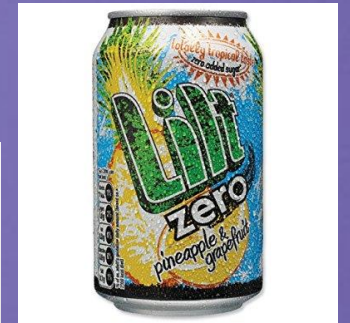




Helping people with diabetes make healthier choices during Ramadan Part Two





Diabetes and Ramadan

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Mrs Observant



- 72 year old Pakistani Housewife
- Known IHD and Hypertension
- BMI 36 kg/m²
- T2DM
- MF 1g bd
- Gliclazide 120mg am + 80mg pm
- HbA1c 72 mmol/l

- Pre-proliferative changes on most recent retinal screening

- ACR slightly raised; eGFR 58

- Wants to fast for Ramadan in 2 weeks

Mrs Observant



The best management option will be:

- a. To advise not to fast and continue with rest of annual review
- b. To increase Gliclazide dose as is HbA1c is above the target.
- c. Switch to DPP-4 as lower risk of hypoglycaemia
- d. To start long-acting insulin immediately as hyperglycaemia will have an impact on retinopathy
- e. To start Dapaglifozin (SGLT-2) as it reduces the risk of hypoglycaemia and it is an oral agent.

Background



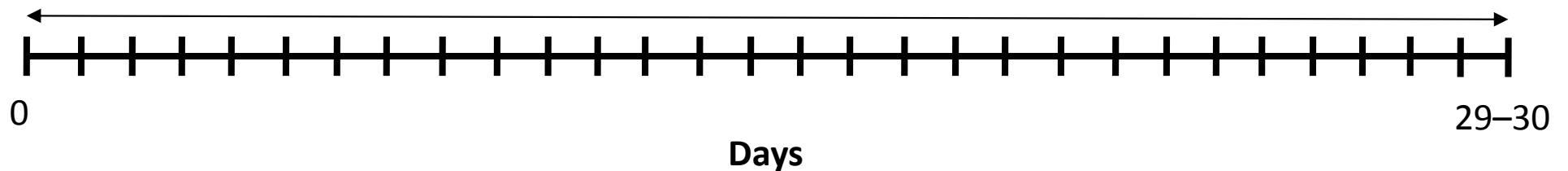
- In 2010, Muslims constitute 23% of the world's population (~1.6 billion people)
- In 2013, International Diabetes Federation: 382 million people living with diabetes
- Extrapolated globally there are ~ 90 million Muslims with diabetes.
- UK: Patients with diabetes estimated just fewer than 3 million
- Diabetes affects around 10–15% of the UK Muslim population, with South Asian people having the highest rates of diabetes mellitus
- ~ 400 000 British Muslims have diabetes

Ramadan – Timeframe

Months of Islamic calendar

Muḥarram	Safar	Rabīʿ I
Rabīʿ II	Jumādā	Jumādā II
Rajab	Shaʿbān	Ramadān
Shawwāl	Dhū al-Qaʿda	Dhū al-Ḥijja

- Marked by period of fasting (sunrise to sunset)
- Each day, fasting for 11–12 hours (equatorial countries) to 16–20 hours (countries away from the equator)¹
- Ramadan will occur during the hot summer months over the next decade in most of the Muslim world¹



1. Almaatouq. *Diabetes Metab Syndr Obes* 2012;5:109–19

Fasting in Ramadan



- The holy month of Ramadan forms one of the five pillars of Islam
- Fasting is obligatory with some exceptions:
 - “(Fasting) for a fixed number of days; but if any of you is ill or on a journey the prescribed number (should be made up) from days later.” (Holy Qur’an 2:184)

Ramadan



- 29–30 days
- Abstain from eating and drinking during the daylight hours: dawn to sunset
- Two meals per day:
 - Suhoor (preceding dawn)
 - Iftar (sunset)
- The Islamic year follows a lunar calendar:
 - Ramadan advances forward in the Gregorian calendar by 11 days/ yr
 - Non-equatorial countries in the northern hemisphere: for next decade, Ramadan in summer
 - In non-equatorial countries: daylight hours vary significantly between summer and winter months
 - Length of fasts in summer being 16–20 hrs
 - Compared with 7–11 hrs in winter.

