

Managing diabetes during Ramadan

The Brent PCT Ramadan and Diabetes Task Force

This meeting is sponsored by an unrestricted educational grant from Daiichi Sankyo UK Ltd



Agenda

- Dr Mohamed Hassanein
 - Managing diabetes during Ramadan
- Salma Mehar
 - Dietary considerations during Ramadan
- Dr Senan Devendra
 - Ramadan and diabetes: activities in Brent PCT
- Discussion



Managing diabetes during Ramadan

Dr Mohamed Hassanein

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Outline

- What is Ramadan?
- Prevalence of fasting in Muslims with DM
- Risks of fasting in people with DM
- Recommendations for safer fasting
- What's needed for the future?



What is fasting Ramadan?

- One the five main pillars of Islam
- Complete fasting from dawn to sunset
- One lunar month
- Extra prayers and charitable work is desirable
- Fasting is a must for those who are able
- Exemption for those who are ill, pregnant/breast feeding, travelling or menstruating



Ramadan



The Koran specifically exempts the sick from the duty of fasting (Al-Bakarah, 183-185)

- Patients with diabetes fall under this category because their chronic metabolic disorder may place them at high risk for various complications if the pattern and amount of their meal and fluid intake is markedly altered
- This exemption represents more than a simple permission not to fast; The Prophet Mohammed (SAAWS) said: "God likes his permission to be fulfilled, as he likes his will to be executed."
- Nevertheless, many patients with diabetes insist on fasting during Ramadan

