



(RESEARCH ARTICLE)



A prospective comparative study to evaluate the effect of Myo-inositol plus diet vs diet alone in patients with gestational diabetes mellitus

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Abstract

Aim: The aim of this study was to compare the effect of Myo-inositol plus diet and diet alone in patients with gestational diabetes mellitus.

Materials and methods: A Randomized Prospective study was carried out in Gestational Diabetes Mellitus patients to evaluate the efficacy of Myoinositol+diet vs Diet alone in the department of Gynaecology, Durgabhai Deshmukh Hospital, a 300 bedded multispecialty hospital from September 2018-April 2019. OGTT test was conducted to measure blood glucose levels.

Results: Among the total number of patients (60), Myoinositol + diet is given in 50% and diet is given in 50% of the patients. Among 30 patients on diet, 19 patients couldn't control rising blood glucose levels and were prescribed insulin for reduction of blood glucose levels. Among 30 patients on myoinositol+ diet, 4 patients couldn't control 1 hr blood glucose levels and were prescribed insulin to control blood glucose levels.

Conclusion: This study showed that Myoinositol + diet is effective than only diet with respect to decrease in blood glucose levels and safety among patients with Gestational Diabetes Mellitus. Therefore, we conclude that myoinositol + diet is safe and effective in reducing fasting and 2hr blood glucose levels.

Keywords: Gestational diabetes mellitus; Myoinositol; OGTT test; Diet; Insulin

1. Introduction

Gestational Diabetes Mellitus (GDM) is the common medical complication characterized by increased insulin resistance and by increased risk for adverse pregnancy outcomes affecting both the mother and the fetus [1]. Gestational Diabetes mellitus is said to be any degree of glucose intolerance with an onset or first recognized during pregnancy [2]. However, it does increase the risk of preeclampsia and requiring a Caesarean section [3]. While long term, over 50% may develop type 2 diabetes mellitus with in 10years [4]. Infants of mothers with gestational diabetes mellitus can grow disproportionately large for their gestational age [5]. This in turn increases the likelihood of traumatic birth or shoulder dystocia leading to birth injuries such as bone fracture or nerve palsy. Additional risks for the immediate health of the infant include respiratory distress syndrome, jaundice, hypoglycemia, and admission to the neonatal intensive care unit [6] [7]. Risk factors include being overweight, maternal age, maternal Body Mass Index(BMI), previous history of gestational diabetes, a family history of type 2 diabetes and having PCOS (polycystic ovarian syndrome)[8] . The diagnosis of GDM is usually made using an Oral Glucose Tolerance Test (OGTT) between 24 to 28 weeks gestation [9].

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Myo-inositol has been identified as a potentially new and novel treatment for GDM. Myo-inositol is one of the nine isomers of inositol, a simple carbohydrate and nutrient the body requires for many cell functions [10]. Myo-inositol belongs to the vitamin-B family as it is produced in sufficient amount by the human body by D-glucose. It is no longer called as an essential nutrient. Myo-inositol is available as a dietary supplement, in water soluble powder form or as capsules. High amount of Myo-inositol is found in fresh fruits and vegetables and in all foods containing seeds. Highest concentration of Myo-inositol is present in peas and beans but leafy vegetables have lowest concentration. Among fruits, cantaloupe and citrus fruits (except lemons) have an extraordinarily high Myo-inositol content. Myo-inositol can be synthesized by the body from food, but when we are already deficient, the lack of Myo-inositol can impact the ability of the body to be sensitive to insulin. Insulin has been shown to use secondary messengers to help transmit signals from insulin to target cells. Secondary messengers increase the speed and strength of insulin's message within its target cells. Myo-inositol has been identified as a secondary messenger of insulin improving the body's sensitivity to the effects of insulin [11].

2. Material and methods

For the present study, approval of Institutional Ethics committee, DurgabhaiDeshmukh hospital was taken. This randomized perspective observational study was conducted for 6 months in department of Gyneacology, DurgabhaiDeshmukh hospital, a 300 bedded multispeciality hospital.

A study was conducted to access patients with Gestational Diabetes Mellitus. Basic demographic details and the relevant data were collected from patient case reports and laboratory reports. The results were evaluated and analysed statistically by calculating mean of the samples before and after the treatment. All other parameters were represented in pie and bar-graphs.

3. Results and discussion

Among 30 patients on diet, 19 patients couldn't control rising blood glucose levels and were prescribed insulin for reduction of blood glucose levels. Among 30 patients on myoinositol+ diet, 4 patients couldn't control 1 hr blood glucose levels and were prescribed insulin to control blood glucose levels. In patients with Gestational Diabetes Mellitus when compared to other groups, age group between 25-30yrs(37%) are found to be more than 20-25yrs(31.5%) & 30-35yrs(31.5%). In patients with Gestational Diabetes Mellitus when compared to other groups, patients weighing between 41-50kgs(32%) are found to be more and 71-80kgs(16%) are found to be less. In patients with Gestational Diabetes Mellitus when compared to other groups, BMI between 18.5-25(normal BMI)(52.6%) were found to be more prone to develop Gestational Diabetes Mellitus.