Fasting in Ramadan



(شَهْرُ رَمَضَانَ الَّذِي أُنزِلَ فِيهِ الْقُرْآنُ هُدًى لِّلنَّاسِ وَبَيِّنَاتٍ
مِّنَ الْهُدَىٰ وَالْفُرْقَانِ ۚ فَمَنْ شَهِدَ مِنْكُمُ الشَّهْرَ فَلْيَصُمْهُ ۗ
وَمَنْ كَانَ مَرِيضًا أَوْ عَلَىٰ سَفَرٍ فَعِدَّةٌ مِّنْ أَيَّامٍ أُخَرَ ۗ يُرِيدُ اللَّهُ
بِكُمُ الْيُسْرَ وَلَا يُرِيدُ بِكُمُ الْعُسْرَ وَلِتُكْمِلُوا الْعِدَّةَ وَلِتُكَبِّرُوا اللَّهَ
عَلَىٰ مَا هَدَاكُمْ وَلَعَلَّكُمْ تَشْكُرُونَ)
الآية رقم [185] من سورة [البقرة]

تفسير الميسر (فمن حضر منكم الشهر وكان صحيحًا مقيمًا فليصم نهاره. ويُرخَّص للمريض
والمسافر في الفطر، ثم يقضيان عدد تلك الأيام)

"The month of Ramadan in which was revealed the Quran, a guidance for mankind and clear proofs for the guidance and the criterion (between right and wrong).

So whoever of you sights the month (Ramadan), he must fast

"And whoever is ill or on a journey, the same number (of days which one did not fast must be made up) from other days."

Allah wants ease for you and does not want hardship for you"

Exemptions to fasting during Ramadan?

- Risk of harm is prohibited in Islam¹
- Individuals exempted from fasting¹
 - Children
 - Pregnant women
 - Travellers
 - Menstruating females
 - Individuals with reduced mental capacity
 - Those who are ill

وَمَنْ كَانَ مَرِيضًا أَوْ عَلَى سَفَرٍ فَعِدَّةٌ مِنْ أَيَّامٍ أُخَرَ (البقرة 185)
“And whoever is ill or on a journey, the same number (of days which one did not fast must be made up) from other days.”

