

# A STUDY OF EFFECT OF ORAL CONTRACEPTIVES (LOW DOSE) ON BLOOD GLUCOSE LEVELS

by

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## SUMMARY

Effect of oral contraceptive (OCs) has been studied in eighty females of conceptual age in four groups ranging from control to 3, 6, 9 months respectively. Blood glucose estimated on 5th day of cycle by fellers enzymatic method.

Highly significant statistical difference was noted in the third group i.e. after a months, probably due to the long use of oestrogen and progesteron leading to increased cortisol levels and/or changes in the tryptophan metabolism.

## Introduction

A multitude of studies on the effects of many anovulatory steriods on carbohydrate metabolism have been undertaken, and the conclusions extended over the entire gamut of possibilities, form a 'diabetogenesis' in excess of 75 per cent through the null point of 'no significant effect' to an actual amelioration of clinically overt diabetes mellitus. Almost all women on contraceptives secrete more insulin than do normal women in response to a glucose load. It has been suggested on the basis of some animal models in the past that this might very well lead to earlier diabetes, particularly in a sus-

ceptible population. Hence, ideally all women taking oral contraceptives probably should have a glucose tolerance test a few months after starting the agent or atleast blood glucose level every month (Briggs *et al* 1974).

## Material and Methods

Eighty random female subjects of all classes between the conceptual age of 20 to 35 years, attending the family planning clinics of State Zenana Hospital and Regional Family Welfare Training Centre, Jaipur were selected for this study. Each subjects was clinically examined to exclude any cardiovascular, gastrointestinal, hepatorenal and endocrinal disease. Subjects were divided in four groups (20 case in each group).

Group I. Normal controls.

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### Observation and Results

It can be seen from the Table that on application of test of significance to the mean difference of blood glucose between controls and therapy group is statistically insignificant after third and sixth cycle while it is highly significant in ninth cycle ('t' value 2.22,  $p < 0.5$ ).

### Discussion

The insignificant rise of blood glucose in third and sixth cycle group corroborate similar findings reported by other workers as evident. The statistically significant rise of blood glucose in ninth cycle group of therapy may be due to long use of oestrogen and progestogen; these might have caused excess production of cortisol (Metcalf and Beaven, 1963), alteration of liver function (Ockner and Davidson, 1967) and alteration of peripheral tissue glucose utilization due to the altered response to insulin (Beck and Wells, 1968). This type of rise have also been reported by other workers with previous combination pills (Posner *et al* 1967; Spellacy *et al*

1967) but the exact mechanism still remains unexplained. A recent suggestions that certain changes in tryptophane metabolism might lead to an increase in circulating xanthurenic acid, an increase in binding of insulin to the acid and decrease in the biological activity of the bound insulin which occurs after administration of the 'PILL' may be one of the causes of this rise of blood glucose levels (Goldzieher *et al* 1970).

### References

1. Beck, P. and Wells, S.: Clin. Resto. 16: 338, 1968.
2. Briggs, M. H. and Diez alusy A. (1974): "Pharmacological Models in Contraceptive development" 276.
3. Goldzieher, J. W., Martin, J. and Levingston, N. B. (1963): West J. Surg. Obstet. Gynec. 71. Quoted by Peel, J. and Potta Malcolm. Text book of contraceptive practice (1969) Page 90.
4. Metcalf, M. G. and Beaven, D. W.: Lancet. 2: 1095, 1963.
5. Ockner, R. K. and Davidson, C. S.: New Eng. J. Med. 276: 331, 1967.
6. Spellacy, W. N.: Am. J. Obstet Gynec. 104: 448, 1969.