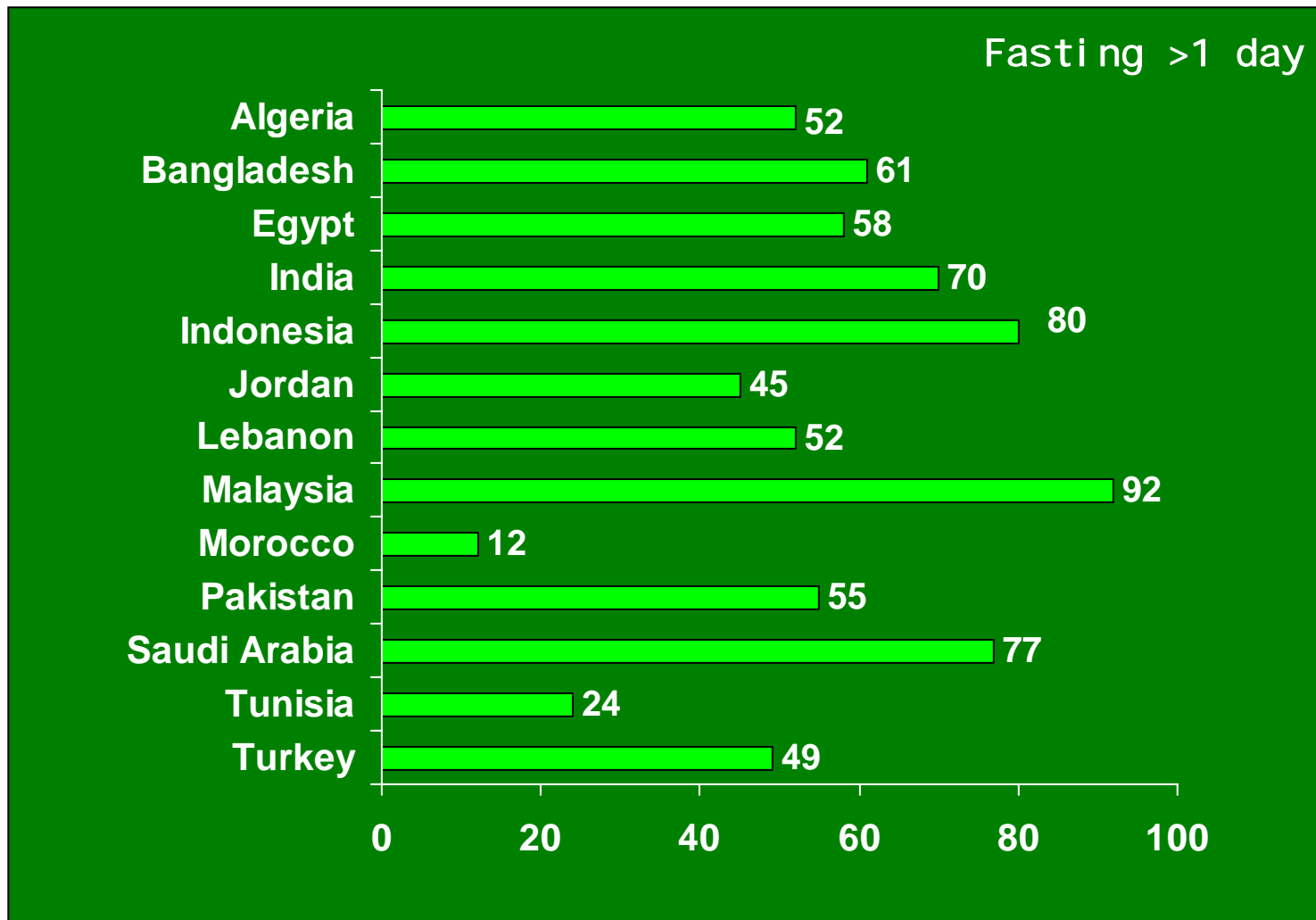


Prevalence of fasting in Muslims with DM: EPIDIAR Study

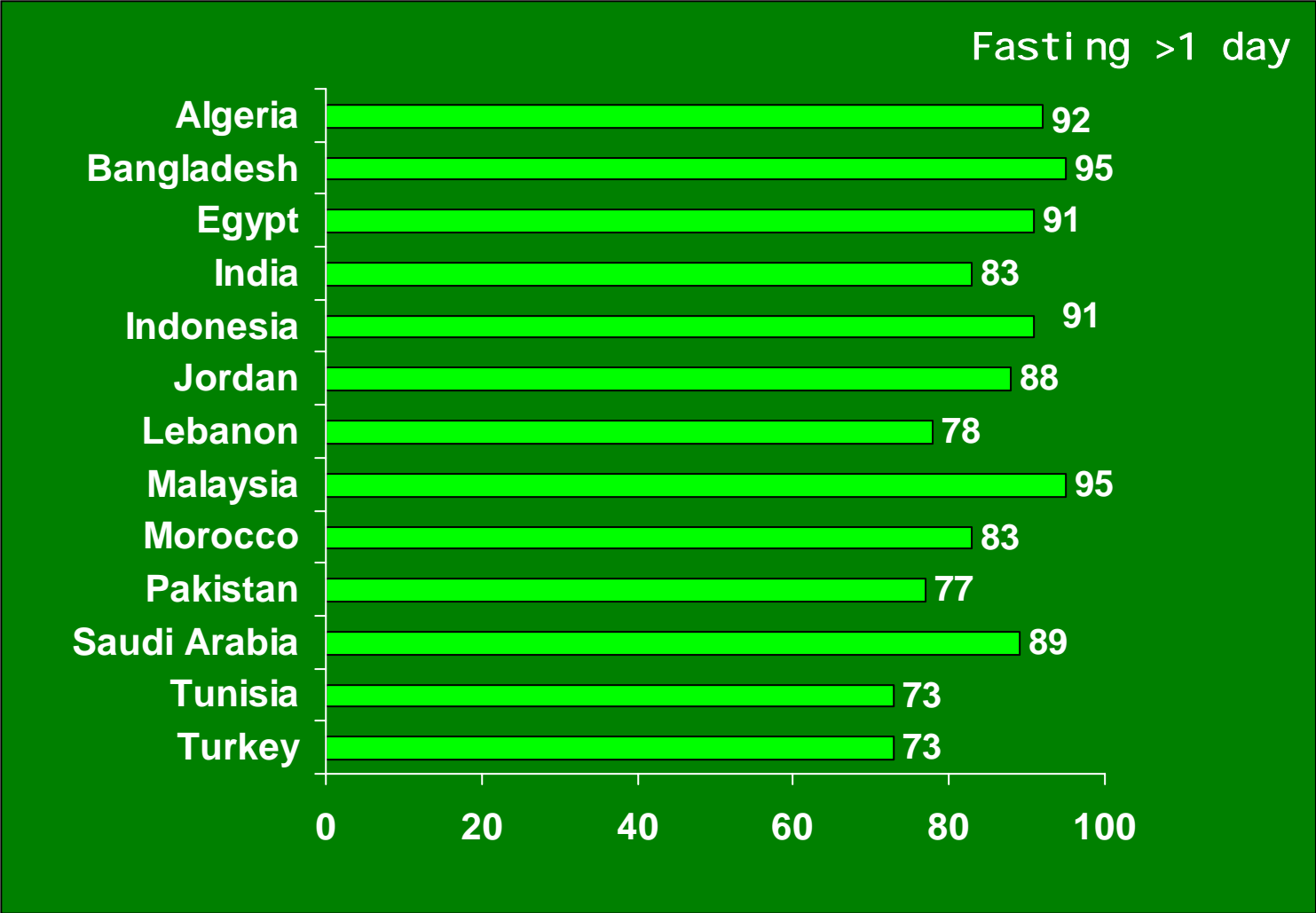
- 13 Countries, 12,243 people with diabetes
- Type 2 DM:
 - 11173 patients (86.5%)
 - mean age: 54 years – Duration: 7.6 years
- Type 1 DM:
 - 1070 patients (8.3%)
 - mean age: 31 years – Duration: 10 years
- D.M unclassified: 671 (5.2%)



