

adrenal glands, and when the effect of the ovariectomy wears off, then we proceed to remove the adrenal glands and get a further beneficial effect and these procedures are demonstrated to be associated with a drop in the estrogen blood level and in the urinary excretion of estrogens in women.

Irrespective of whether they respond favorably or not, however.

Mr. DUFFY. It would appear to me—and of course this is very much of a layman's opinion—that the conclusion I would draw from your testimony is that the very fact that a woman is alive and naturally producing estrogens she is exposing herself to a risk of cancer, is that correct?

Dr. HERTZ. And it is our view that this factor has an intimate role in the pathogenesis or in the development, shall we say, of cancer of the breast for these reasons.

Mr. DUFFY. Somehow it just seems like a conflict to me, it almost sounds like the body is fighting itself and destroying itself. This would suggest to me perhaps that there must be some other reason why these things occur.

Dr. HERTZ. I think if you will review the mortality statistics of aging you will find that the body does fight itself.

Mr. DUFFY. This is quite a natural thing then. You observe this in other areas that chemicals of the body naturally tend to produce destructive effects.

Dr. HERTZ. Yes. Particularly is hardening of the arteries where cholesterol is implicated; the body produces massive amounts of cholesterol in addition to what you take in your diet, and this particular chemical is implicated by some observers in the development of what kills about a third of us, hardening of the arteries, arteriosclerosis.

Mr. DUFFY. Then you find no apparent conflict here and this would not suggest to you that perhaps one should look elsewhere for a cause. I know Dr. Kistner in his statement suggests that there is no causal effect.

Dr. HERTZ. We are getting into the whole problem of the etiology of cancer. Anyone who would implicate a single biological agent in the pathogenesis of cancer would be flying in the face of masses of information in which we know even for breast cancer specifically in these very experimental animals we are talking about that there are viral factors, genetic factors, as I will bring out later, and so on.

Mr. DUFFY. It is your testimony then that estrogens in and of themselves are not the sole cause.

Dr. HERTZ. Not the sole cause.

Mr. DUFFY. It is your testimony that there are other causes.

Dr. HERTZ. I think they are to breast cancer what fertilizer is to the wheat crop. They are not the seed.

Mr. DUFFY. Thank you, Doctor.

Dr. HERTZ. Is that clear?

Senator NELSON. Just so it is clear in my mind, do I understand you correctly to say that synthetic estrogens and naturally produced estrogens tested in the same quantity in animals produce the same result? Did I understand that?

Dr. HERTZ. We know removal of the ovaries, for instance in a cancer susceptible strain of animals, will eliminate the development of cancer in those animals if the ovaries are removed early enough in life.