

The studies I have referred to suffered from the disadvantage that to some extent the results depended upon the successful matching of control and test subjects, for such aspects as age, parity, degree of obesity and family history of diabetes, all of which may effect both carbohydrate metabolism and serum lipid levels. Therefore, in 1967, we set out to repeat the studies using the same women as their own controls. In addition, this enabled us to determine the proportion of women whose metabolism was affected when they took oral contraceptive steroids. We published our results in 1969 (Publication Nos. 75, 76, 77, 78, 79) and 1970 (Publication Nos. 80, 81 and 82). In these publications we have confirmed that glucose tolerance is impaired by oral contraceptive steroids and that in as many as 78 per cent of a group of 91 women, some deterioration of glucose tolerance could be demonstrated. In this group, 13 per cent of the women developed chemical diabetes during therapy. We also showed that plasma insulin levels were higher during the course of glucose tolerance tests when the patient was receiving medication compared with the control values. We confirmed the elevated blood pyruvate levels in oral contraceptive users. These results are shown in Figure 3 and given in full in Publication 79. To our previous data, we had now added another metabolic abnormality due to oral contraceptive medication, namely hyperinsulinism. I do not wish to dwell upon these abnormalities but will refer briefly to three further aspects which we have explored. We have shown that glucose tolerance usually returns towards normal six weeks to three months after oral contraceptive drugs are withdrawn (Fig. 4). We have also shown that in addition to enhancement of insulin secretion, hyperinsulinism, the reverse effect may be found in some patients and insulin secretion may be lower as the result of taking the medication. This abnormality is characteristically seen in sub-clinical diabetes mellitus.