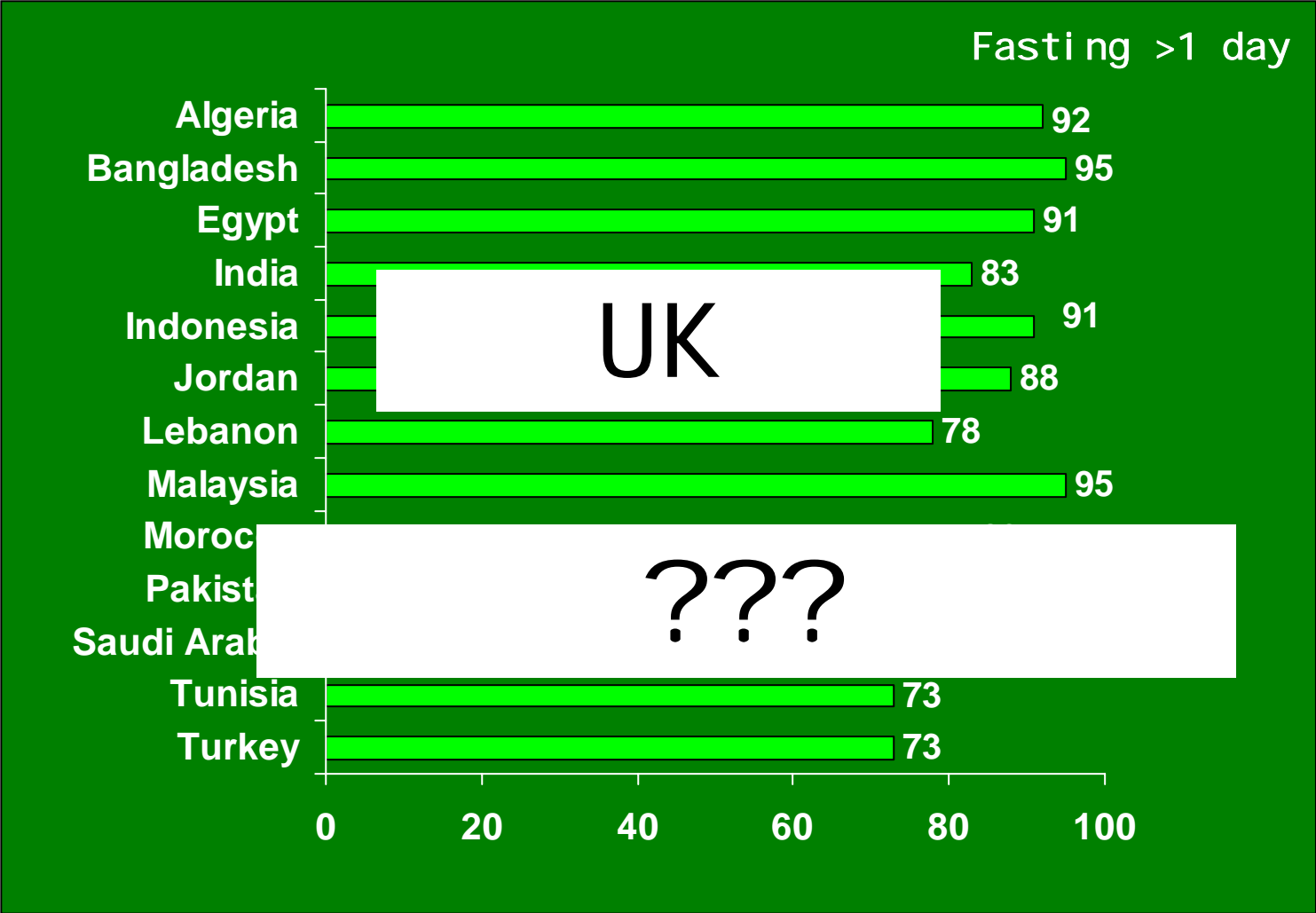
EPIDIAR Study: T1DM: 42.8% fasted >15 days



