Should diabetic pregnant mothers fast during Ramadan?

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ABSTRACT

Objectives: To study the effects of Ramadan fasting on the control of diabetes in different groups of pregnant diabetic mothers. Design: Prospective study. Setting: Hospital setting, gestational diabetic clinic. Subjects: Forty three Saudi pregnant diabetic mothers were studied. Twenty three patients were on diabetic diet (Group I), 11 patients on 2 injections of regular insulin per day (Group II) and 12 patients managed with 3 injections of insulin per day (Group III). Measures: Fasting and post prandial blood glucose levels were compared in the patients studied before and during Ramadan. Results: No significant changes occurred in blood glucose levels during Ramadan. In group I post prandial blood glucose levels did actually improve significantly (p< 0.05). None of the patients experienced clinically significant hypoglycemia. Conclusion: Ramadan fasting may be allowed for some pregnant diabetic mothers including those on diet or simple insulin regimens.

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Ramadan fasting is one of the five Pillars of Islam. The time of observance of this holy month varies each year as the Muslim Calendar is based on lunar months. Fasting extends from dawn till sunset. During this period, the individual must abstain from eating, drinking or taking any nutritive materials through any route. Islam allows the break of fasting by certain groups of individuals including pregnant mothers if it is feared that fasting may adversely affect her health or her baby. Diabetics are another group of patients for whom we have previously attempted to make some guidelines regarding their Ramadan fasting.1 Diabetes control during pregnancy is considered vital for both the mother and more importantly her fetus. Current standards recommend very tight control of diabetes during pregnancy. The current study aimed to look into the effects of Ramadan fasting on the control of diabetes in different groups of pregnant diabetic mothers.

Patients and methods. Forty three Saudi pregnant diabetic mothers were followed up in the gestational diabetic clinic, Security Forces Hospital (SFH), Riyadh, before, during and after Ramadan 1995. Thirty seven patients were gestational diabetics, five had non-insulin dependent diabetes and one patient had maturity onset diabetes of the young (MODY). Their mean age was 34.08 +/-6.7 years, mean weight 89 +/-8.2kg. The mean parity at that time of conducting the study was 5.3 +/-3.2. Blood for glucose measurement was drawn into fluoride/oxalate tubes. The plasma was separated and glucose measured by a hexokinase procedure using the Hitachi 911 (Boehringer Maunheim, FRG). Fasting and post prandial serum glucose levels were measured in the patients during the last week of Sha'ban - the month preceding Ramadan and during the third week of Ramadan. During Ramadan the fasting glucose level was taken at 1 pm, while post prandial samples were taken two hours after sunset. Twenty of the patients studied were managed on diet alone (Group I), eleven patients were treated with two injections of regular insulin (one before breakfast and one before dinner (Group II), and twelve patients were managed with three injections of regular I insulin - one before each meal - (Group III).

During Ramadan patients belonging to Group I were maintained on their diet. Group II patients were advised to take the two injections before the two main meals of Ramadan i.e., one injection

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before the dawn and another injection before the sunset meal. Patients belonging to Group III - were advised to omit the lunch dose and to take the remaining injections before the two main meals of Ramadan. The mean total dose of insulin if Group II before and during Ramadan was 24±6 and 24 ±6 units respectively i.e. there was no change in the dose. In Group III, the mean doses for Sha’ban and Ramadan were 36 ± 8 and 28 ± 4 respectively.

**Statistics.** Fasting and post prandial blood glucose levels were compared before and after Ramadan using Mann-Whitney U test. p value < 0.05 was considered statistically significant.

**Results.** Table 1 summarizes the blood glucose levels in the patients studied. None of the patients studied reported clinically significant hypoglycemia. It is noted that there has been no deterioration in the blood glucose levels obtained during Ramadan. Post prandial glucose levels in Group I were actually significantly lower during Ramadan (p<0.05).

**Discussion.** The results obtained in this study indicate that Ramadan fasting did not adversely affect diabetes control in the patients studied. Patients controlled on diet did actually improve their post prandial blood glucose level during Ramadan. This may be related to strict adherence to diet by patients in an attempt to avoid deterioration in their diabetes control which may necessitate initiation of insulin therapy or advice to break fasting (both options being unpopular to our patients). In the insulin treated patients, there was no deterioration in this diabetes control for both fasting and post prandial blood glucose results. It is to be noted that clinically significant hypoglycemia did not occur in the patients studied. Similar observations were made by us and by Belkhadir et al on patients taking oral hypoglycemic agents while fasting during Ramadan.2,3 The study suggests that it is possible for certain categories of pregnant diabetic mothers to fast during Ramadan including those managed on diet alone or those on simple insulin regimens. Patients previously controlled with more complicated insulin regimens, including those on mixed split regimen or those taking high insulin dosage were excluded from our study. We believe that caution should be exercised before allowing such patients to fast. We also would like to emphasize that diabetic pregnant mothers fasting during Ramadan should be followed up carefully in the diabetic clinic. Diabetic mothers experiencing hypoglycemia should break their fasting immediately and report to their physicians for further guidelines and adjustment of their insulin regimen. Until further data is available, pregnant diabetic mothers with significant cardiac, renal and retinal disease may be advised not to fast during Ramadan.

**References.**