

as many of the respondents did, if that were not the case. The error, if any, would lie in the controls failing to give affirmative answers to the question on oral contraception, which was asked in several ways in the course of the interview. The proportion of affirmative responses by married controls as to current use was similar to what would be expected from the Ryder-Westoff survey (9), specific for age and parity (18 observed, 15.7 expected).

The second possible bias is that those women who were oral contraceptive users may have been more likely to be hospitalized than other women with thromboembolism of equal severity. This latter possible bias can be tested for by comparing the findings in women with the more severe illnesses such as those in which pulmonary embolism was a factor, who would be treated in hospitals whatever their history of oral contraceptive use, with women who had only a superficial thrombophlebitis. Table 9 indicates that this bias was not present, since the relative risk for superficial thrombophlebitis is not greater than that for all cases.

The most important single difference between cases and controls found in this study which might tend to bias the results was the excessive number of student nurses and other persons who had hospital jobs or medically-related jobs—or whose husbands had such jobs—among the cases. This probably indicates a greater likelihood of employees receiving medical attention and being admitted to a teaching hospital if they develop this type of illness while working.

Analysis of the 26 unmarried student nurses who were the case-members of case-control pairs showed that all had thrombophlebitis of the lower extremity—of superficial veins in 5, deep in 21. Only 2 of these 26 cases had been using oral contraceptives, in contrast to 16 of 44 for the other unmarried cases. Hence, the relative risk if these student nurses were all excluded would increase from 4.4 to 4.6 (Table 9) and the bias produced by their inclusion tends to reduce the association of oral contraceptives with thromboembolism. The diagnosis was superficial thrombophlebitis of the lower extremity in about one-fourth of the medically-related cases, but only one-tenth of the remaining cases, indicating a tendency for milder cases to be admitted when they are either working in a hospital or in contact with medical people. This group included a physician, physicians' wives, physicians' secretaries, graduate nurses, licensed practical nurses, ward maids and others. It is also possible that some hospital jobs, which involve staying on one's feet for considerable periods, are conducive to thrombophlebitis of the lower extremities.

Although it was not desired to match cases and controls on religion, analysis showed that there was a tendency for the case and control members to be of the same faith more often than would occur by chance. This presumably resulted from both geographic factors and a trend toward selection of hospitals operated by church groups of the patient's faith. The effect of this inadvertent partial matching is speculative, but it is thought that if the contraceptive methods selected are related to the religion of the patient, as has been shown in analyses not included in this paper, and if oral contraceptives are associated with thromboembolism, then the relative risk will be underestimated, unless the analysis is kept specific for religious groups.

The absence of a significant difference in maximum weight between cases and controls does not indicate a lack of association between obesity and thromboembolism. Patients who were noted on the hospital record to be obese were disqualified for study. Furthermore, the cases and controls when interviewed were asked, not what they had weighed at admission, but what their maximum weight had been apart from pregnancy, and in what year; the maximum weight in many instances was reached several years before hospitalization.

Criticism has been voiced of some studies similar to this one, on the grounds that the final study group represented too small a proportion of the population of cases to be representative. In answer to such criticisms it is pointed out that while a large majority of hospitalized cases had one or another predisposing condition which led to their rejection, most of the women in the population who use oral contraceptives have none of them, and the aim of this study was to determine whether normal women are at risk. In the second place, finding a suitable control for a woman with a particular predisposing factor would present a great problem.