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Ramadan fasting in people with adrenal insufficiency: Risk assessment and management

Morshed MS[1], *Mohana CA[2]

[1]Md Shahed Morshed, PhD Researcher, Department of Endocrinology, Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka-1000, Bangladesh; [2]Choman Abdullah Mohana, Registrar, Department of Endocrinology, Mymensingh Medical College Hospital, Mymensingh, Bangladesh

Abstract

Fasting during Ramadan predisposes patients with adrenal insufficiency (AI) to adrenal crisis. If patients with AI intend to fast, physicians should respect the patient's wish and assist them in safely performing their religious activities. Evidence-based management for AI is limited and mostly based on expert opinions. This mini-review summarizes the guidelines and current evidence to help physicians and patients managing AI during Ramadan fasting. *[J Assoc Clin Endocrinol Diabetol Bangladesh, January 2025; 4 (1):31-33]*

Keywords: Adrenal insufficiency, Fasting, Ramadan

***Correspondence:** Dr. Choman Abdullah Mohana, Registrar, Department of Endocrinology, Mymensingh Medical College Hospital, Mymensingh, Bangladesh. Cell# 01715-690940, email: mohanachomanendo@gmail.com

Introduction

One of the five pillars of Islam is fasting during the holy month of Ramadan, which is observed by around 2 billion Muslims worldwide. Muslims must refrain from eating or drinking anything from sunrise (suhur) to sunset (iftar) throughout Ramadan. It also entails refraining from taking regular oral drugs, which are prohibited during a fast. However, for many chronic conditions, including adrenal insufficiency (AI), there are few guidelines on fasting. Fasting during Ramadan may exacerbate potential consequences such as increased thirst, asthenia, hypotension symptoms, and hypoglycemia, according to research conducted among AI patients.[1] Thus, educating patients with AI who intend to fast during Ramadan is necessary.

Unfortunately, there is no consensus on using the type and dose of steroids in AI patients during Ramadan. However, recent recommendations suggest switching to prednisolone as a reasonable alternative to hydrocortisone in Ramadan because of its longer half-life permitting once-daily dosing.[2] Hence, this article may lead the way for both the Physicians and patients to ensure safe Ramadan fasting for patients with AI. We prepared this mini-review using the available recommendations and studies.[1-4]

Risk assessment:

If a patient with AI intends to fast, assess the patient as a whole 4-8 weeks before Ramadan:

- ***Physiological risk:***
  - o Pregnancy- trimester, lactation
- ***Social status:***
  - o Solitary living
  - o Unavailable emergency service or steroids
- ***Profession:***
  - o Strenuous work
  - o Vulnerable work- driving
- ***Co-morbidities and their management:***
  - o Condition of chronic diseases including other pituitary hormone deficiencies
  - o Drugs predisposing to hypoglycemia (sulfonylurea, insulin), dehydration (diuretic)
- ***Management of adrenal insufficiency:***
  - o Familiarity of AI
  - o Capacity to avoid and identify an adrenal crisis
  - o Steroid sick day card and emergency card
  - o Emergency injection kit containing hydrocortisone
  - o Drug compliance
  - o Number of adrenal crisis and their causes
- **Previous experience with fasting:** Occurrence of complication

- ***Current clinical profile:***
  - o Features of adrenal insufficiency: Wellbeing, asthenia, anorexia, weight loss, abdominal discomfort, dizziness
  - o Symptoms of hypoglycemia
  - o Postural hypotension
- ***Investigations:***
  - o Fasting plasma glucose
  - o Serum urea
  - o Serum electrolytes

Stratify the patient's risk:

Risk stratification	Criteria
Very high risk	Anyone from below- 1. Multiple comorbidities involving multiple organ systems 2. Having diabetes mellitus on insulin/ sulfonylurea 3. Having vasopressin deficiency (Central Diabetes Insipidus) 4. Developed adrenal crisis in last 12 months 5. Untreated mineralocorticoid deficiency or secondary hypothyroidism 6. Pregnancy >28 weeks
High risk	Anyone from below- 1. Recent diagnosis (<1 year) 2. Pregnancy <28 weeks, lactation 3. No experience of Ramadan fasting/ steroid alteration/ adjustment in Ramadan 4. On replacement for mineralocorticoid deficiency
Moderate to low-risk	Must meet all criteria 1. Adrenal insufficiency: Settled 2. Insignificant co-morbidities 3. Previous experience of fasting 4. Well-educated about disease, sick day rules, and emergency management 5. No social barrier

Management:

- Very high risk: MUST NOT fast
- High risk: SHOULD NOT fast
- Moderate to low risk: Judge risk vs. benefit depending on medical opinion and patient's capacity to fast

Special note to Very high-risk/high-risk patients who intend to fast:

- Explore alternative options-
  - o Fasting on alternative days
  - o Fasting on winter days (short duration)
  - o Fidyah (Feeding the poor)
- Still wishing to fast, then they should be adequately supported and monitored
- Therefore, it is highly appreciable to consider trial fasts 1 month before Ramadan for those who intend to fast.

Adrenal replacement: Start from 1st suhur

- ***Glucocorticoid:***
  - o Once daily hydrocortisone: Take it at suhur
  - o Twice/thrice daily hydrocortisone: Preferably switch from hydrocortisone (15-30 mg/day) to prednisolone 5mg once daily at suhur.
  - o During the third trimester of pregnancy, increase the dose of corticosteroid by 20 – 40%
- ***Mineralocorticoid:*** Fludrocortisone- same dose once daily at suhur

Advice regarding Ramadan fasting:

Patients with AI should follow the following advice:[5]

- Be familiar with steroid sick day rules (verbal and written), when to break or refrain from fasting
  - o ***Mild illness:*** no further action, observe
  - o ***Moderate illness:*** break the fast, double the dose of corticosteroid
  - o ***Severe:*** break the fast, take intramuscular (IM) hydrocortisone, seek help
- Pre-Ramadan stocking and training on IM hydrocortisone injection
- Have an informed accompanying person to manage eventual complications during the first days of fasting
- Be familiar with the features of acute AI and immediately take IM hydrocortisone and break the fasting
- Immediately attend a hospital to get intravenous fluids and hydrocortisone
- Always keep your steroid warning card with the address of the hospital where your treatment is available
- Patients with concurrent mineralocorticoid deficiency: avoid lengthy sun exposure to save salt and water losses.
- Diet at suhur: As late as possible, balanced with complex carbohydrate

- Fluid: Sufficient non-caffeinated fluid during the non-fasting period with usual salt intake
- Avoid strenuous activity when fasting
- Do not fast for the rest of the month after an adrenal crisis
- Patients with secondary AI should optimize their other replacement hormones including thyroxine, growth hormone, and sex steroids before Ramadan

Conclusions

Ramadan is a very special month for all Muslims. Thus, it is commonly observed that despite having many co-morbidities people intend to fast during this holy month. There is variability in perceptions and practices among physicians regarding the management of AI during Ramadan, thus requiring an evidence-based guideline.[6] This review outlines the advocacy by different research, recommendations, and consensus of technical assessment from authors regarding AI's practical and safe management in Ramadan. It highlights the optimization of steroid replacement and the importance of education in this setting. A safe Ramadan can be ensured by providing the patient and doctor with sufficient information about the illness, which may help to reduce the risk of complications during fasting.

Conflict of interest

The authors have no conflicts of interest to disclose.

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