EPIDIAR Study-T2DM: 78.2% fasted >15 days



EPIDIAR Study-T2DM: 78.2% fasted >15 days



There were 1.6 million Muslims living in Britain in 2001. This group comprised 3 per cent of the total population and over half (52 per cent) of the non-Christian religious population

<http://www.statistics.gov.uk>


20 per cent of the South Asian community has Type 2 DM in contrast to 3% of the general population^[i]

^[i] Diabetes and its management. Watkins, PJ 2003. Blackwell Publishing Oxford

**Estimated number of Muslims living in UK
with DM is >325.000 person**



Estimated diagnosed diabetes by type for the UK

	Type 1	Type 2	Total
2004 ¹	237,000	1,530,000	1,767,000
2006 ²	3.54%		2.200,000

1. ABC of Diabetes 2003 BMJ Publishing London
2. Diabetes UK Report 2006



Risks associated with fasting patients with diabetes

- Fasting during Ramadan has been uniformly discouraged by the medical profession for the majority of patients with diabetes
- Major risks associated with fasting in patients with diabetes:
 - Hypoglycaemia
 - Hyperglycaemia
 - Diabetic ketoacidosis
 - Dehydration and thrombosis



Fasting & Hypoglycaemia

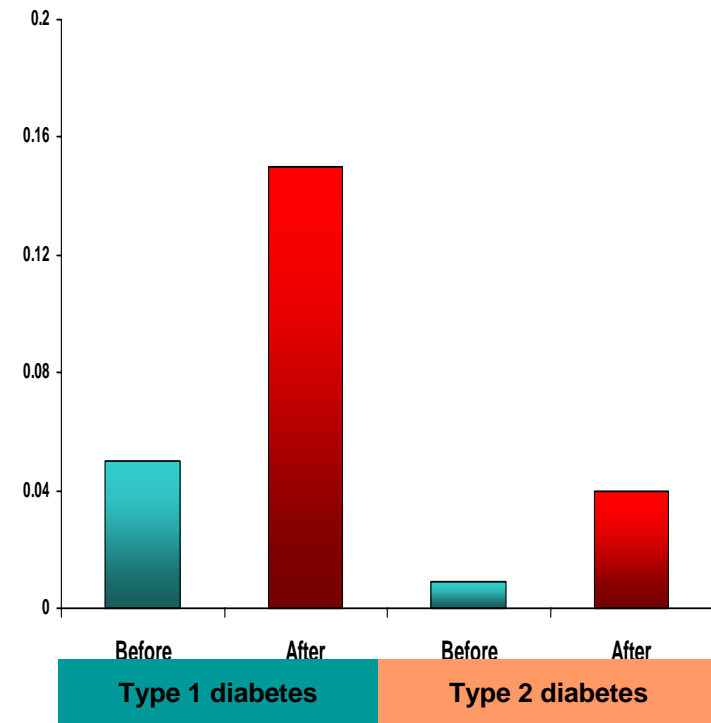
- The EPIDIAR study showed that fasting during Ramadan increased the risk of severe hypoglycaemia (hospitalization due to hypoglycaemia):
 - T1D from 3 to 14 events/100-persons/month
 - T2D from 0.4 to 3 events/100-persons/month

Low frequency 2ry to poor glycaemic control at baseline ?



