

ABSTRACT

ASSESSMENT OF INSULIN RESISTANCE IN OFFSPRING OF DIABETIC AND NON DIABETIC PARENTS

AIM AND OBJECTIVE:

1. To determine the glycemc status and levels of serum fasting insulin in offspring of Single Diabetic Parent (SDP) group, Both Diabetic Parents (BDP) group and Non Diabetic Parents (NDP) group.
2. To assess insulin resistance by Homeostatic Model Assessment of Insulin resistance(HOMA-IR) in all subjects of above mentioned groups.
3. To compare and analyze Insulin resistance between these groups

STUDY DESIGN: Observational Case control study.

MATERIALS &METHODOLOGY:

After obtaining permission from Head of Institution this study was done among students of Madurai Medical College, Madurai. 150 young healthy volunteers aged between 18- 21 years are selected from students of Madurai Medical College, Madurai according to the Inclusion and Exclusion Criteria and categorised into three groups based on the parental history as follows:

Study group:

SDP : SDP (offspring of single diabetic parent)

BDP : BDP (offspring of both diabetic parents)

Control group:

NDP : NDP (offspring of non diabetic parents)

After getting informed written consent, detailed history, general examinations, Body mass index, waist hip ratio and systemic examinations were done. The subjects were instructed to come in fasting condition (12hrs). Under strict aseptic precautions 3ml of venous blood collection done. By using the standard procedures both biochemical parameters were assessed.

Serum Fasting and postprandial plasma glucose (mg/ dl): Glucose oxidase-peroxidase method.

Serum Fasting Insulin (mU/ml) : Enzyme linked immune sorbent assay method (ELISA).

Insulin resistance is calculated as follows,

Homeostatic Model Assessment -Insulin Resistance Index(HOMA – IR Index) =
Fasting Insulin(mU/ml) x Fasting Plasma glucose(mg/dl)/405

Then insulin resistance were compared and Statistically analysed between the three group using ANOVA.

RESULT OF THE STUDY :

The mean Fasting plasma glucose levels, Fasting insulin levels and Insulin Resistance as assessed by HOMA-IR were in normal range in all three groups but the all the observed levels were higher and also **statistically significant (p<0.05)** in BDP as compared to SDP and NDP group.

CONCLUSION;

This shows that the offspring of diabetic parents has hyperinsulinemia and insulin resistance at an early stage of life. So that the lifestyle modifications are accordingly advised to such individuals. Hence it is recommended to do the insulin resistance screening at an early stage of life that to in persons with diabetic parents as they are in high risk to develop diabetic mellitus. Screening can be done by HOMA – IR method as it is a simpler, cheaper, less labor-intensive, less time consuming and more acceptable to young people.

KEY WORDS:

HOMA-IR, Insulin resistance, Diabetes mellitus.