performed in the second or third trimester. Even one interrupted pregnancy means several weeks of exposure to abnormally high levels of estrogen. In a pregancy that is carried to term, on the other hand, other hormones take over in the final stages, negating the effects of the earlier exposure to estrogen by differentiating cells for lactation and killing unneeded cells.

- It is important to realize when examining epidemiological evidence that no risk factor is observed in every study. Also, it's important to establish a plausible mechanism for a risk factor. Over-exposure to estrogen provides a reasonable explanation for an increased cancer risk due to abortion.

- Many studies of the relationship between abortion and breast cancer have been weakened by a failure to distinguish between spontaneous and induced abortions.

- In 1971, Malcolm Pike et al. found a two to four-fold increase in breast cancer risk in women with induced abortions, spontaneous abortions and oral contraceptive use (British Journal of Cancer, vol.43). Since Pike possesses a strong reputation, the public reaction to his study was quite intense. The people at the Oxford Family Planning Center (at Oxford University in England) were particularly upset. In 1981 they produced a very large study, done in Sweden, that showed no link between abortion and breast cancer (British Journal of Cancer, vol. 45). However, when asked how many of the women in the study had had induced abortions, the best answer the researchers could give was "only a handful". Such a vague answer renders the study meaningless.

- Around this time I personally became involved in this field of study because I had become convinced that there was a link between abortion and breast cancer, and that this information was being suppressed.

- The epidemiologist Lynne Rosenberg suggested that the positive correlation between abortion and breast cancer was due to 'reporting bias'. Reporting bias is a factor that must be considered in epidemiological studies. It refers to the possibility that subgroups of the population under study may be more likely to over- or underreport the factor under study, thereby scewing the results. In the case of the abortion studies, Rosenberg reasoned that women who had been diagnosed with breast cancer might, under the stress of a life-threatening disease, be more likely to report past abortions than women who did not have breast cancer. Women without the disease would tend to underreport. This would produce an exaggerated positive correlation.

- A different charge of reporting bias was made against a Swedish study that had found an abortion-breast cancer link, namely, that overreporting had occurred. This meant that women reported having had abortions that they had not, in fact, undergone, which seems unlikely. On closer inspection, the charge of overreporting was reduced to a single case: one woman claimed to have had an abortion of which the computer had no record. On the contrary, the Swedish study found women more likely to underreport abortions (assuming that the computer records were more accurate than the women's reports). Those charging reporting bias subsequently withdrew their claim.

- A similar study of cervical cancer found no overreporting.

- On October 27, 1994, the New York Times printed an article, written by Lawrence K. Altman, on a purported link between abortion and breast cancer, a rare case of the subject being publicized in the mass media. However, the Times article downplayed the link by quoting a well-known epidemiologist, Karin Michels, who attributed the link to "overreporting", citing the Swedish study.

A few months earlier, the results of a study done in Greece had been published in a professional journal. Abortions have long been accepted in Greece and carry no particular social stigma. This study also found a link between abortion and breast cancer and, moreover, found no evidence of reporting bias. One of the researchers who produced this study was the same Karin Michels.

In other words, Michels was, in the Times article, arguing against the validity of her own findings. Given the expense and labor involved in producing an epidemiological study, and also the natural desire of scientists to achieve professional recognition, it is highly unusual for researchers to suppress the results of their own work. Only in the field of breast cancer - abortion research do people seem to bury their own data. I have seen some remarkable turnarounds.

- I and several others did a meta-analysis of all the published studies done since 1957 (30 in all), which was published in the Journal of Epidemiology and Community Health, vol. 50, pp. 481-96. It shows an overwhelming consensus for a link between breast cancer and abortion. The statistical evidence is consistent.

- However, the studies we examined were published studies, and it has been suggested that the results are biased because studies showing positive results are more likely to appear in print that those that show no result.

- My reply to this argument is that, on this issue alone, the bias is more likely to be in the opposite direction because researchers have displayed a bias against their own results. I have no direct evidence to prove this, but the publication of a 1988 Australian study strongly suggests that this may be the case. This study examined the correlation between abortion and a variety of factors including age of menstruation, age of menopause, and age of first child. The study also distinguished between spontaneous and induced abortions. It found a number of positive correlations, but by far the strongest was the relation between induced abortion and breast cancer incidence, showing a 100% increased risk. This was 2.6 times as strong as the second strongest factor. However, when the study was publicized, this particular finding was not reported. It is extremely aberrant that all variables except the strongest one should be publicized.