Hyperglycaemia

- EPIDIAR study show that severe hyperglycemia (hospitalization):
 - Type 2 diabetes: increase 5x
 - Type 1 diabetes: increase 3x \pm Ketoacidosis
- Could be due to excessive reduction in dosages of medications
- Poor base-line glycaemic control



Recommendations

2. International meeting on diabetes and Ramadan recommendations. Edition of the Hassan II Foundation for scientific and medical research on Ramadan, FRSMR, Casablanca, 1995.

Fasting and feasting safely during Ramadan in the diabetic patient

Akbani MF1, Saleem M1, Gadit WU1, Ahmed M1, Basit A2, Malik RA3
Practical Diabetes International 2005

Prescribing in ethnic groups

Ramadan and diabetes:
evidence-based guidelines

Moaz Mojaddidi MB ChB, Mohammed Hassanein MD and Rayaz A Malik PhD, MB ChB



Recommendations for Management of Diabetes During Ramadan

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in Indonesia, Pakistan, and the Middle East as it is in Europe, North America, New Zealand, and Australia.

The medical ramifications of fasting among patients with diabetes are largely unknown. Due to the limited information available from prospective or retrospective studies on the effects of fasting during



Recommendations for management of diabetes during Ramadan

ADA Statement, Diabetes Care, September 2005

- The objectives of the recommendations are:
 - To invite an open dialogue on this important topic
 - To offer a set of medical opinions and suggestions
 - To identify topics of research needed to answer important medical questions regarding fasting during Ramadan



Categories of risks in patients with DM who fast during Ramadan



Very high risk

- Type 1 diabetes
- Severe hypoglycemia within the last 3 months prior to Ramadan
- Patient with a history of recurrent hypoglycemia or hypoglycemia unawareness
- Ketoacidosis or Hyperosmolar hyperglycaemia within the last 3 months prior to Ramadan
- Patients with sustained poor glycaemic control
- Patients with renal insufficiency, advanced macrovascular complications or comorbid conditions that present additional risk factors
- Acute illness
- Pregnancy

Categories of risk



Moderate risk

- Patients with moderate hyperglycaemia
- People living alone that are treated with insulin or SU
- Patients living alone with ill health
- Old age with ill health
- Drugs that may affect mentation
- Patients who perform intense physical work

Categories of risk



Low risk

- Well controlled patients treated with diet alone, metformin, &/or a TZD, who are otherwise healthy
- Well-controlled patients treated with prandial glucose regulators such as repaglinide or nateglinide



Management

A. General considerations:

- Individualization
Care must be highly individualized and the management plan will differ for each specific patient
- Frequent monitoring of glycaemia
It is essential that patients have the means to monitor their blood glucose levels multiple times daily especially patients with T1D and in patients with T2D who require insulin or SU



Nutrition

- The diet during Ramadan should be a healthy and balanced diet
- In most studies, 50-60% of persons who fast maintain their body weight during Ramadan, while 20-25% either gain or lose weight
- Ingesting large amounts of foods rich in carbohydrate and fat should be avoided
- Fluid intake should be increased during non-fasting hours, and the pre-dawn meal be taken as late as possible before the start of the daily fast

General considerations



Exercise

- Normal levels of physical activity may be maintained
- Excessive physical activity should be avoided
- If Tarawaih prayer is performed, then it should be considered as part of the daily exercise program

General considerations



Stopping the fast

- All patients **must always and immediately** end their fast if:
 - Hypoglycaemia (BG <3.5 mmol/l)
 - BG reaches < 3.9 mmol/l in the first few hours after the start of the fast, especially if insulin, SU or meglitinide has been taken at pre-dawn
 - Blood glucose exceeds 16 mmol/l
- Avoid fasting on “sick days”



B. Pre-Ramadan medical assessment and structured education

Medical assessment: 1-2 months prior to Ramadan

- The overall well-being of the patient
- Glycaemic control, BP, lipids, Renal function, etc
- Specific medical advice must be provided to each individual patient concerning the potential risks they are accepting in deciding to fast
- Necessary changes in their diet or medication regimen should be made so that the patient initiates fasting while being on a stable and effective program



Structured education

It is essential that the patients and family receive the necessary education concerning:

- Self-care
- Signs and symptoms of hyperglycemia
- Signs and symptoms of hypoglycemia and ensuring preparedness to treat hypoglycemia promptly should it occurs, even if it is mild
- Blood glucose monitoring
- Meal planning, adequate nutrition and hydration
- Physical activity
- Medication administration
- Management of acute complications



