

and are not studied in detail. We need a method for collecting data from a number of centers on spontaneous abortions and studying along with the physical characteristics. It does not have to be the chromosome, just the physical characteristics of the abortion, and comparing it with the maternal history. There are many advantages to this.

First of all, you get many more defects along with the abortions. Secondly, the history is a much shorter one. If the woman has to look over 9 months of pregnancy, she cannot remember what happened 9 months ago. But if she aborts the pregnancy in 10 weeks, she does not have to look back at anything like as far and, therefore, if you are taking a history of the woman, it is likely to be much more reliable than it is in women that go to term.

I think that is the main body of my presentation, Senator.

Senator NELSON. Does that conclude your statement?

Dr. CARR. Yes, sir; that concludes my testimony.

Senator McINTYRE. Dr. Carr, you indicate that the four and one half fold increase in triploid abortions among former pill users, as revealed by your study, is not due to chromosome damage but rather to some failure of the normal mechanism which insures that only two germ cells unite to form one embryo.

Dr. CARR. Yes.

Senator McINTYRE. Do you have any idea how the birth control pills could cause such a failure?

Dr. CARR. I have ideas about how it could be but not about what it does because we do not know. But possible mechanisms are, first of all, after a woman comes off the pill her normal hormones produced by the pituitary may not be behaving normally. As a matter of fact, this has not been studied, surprisingly enough. It has been studied in women who have fertility problems. It has not been specifically studied in women who appear to be normally fertile when they come off the pill. At least, if it has been done it has not yet been published. So her hormones may be for a period of time abnormal in that production, and this could interfere with the normal mechanism of fertilization or the time at which ovulation occurs.

The timing of ovulation is an extremely—we believe that the timing of ovulation is an extremely—important factor in the development of the individual. This is based only on some animal experiments, but there is some experiment with man. But if an ovum is old, and that may be old in terms of hours rather than days, if an ovum is old when it is fertilized, it is more likely to be fertilized more abnormally than if it is fresh, and the hormone balance depends on the woman herself, so the timing of ovulation may be distorted if her own hormones are not normal.

Senator McINTYRE. Doctor, you state that one supposedly beneficial side effect of the use of oral contraceptives could be a reduction in the incidence of birth defects. If we are going to have a much higher rate of abortions, I can understand how that might be true. However, you base your statement on the fact that more defective children are born to women over 40 years of age and the assumption that widespread use of the pill is likely to result in completion of families at an early stage.