- The December 1996 issue of the Journal of the National Cancer Institute printed a study on a group of women in Holland and found a 90% increased risk, but attributed the finding to overreporting. The paper could not support that claim.

- In 1997 the New England Journal of Medicine published a Danish study (by Dr. Mads Melbye) that showed that abortion had no overall effect upon the breast cancer rate. This study was the basis of the statement by the National Cancer Institute that it had been conclusively shown abortion does not increase risk of breast cancer. How could they arrive at this conclusion? In epidemiology, a single study is never considered definitive. By contrast, in a group of eleven studies done between 1981 and 1996, ten of those showed that abortion did indeed increase the risk of breast cancer. Most of these studies were funded by the NCI, and eight of them were statistically significant on their own. In a letter I wrote to the Wall Street Journal, which appeared on 4/15/97, I asked why the NCI was wasting taxpayer money on funding these studies if it was convinced that there was no link. It was also revealing that the NCI announced a definitive conclusion to the question of an abortion-breast cancer link, since it had previously denied that there were grounds for raising the question in the first place.

As for the Danish study, it was fatally flawed because it used only computerized records. Computerized records of abortions went back only to 1973, but abortions have been legal in Denmark since 1939; records going back to that year were available but were not used. Thus, 63,401 women were classified as

not having had abortions when they had in fact had abortions. Moreover, the women so misclassified were older women, the population more likely to develop breast cancer.

A second flaw was yet more serious. The authors of the study were aware that their study compared younger women (with more abortions and fewer cases of breast cancer) with older women (with fewer abortions and more cases of breast cancer). They corrected this potential source of error by adjusting for a "cohort effect". The problem with doing this was that in this case the cohort effect was the fact that the incidence of breast cancer has been rising for most of this century. The cause of this increase is unknown, but if abortion is indeed one of its factors, the Danish study effectively eliminated the very factor it was attempting to study, thereby virtually guaranteeing the conclusion that there was no increased risk.

When the data are adjusted to eliminate this error, they show an increased risk of 44%. Interestingly, the same study shows a decrease in both abortion and breast cancer rates for women born since 1950 (this result was age-adjusted).

Dr. Brind made these additional comments during the question and answer period following his lecture:

- Janet Daling is a highly regarded researcher with the Fred Hutchinson Cancer Research Center in Seattle. She has studied the effect of abortion on various forms of cancer, including cervical and ovarian cancer. She found no link until she studied breast cancer, and discovered an increased risk of 50 %. Daling, who had had no difficulty publishing her earlier studies, was puzzled by her inability to publish her findings concerning breast cancer, and was hurt by the professional and public rejection she encountered in her attempts to do so.

It is sometimes said that studies finding a positive correlation between abortion and breast cancer are done by pro-life researchers who are presumably biased. I myself am pro-life, but it should be noted that Daling has no personal objection to abortion, nor do a number of researchers who have found a link. Daling complimented me on the quality of the study that I did.

- Generally speaking, the public has little awareness of the extent to which medical research is politicized. The mantra "Keep abortion safe and legal," is at this point deeply engrained, to the point where both the profession and the media ignore and suppress evidence of the risks associated with abortion. However, the tide is beginning to turn. Four states now require that women considering abortion be told of the increased cancer risk. Also, the Canadian Cancer Society is studying abortion as a cause of breast cancer.

- There is the possibility of developing hormonal treatments to counteract the effects of excessive estradiol exposure. Currently, Dr. Pike is working on hormonal treatments during puberty that could cause mammary cells to differentiate early, thereby greatly lowering the breast cancer risk. It is to be hoped that these treatments will be developed in the future.

- I have produced a second study, which will appear in the January 1988 issue of the Journal of Epidemiology and Public Health.

- There is a need to study subgroups to determine degrees of risk. For example, miscarriages that occur after the first trimester are probably associated with increased risk. Also, breast feeding decreases risk somewhat, because lactation reduces the number of menstrual cycles. The less exposure to estradiol (which increases during each cycle), the less chance of developing breast cancer.

- It should be remembered that all the factors that have been mentioned are risk factors, and do not determine who will get breast cancer. Most women with breast cancer did not have induced abortions. Most women who have had abortions will not get breast cancer.

These are the combined notes of Sara Frear and John Keck.

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