Management of patients with T1DM

- In general, patients with Type 1 diabetes, especially if poorly controlled should be strongly advised to not fast during Ramadan
- Patients who are unwilling or unable to monitor their blood glucose levels multiple times daily are at high risk and should be advised to not fast



T1D: Optimal glycaemic control while avoiding hypo/hyperglycemia

- Analogues: (basal, short acting or mix analogues) have been shown to have less hypos and more effective
- Dose modification:
 - Basal insulin: If well controlled, reduce dose by 20% and take insulin at Iftar time
 - Premixed analogue: Give morning dose at Iftar (sun-set) and evening dose with suhri meal. Reduce suhri dose by 20%
- SCII is an appealing BUT expensive alternative. It also requires very frequent BG monitoring.



Management of patients with T2DM

1. Diet-controlled patients

- benefit if well-controlled
- Potential risk of postprandial hyperglycemia if patients overindulge in eating
- Distribute calories over 2-3 smaller meals during the non-fasting interval to avoid postprandial hyperglycemia
- Regular daily exercise program should be modified in its intensity and timing to avoid hypoglycemic episodes
- In older age group, often with hypertension and dyslipidaemia, fluid restriction and dehydration may increase the risk of thrombotic events



2. Patients treated with oral agents

Agents that act by increasing insulin sensitivity are associated with a lower risk of hypoglycemia compared to compounds that act by increasing insulin secretion.

Metformin: 2/3 of daily dose be administered before the sunset meal & 1/3 before the pre-dawn meal.

Glitazones: no change in the dose is required.

Sulfonylureas: risk of hypoglycemia. Should be utilized with caution. Gliclazide MR & Glimepiride have been shown to be effective with a lower risk of hypoglycemia.

Prandial glucose regulators : Short duration of action, so could be taken pre-meals. One study showed that use of repaglinide was associated with less hypoglycemia compared to glibenclamide



T2DM treated with insulin

Similar problems to those with T1D, except less frequent hypoglycemia

- Choose regimen according to individual needs
 - Insulin + OHG
 - Insulin only
- Modify Insulin dose according to individual control and/or risk of hypo
- Modify OHG as per previous chart



Pregnancy and fasting during Ramadan

While Muslim pregnant women are **exempt from fasting** during Ramadan, some with T1D, T2D, or GDM insist on fasting during Ramadan. They should be **strongly advised to *not* fast during Ramadan** These women constitute a high-risk group and their management requires intensified care

Management of hypertension

Dehydration, volume depletion and a tendency towards hypotension may occur with fasting during Ramadan, especially if the fast is prolonged and is associated with excessive perspiration. Hence, the dosage of antihypertensive medications may need to be adjusted to prevent hypotension



Conclusion

1. The Quran exempt people with DM from fasting Ramadan as fasting may increase risk of complications. Acute illness per-se is an exemption from fasting
2. Many people with DM fast Ramadan despite medical risks
3. A patient's decision to fast should be made after ample discussion with healthcare professionals concerning the risks involved
4. Patients who insist on fasting should undergo **pre-Ramadan assessment** and receive structured **education** related to physical activity, meal planning, glucose monitoring, and dosage and timing of medications
5. The **management** plan must be highly **individualized**



Conclusion

6. Insulin &/or OHG dose adjustment should be applied 1-2 months pre-Ramadan
7. Excessive reduction in insulin dosage to prevent hypoglycemia may increase risk of hyperglycemia and DKA
8. In UK, there is almost no data on people with diabetes who fast Ramadan.
Further research is required



