Chapter 75

Women’s Health in Ramadan

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INTRODUCTION

Ramadan is the holy month in Islam, occurring annually, during which no ingestion of food or fluid is allowed between sunrise and sunset. Each year, Ramadan falls approximately 10 days earlier than the previous year, in accordance with the Islamic calendar. The duration of restricted food and beverage intake is approximately 12 hours/day, depending on the season, for a period of 1 month, which makes Ramadan a model of prolonged intermittent fasting. Ramadan is observed by over 400 million Muslims who spread across the globe, who live under various geographical, climatic, social, cultural and economic conditions. The practice is to eat two meals, one before dawn (Sahour) and one just after sunset (Iftar). Modification of meal frequency and eating patterns during Ramadan may affect different aspects of human health. This pattern of intermittent activity and fasting is different from normal fasting or ongoing food deprivation which has been widely studied.

According to Islam, those who are ill, travelling, pregnant or nursing, menstruating, suffering life-threatening conditions because of hunger and thirst, soldiers in war whose fasting may harm others, or may prevent them from saving a life need not fast during Ramadan. These individuals fast at a convenient date later or may give charity if they cannot fast at all. This flexibility offered by the religion may not be reflected in the attitudes of observers of Islam. It has been shown that a significant proportion of women from this group will fast. Nurses and other health care providers taking care of Muslim women face the difficult task of advising them about the implications of fasting during pregnancy and breastfeeding. Providing this advice and counsel requires that the health care personnel understand and respect beliefs and practices during this time to be able to provide appropriate and sensitive care. This article discusses health aspects of Muslim women during the fasting month of Ramadan.

PREGNANCY AND RAMADAN

Pregnancy is a state of increased insulin resistance and insulin secretion and of reduced hepatic insulin extraction. Fasting glucose concentrations are lower but postprandial glucose and insulin levels substantially higher in healthy pregnant women than those who are not pregnant. Elevated blood glucose and A1C levels in pregnancy are associated with increased risk for major congenital malformations. Fasting during pregnancy would be expected to carry a high-risk of morbidity and mortality to the fetus and mother, although controversy exists.

The metabolic consequences of fasting during pregnancy have been studied in women by Malhotra et al. who observed a significant fall in glucose, insulin, lactate and carnitine levels, and a rise in triglyceride, non-esterified fatty acid and 3-hydroxybutyrate when compared with controls. Maternal serum cortisol level was elevated while low density lipoprotein/high density lipoprotein ratio was decreased in healthy women with uncomplicated pregnancies of 20 weeks or more, who were fasting during Ramadan in a study by Dickinson et al. A reduction in fetal breathing movements due to the low level of blood glucose concentration in fasting pregnant mothers has been documented. In a more recent study, a reduction in fetal biophysical profile in fasting pregnant mothers has been found, which could indicate a certain level of fetal compromise. Insufficient fluid intake during pregnancy due to fasting increases prevalence of urinary tract infection in Muslim women. An increased risk of hyperemesis gravidarum in fasting women during the first month of pregnancy has been found.

In humans, placental growth responds to maternal influences. The diets of mothers during pregnancy, and their physical activity, are also known to be associated with altered placental size. Fetal and placental sizes at birth are associated with the later risk of chronic diseases. Placental weight correlates with birth weight and is also associated with later cardiovascular disease. These associations between birth size and later chronic disease are thought to reflect “fetal programming”, the process whereby nutrition and other influences during gestation permanently change the structure and function of the body in ways that affect long-term health. In a retrospective study, it was observed that babies who were in the second or third trimester of gestation during the Ramadan fasts had reduced placental weight at birth. Birth weight was not affected, which suggests that the placentas were able to maintain levels of activity despite their reduced size. The placental growth slowed, but their efficiency increased, so that fetal growth is sustained, albeit with a reduced reserve capacity. The lifestyle changes associated with Ramadan further slow placental growth, with a further increase in efficiency. Changes in placental growth during Ramadan could be associated with altered fetal programming, and may, therefore, have long-term implications for the health of the next generation.

Van Ewijk reported that people who were exposed to Ramadan fasting during their mother’s pregnancy had poorer general health and were sick more often than people who were not exposed. This effect is especially pronounced in the older age group and they reported health problems such as coronary problems and type 2 diabetes. The people exposed to their maternal fasting, were a bit smaller in body size and weighed less. Among Muslims born during, and following the months after Ramadan, the birth of males was lower, which is most likely to be caused by death before birth.