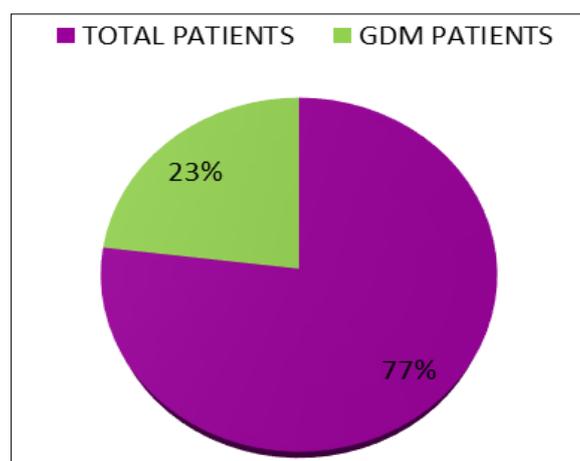


Figure 1 Incidence of GDM

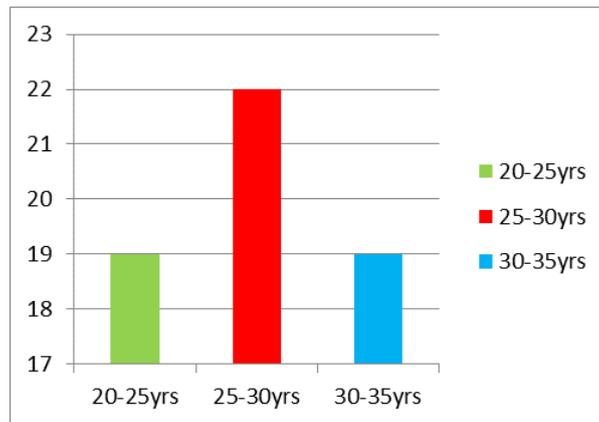


Figure 2 Incidence of GDM based on age groups

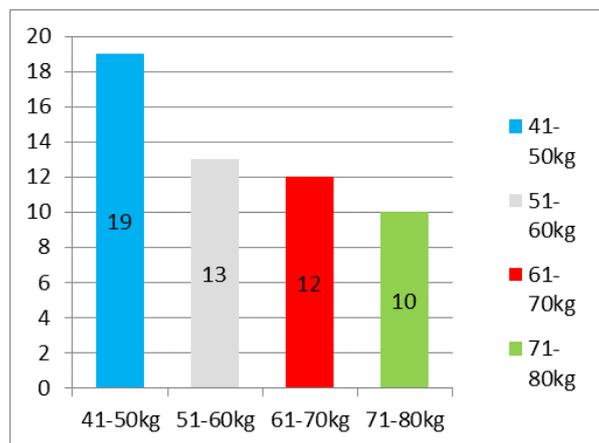


Figure 3 incidence of GDM based on weight

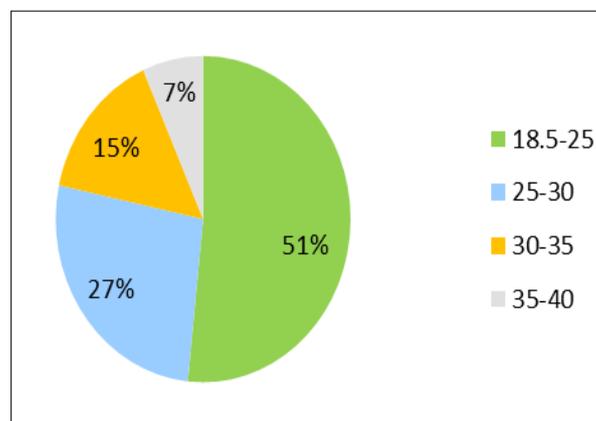


Figure 4 incidence of GDM based on BMI

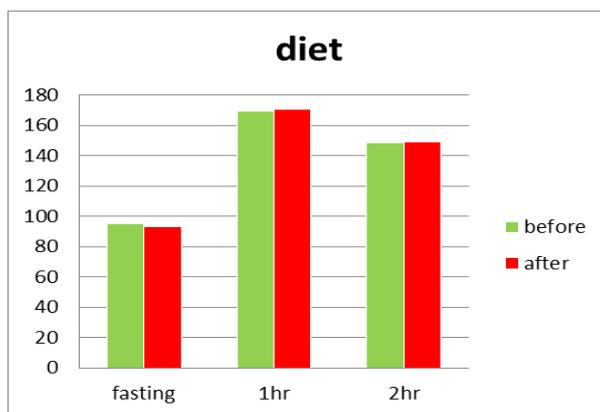


Figure 5 Mean of blood sugar levels before and after following diet

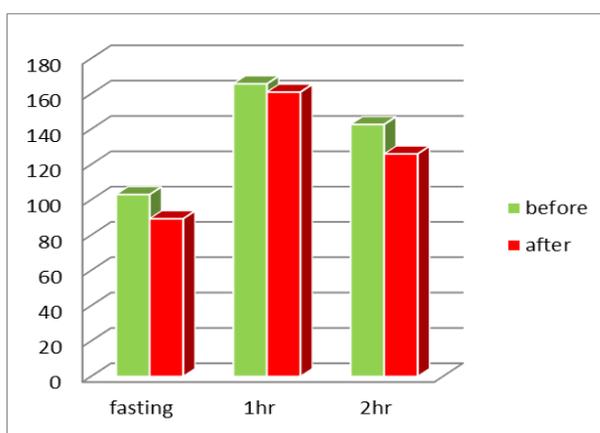


Figure 6 mean of blood sugar levels before and after the treatment(myoinositol +Diet)

4. Conclusion

From the present study we conclude that Myoinositol + diet is effective than diet alone with respect to decrease in blood glucose levels and safety among patients with Gestational Diabetes Mellitus and particularly myoinositol + diet is safe and effective in reducing fasting and 2hr blood glucose levels.

Compliance with ethical standards

Acknowledgments

The authors thank staff of DurgabaiDeshmukh hospital for their kind support they gave to undertake and complete this study successfully

Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of ethical approval

Study was conducted with the approval of Institutional ethics committee, DurgabaiDeshmukh hospital, Hyderabad.

Statement of informed consent

The entire study was conducted according to the AHA/ASA guidelines. All the relevant and necessary data was collected from patient records and laboratory reports.

Informed consent was obtained from all individual participants included in the study.

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