Thank you

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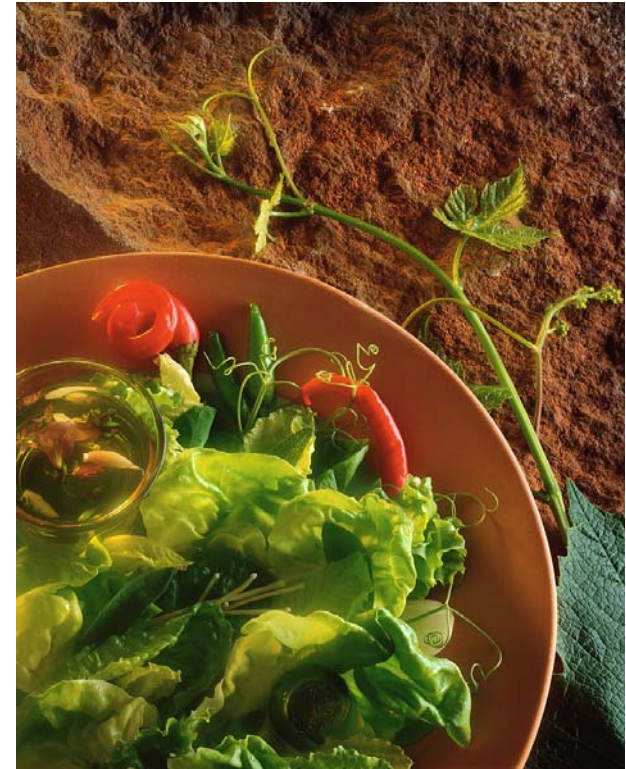
Dietary considerations during Ramadan

Salma Mehar



Outline

- Sahoor – dawn to dusk – Iftar
- Concerns during Ramadan
- Fats / sugars / fibre / fluid
- The benefits of a low-GI diet
- Practical advice
- Advice for patients



Changes to your diet

- Different routine for meals
- Two meals per day
 - Sehri, early morning meal
 - Iftar, sunset meal: large meal, fried foods, high CHO, sugary drinks
- Starvation periods – high and low blood sugar levels
- Reduce fluid intake



EPIDIAR Study

- 12,000 people
- 13 countries
 - Showed that severe hypoglycaemic episodes were significantly more frequent during Ramadan by 5 fold in type 1 and 3 fold in type 2 diabetics compared with other months
 - Increased food and sugar intake, significantly higher rates of severe hyperglycaemia
 - No change in HbA_{1c} during Ramadan



Changes in lifestyle and weight of people with diabetes during Ramadan

Number of participants		Type 1 1,070	Type 2 11,173
Physical Activity	More	11	9
	Less	35	37
	Same	54	53
Food Intake	More	20	19
	Less	23	30
	Same	57	51
Sugar Intake	More	23	20
	Less	21	30
	Same	57	50
Weight Change	Gain	18	19
	Loss	20	27
	No change	63	54

Dawn to dusk

- Suhoor
 - The pre-dawn meal should be a wholesome, moderate meal that is filling and provides enough energy for many hours – slowly-digesting foods
- Iftar
 - The meal which breaks the day's fast
 - Could include dates
 - Should remain a meal and not become a feast!
 - Minimise rich, special dishes that traditionally celebrate the break of fast



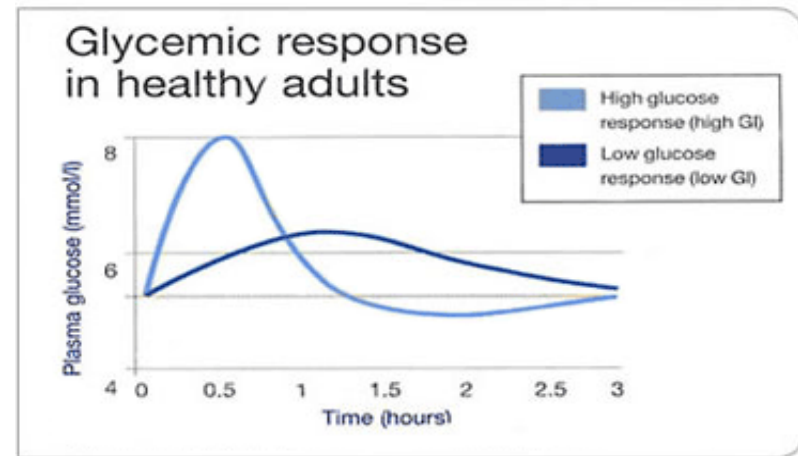
Fibre

- Heavy CHO meals at Sahoor and Iftar
- Have wholemeal / whole wheat starchy foods such as basmati rice, wholemeal bread, naan and chapatti, bran, cereals, potatoes with skin, vegetables such as green beans
- All fruits are rich in fibre



What is the Glycaemic Index (GI)?