In general, women with pregestational or gestational diabetes are strongly advised not to fast during Ramadan. However, if they insist on fasting, then special attention should be given to their care. Pre-Ramadan evaluation of their medical condition is essential. This
includes preconception care with emphasis on achieving near-normal blood glucose and A1C values, counseling about maternal and fetal complications associated with poor glycemic control, and education focused on self-management skills. Ideally, patients should be managed in high-risk clinics staffed by an obstetrician, diabetologist, a nutritionist, and diabetes nurse educator. The management of pregnant patients during Ramadan is based on an appropriate diet and intensive insulin therapy. More frequent monitoring and insulin dose adjustment is necessary.\(^5\)

However, in a study conducted to analyze the glycemic control in pregnant women with diabetes who were on insulin therapy and fasted during the month of Ramadan, it was observed that these women were able to fast during Ramadan and that their glycemic control improved during fasting period as a result of diligent monitoring combined with commitment from patients and health providers. The findings may also suggest that instead of absolute ban on fasting for pregnant diabetic women, more practical approach and close consultation with health care providers might be more helpful.\(^16\)

Other studies have demonstrated that fasting had no effect on the unborn baby. Cross et al.\(^17\) found that maternal fasting during Ramadan did not affect the birth weight of babies born at full term. In another study, maternal fasting during Ramadan did not affect neonatal birth weight.\(^18\) Maternal fasting during Ramadan during the second trimester did not have a significant effect on maternal oxidative stress, fetal development or fetal birth weight in another study.\(^1\) Dikensoy et al.\(^19\) found that maternal fasting did not lead to ketonemia or ketonuria in pregnant women. They also found that it did not affect intrauterine fetal development or the fetus’s health. No statistically significant difference in Doppler indices of uterine or umbilical artery, growth parameters or amniotic fluid index was observed between fasting and nonfasting pregnant women.\(^20\)

Regardless of the effect of fasting on the health status of the mothers and their unborn babies, some pregnant Muslim women may choose to fast. In a survey it was observed that most Muslim women chose to fast during pregnancy with support from their spouses and other family members. However, these women lacked the basic religious knowledge regarding Islamic law of fasting during pregnancy.\(^21\) In another study, pregnant Muslim women avoided discussing fasting with their health care providers for fear of disrespectful treatment or advice against fasting.\(^22\)

**LACTATION AND RAMADAN**

As in pregnancy, Islam exempts women from fasting in Ramadan during lactation. However, it is common that many Muslim women fast during this period. It is well known that breastfeeding is very important for infants. Breastfeeding of infants is associated with better biological, psychological and intellectual development of the baby. Although many factors compromise maternal nutrition, the concentration of milk nutrients and milk volume remain unchanged.\(^23\)

In a study by Ertem et al.\(^5\) the attitudes and practices of breastfeeding mothers regarding fasting during Ramadan were investigated. They found that 22% of breastfeeding mothers perceived a decrease in their breast milk production, and 23% reported increasing the amount of infant supplements during fasting. Most mothers (76%) believed that fasting would decrease breast milk and 65% believed that breastfeeding mothers should not fast.\(^5\) Bener et al.\(^4\) documented no significant changes in total fat, protein, lactose, total solids, non-fat solids, triglycerides and cholesterol content of breast milk. They concluded that Ramadan fasting did not affect breast milk quality and volume.\(^4\)

The practice of fasting during Ramadan by mothers of infants and young children should not be viewed solely from the perspective of feeding and nutrition. Research has shown that fasting during Ramadan changes circadian rhythms, causes more daytime sleepiness, loss of concentration and irritability. Increase in accidents have been reported. The development of the infant depends mostly on interactions and relationships with his/her mother. The effects of fasting on mother-child interactions and rate of accidents experienced by infants and toddlers need to be investigated.\(^5\)

**HEALTH IMPLICATIONS OF FASTING DURING RAMADAN**

Medication noncompliance has been related to fasting during Ramadan; some Muslims believe that using oral medications, injections, or inhalers during the fasting hours break their fast. Others believe that using only oral and intravenous medications would break their fast. Nose drops, creams and ointments, suppositories and patches are considered religiously proper to use during the fasting hours. As a result, depending on the type of medication being used during Ramadan, patients may change the way they take their medication arbitrarily, which could lead to serious medication interaction and adverse outcomes.\(^6\)

Apart from the clinical and medical implications, there is a very complex social, religious, and spiritual context to fasting that influences the health beliefs and practices of Muslim women, especially in Ramadan. Most of the Muslim women feel that the positive health effects of fasting outweighed negative effects. However, it needs to be highlighted that fasting should not take precedence over maintaining one’s health. These factors should be considered along with knowledge of the scriptures, social and family circumstances of the Muslim women while considering how to meet the health needs of this population. For example, many Muslim women feel obliged to fast during pregnancy and lactation and also when ill, due to social pressure from family and for spiritual reasons. Such influences may be difficult to understand for those who are outside the cultural environment and the society in which these women live.\(^24\)

**CONCLUSION**

Additional research with scholarships in the area of health beliefs and practices of Muslim women during Ramadan is an urgent need, because even with the necessary information. Qualitative research with different groups of women, breastfeeding or pregnant, would be highly valuable and would provide new insights in addressing these issues. Such research will give directions and guidance for nurses and other health care providers as well as researchers interested in the different aspects of fasting and women’s health.\(^6\) Child health care providers need to be knowledgeable about religious and cultural phenomena, conduct research to investigate the effects of Ramadan fasting, and form links with the teachings of Islam to find religiously and culturally acceptable methods to combat the possible unfavorable effects on infants and children and also the long-term consequences for the children (when they are grown up) born to mothers who had fasted during their pregnancies.\(^5\)

**REFERENCES**


