

## Brief Communication

### Impact of Ramadan fasting on birth weight in 4 hospitals in Sana'a city, Yemen

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**B**irth weight has been served as the primary operational index of maturity of the infant at birth for the past 50 or more years, and is still one of the principal measures of the health status of the newborn used in clinical and epidemiological studies. Low birth weight (LBW) (<2500 grams) is the most significant predictor of the risk of death or a baby's health, growth and development.<sup>1</sup> This study, conducted in Yemen, addressed Ramadan fasting as the specific variable that is of cultural interest in Yemen. The aim of this study is to assess the incidence of LBW and to study the effect of Ramadan fasting on LBW. The risk factor is important and feasible to study. The population of Yemen is more than 15,000,000 according to 1994 census. Maternal mortality is high 1000 per 100,000 live births. Infant mortality rate was 80.9 per 1000 live births as reported in the statistical yearbook 1995 and 124 in the World Bank estimate. The under 5 mortality rate was 122 per 1000 live births. The total fertility rate was 8.2, the crude birth rate was 52.6 and the crude death rate was 21 per 1000 live birth in 1995. Life expectancy at birth was 57.4 years.<sup>2</sup> In comparison with other parts of Yemen, Sana'a city has the richest of health facilities. The health facilities comprise of 8 government and 18 private hospitals, 6 health centers with no beds, 27 private dispensaries and 279 pharmacies and drug stores. The bed population ratio in Sana'a city is 1:270.<sup>3</sup> To ensure representativeness of the sample, all mothers delivered in Sana'a hospitals and not residing in Sana'a city were excluded from the study. All mothers delivering in Sana'a hospitals during the period of the data collection were almost 10%. The dependent variable for the study was LBW (a weight of less than 2500 grams). The independent variable that was investigated in relation to LBW was the Ramadan fasting. All respondents, without any refusals, giving a 100% response rate, obtained complete interviews. All consecutive births in the 4 hospitals, namely, Athawra General Hospital, Al-Sabeen Mother and Child Hospital, Al-Umm Specialized Maternity Hospital and Kuwait University Teaching Hospital to women residing in Sana'a city were collected for a period of 3 months (August-November 1995). All the above mentioned hospitals are government hospitals and they charge

only a nominal fee for services provided to the public. There are no significant seasonal variations in Sana'a city, which may introduce any bias, the weather in Sana'a city is stable for the whole year without any major changes and there is no significant migration to or from the city and the city is not affected by agricultural seasoning. **Table 1** summarized the distribution of the dependent variable LBW (<2500 grams). There was an interesting finding and association between birth weight and Ramadan fasting during pregnancy. The vast majority of respondents (2,025 [90.3%]) were fasting for 20 or more days during their last pregnancy and 120 respondents (5.4%) were fasting for 10-19 days. However, only 36 respondents (1.6%) were fasting between 1-9 days. The chi-square for number of fasting days was 7.8 with 3 degrees of freedom and P value=0.050. (**Table 2**).

**Table 1** - Distribution of the dependent variable low birth weight. (n=2242)

| Birth (grams)   | Weight n (%) |
|---|--------------|
| 700-1499  | 28 (1.2)     |
| 1500-1999   | 57 (2.5)     |
| 2000-2499   | 405 (18)     |
| 2500-2999   | 836 (37.3)   |
| 3000-3499   | 729 (32.5)   |
| <3500   | 187 (8.3)    |
| Mean birth weight ( $\pm$ SD) = 2812.24 grams ( $\pm$ 507.009)<br>LBW - low birth weight, n - number, SD - standard deviation |              |

**Table 2** - Distribution of LBW and fasting during Ramadan.

| n of fasted days  | n (%)        | LBW % | OR  | 95% CI    |
|---|--------------|-------|-----|-----------|
| 0 - 9   | 97 (4.3)     | 29.5  | 1.9 | 0.9 - 2.1 |
| 10 - 19   | 120 (5.4)    | 27.5  | 1.4 | 0.9 - 2.1 |
| >20   | 2,025 (90.3) | 21.1  | 1   | -         |
| Chi-square = 7.80 (3df), P=0.050<br>n - number, LBW - low birth weight, OR - odd ratio, CI - confidence intervals |              |       |     |           |

## Impact of Ramadan fasting on birth weight

There was no relation between days fasted and LBW. This could be explained by the excessive eating of more rich diets during all evenings of the Holy month of Ramadan with the spirit of celebration and feasting with relatives and friends all nights in Ramadan. Other studies from the Kingdom of Saudi Arabia found an increase in the weight of women during Ramadan.<sup>4</sup> There is a need to encourage future research based on sound theoretical and conceptual framework with more studies based on social and behavioral science theories leading to increase knowledge for the LBW problem and incorporate it within the curricula of medical faculties of each University in Yemen.

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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 prandil 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.