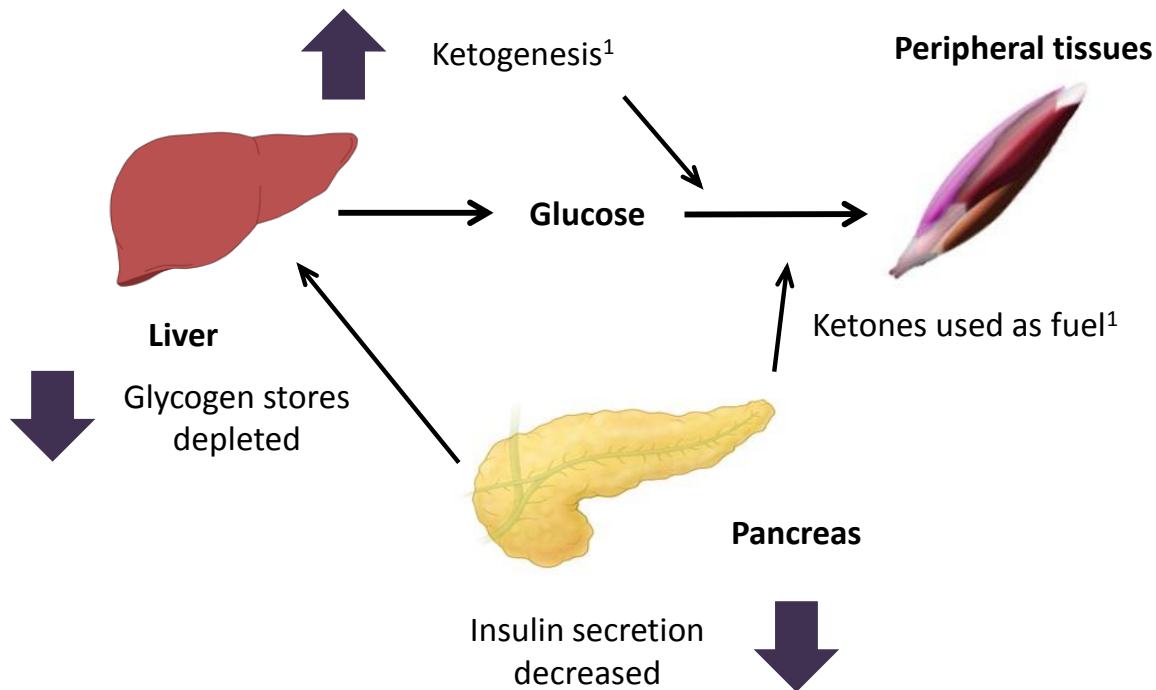
وَلَا تُقْفُوا بِأَيْدِيكُمْ إِلَى التَّهْلُكَةِ (البقرة 195)
“And let not your own hands throw you into destruction”

Most patients with diabetes are asymptomatic and do not consider themselves as having an illness and fast during Ramadan²

- Epidemiology of Diabetes and Ramadan (EPIDIAR) study: ~13 000 patients
 - 43% with Type 1 diabetes fast
 - 79% with Type 2 diabetes fast
 - ~80% of Muslims with diabetes fast for at least 15 days
- Extrapolating: ~320 000 Muslims with diabetes in the UK will fast for at least half of Ramadan

How does fasting affect patients with diabetes?

Pathophysiology of prolonged fasting* in normal individuals



Key differences in patients with type 2 diabetes

- Excessive glycogen breakdown
- Increased gluconeogenesis and ketogenesis

↓
Hyperglycaemia
Ketoacidosis

*More than several hours without food or water

Al-Arouj M et al. Diabetes Care 2010;33:1895-902K; Karamat MA et al. J R Soc Med 2010;103:139-47

Risks associated with fasting



- In certain circumstances, fasting can be detrimental
- If an individual is advised by a medical professional that fasting would be potentially detrimental, most Muslims and their religious authorities would agree that the individual should abstain
- Risks:
 - Hypoglycaemia
 - Hyperglycaemia
 - Dehydration
 - Increased risk of thrombosis, occurring in association with dehydration and hyperglycaemia
- Risks are greater as the length of fast increases
- NB. Not fasting only, represents cycles of daytime fasting and night-time re-feeding. Fasting and indulgent eating and feasting

Risks associated with fasting



Hypoglycaemia

- Decrease in food intake
- Particularly, patients on sulfonylureas, other insulin secretagogues or insulin therapy.

Hyperglycaemia and diabetic ketoacidosis

- Related to excessive reductions in medication doses
- Increase intake of food and/ or sugar.
- Individuals with Type 1 diabetes more prone to developing ketoacidosis, particularly if their glycaemic control was suboptimal prior to Ramadan

Dehydration

- Long fasts with restrictions on fluid intake increase the risk of dehydration.
- Risk greater in countries and/or seasons where fasts are longer and if hyperglycaemia is present due to osmotic diuresis
- Can present syncope and falls, heat exhaustion and increased blood viscosity leading to thrombosis

Thrombosis

- Hyperglycaemia and hypovolaemia → hypercoagulability
- Increased risk of thrombosis and strokes