

portance of pregnancy as related to the occasion of these strokes in young women. He felt that there was absolutely no increase in the number of strokes after the oral contraceptive drugs became available, and indeed, he pointed out that in his 1961-65 group, 24 of the women had never taken the drugs, one had discontinued them three months before her accident occurred, and the last was not available to give information.

Similar conflicting reports on strokes were made by various American centers; among others, two fairly well-known ones were those reported from Duke University and the Mayo Clinic.

In the last 2 years, two carefully controlled studies have been reported. One was really a group of studies performed in Britain by Inman and Vessey, and later by Vessey and Doll, and one was reported in the last several weeks by Sartwell and his associates from Johns Hopkins. These, again, were retrospective studies. I am sure you are all aware by now, with complications of an apparently quite low incidence, such as strokes or other thromboembolic accidents, a prospective study in which one selects a large group of women who are going on the drug and follows their career for the ensuing months or years is extremely difficult and extremely costly because of the large number of women who must be studied and the length of time which they must be studied. Most authorities have elected, rather, to go to the accident, to select the patients who have already developed an accident and then go back and try to relate this to their drug habits and other social, medical, and economic practices.

The studies from England, and from the northeastern portion of this country reported by Sartwell, were retrospective studies, in which cases of thrombophlebitis, pulmonary embolism, stroke, and, in the British series, coronary occlusion, were identified through hospital and physicians' records. These were analyzed for the presence or absence of possible contributing causes such as previous trauma, high blood pressure, infections, and obesity, and suitable matched controls from the same patient populations were selected and similarly analyzed.

Following this, cases and controls were then interviewed personally.

The results of these two studies were very similar. Both indicate an increased risk of thromboembolism and stroke in the users of oral contraceptives. The British study has suggested that the overall increased risk for all forms of thromboembolic disease and stroke might be as high as eight or nine times the expected rate. The American study suggested that the increased hazard was of the order of four and a half times the risk to nonusers of the drug.

Though the risk seems to be real, the absolute numbers remain small. The British figures, which are rather the higher of the two, do not suggest a range of death rate from vascular accident which might be attributable to The Pill—all forms of thromboembolic disease, including stroke as well—greater than 1.5 to about 3.5 per 100,000. The 1.5 would relate to women of the younger age groups, the 3.5 to older age groups.

Similar rates in this study for nonusers were about two-tenths to five-tenths per 100,000. Now, since thrombosis of deep veins in the legs and pulmonary embolism are much more common than stroke in the