- The GI is a ranking of carbohydrate (CHO) containing foods based on the rate at which they raise the blood glucose levels
- CHO foods that are broken down quickly will raise blood glucose quickly – high GI



- CHO foods that are broken down slowly will gradually release glucose into blood – low GI



How can GI be applied?

- Lower the overall GI of a meal by including more low GI foods, e.g. basmati rice, wholemeal chapatti, naan bread, pasta, noodles, beans, lentils, wholegrain bread and oats cereals
- Note: to gain maximum benefit from a low GI diet it must be part of a calorie controlled balanced diet



<p align="center">LOW GI (Below 55) Eat most of the time, including before exercise (slowly digested carbohydrates)</p>	<p align="center">INTERMEDIATE GI (56 - 70) Eat after moderate exercise or in combination with low GI Foods</p>	<p align="center">HIGH GI (Over 71) Limit your intake of these foods. Try to balance out by combining with low to medium GI foods (rapidly digested carbohydrates)</p>
BREAKFAST CEREALS	BREAKFAST CEREALS	BREAKFAST CEREALS
<ul style="list-style-type: none"> •oat porridge •All Bran •Sultana Bran •Muesli (unsweetened) •Special K 	<ul style="list-style-type: none"> •Weetabix •Frosties •Shredded Wheat 	<ul style="list-style-type: none"> •Cornflakes •Puffed Wheat •Rice Krispies •Cheerios •Coco Pops
BREAD	BREAD	BREAD
<ul style="list-style-type: none"> •granary bread (any bread with lots of <u>whole</u> barley / rye / wheat / buckwheat, crushed wheat, oats within bread) •pumpernickel •sourdough •heavy fruit loaf 	<ul style="list-style-type: none"> •pitta •rye bread •ryvita •wholemeal •crumpet •croissant •wheat chapatti 	<ul style="list-style-type: none"> •bagels •white baguette •brown •white •most flours •rice cakes •water biscuit
POTATOES & CEREALS	POTATOES & CEREALS	POTATOES & CEREALS
<ul style="list-style-type: none"> •sweet potato •all pasta (macaroni, spaghetti, noodles) made from 100% durum wheat, •pearled barley •buckwheat •whole and cracked rye 	<ul style="list-style-type: none"> •baby/new potatoes - with skin •yam •couscous •basmati rice •brown rice •cornmeal (polenta) •gnocci 	<ul style="list-style-type: none"> •baking potatoes (with or without skins) - baked, fried, microwave, mashed, as well as chips (high in fat as well •smash •rice pasta •glutinous rice
FRUIT	FRUIT	FRUIT
<ul style="list-style-type: none"> •apples, pears, plums, peaches •all citrus fruit i.e. oranges, grapefruit, lime, lemons and •cherries •kiwis •grapes 	<ul style="list-style-type: none"> •tropical fruit eg. banana (the riper they are the higher their GI), mango, pawpaw, guavas, and pineapple. •cantaloupe melon •sultanas, and raisins 	<ul style="list-style-type: none"> •watermelon •dates

Fruit and vegetables

- Same rule of at least 5 a day should apply
- 2 portions at Sahoor and 3 pieces at Iftar spread out
- Eat plenty of salads at Iftar
- Vegetables in raita, samosa, rolls, yogurt and curry
- Limit fruit juices



Fats

- Widely eaten
 - Fried foods, samosa, pakora, fried kebabs, chicken – increased use of ghee in parathas, biryanis, pilaou rice
- Change to:
 - Grill foods such as samosa and kebabs
 - Oven bake chicken
 - Use 1 teaspoon of oil per person, shallow fry foods and use vegetable or olive oil
 - Avoid the use of butter and ghee when making chapattis or parathas
 - Have plain rice with vegetables



Sugars

- Widely eaten
 - Indian sweets, milk puddings, kheer, rasmailai, halwa, bhaklawa
- Change methods of cooking of sweet dishes
 - Semi-skimmed milk, artificial sweeteners and use dried fruits
- Use sugar free drinks / squashes
- Eat fresh fruits (mango rather mango pulp)



Common dietary problems

- Constipation
 - Maintaining good hydration outside the fast, eating healthily, lots of fruit and veg, increasing fibre content and being active
- Dehydration
 - Adequately re-hydrate oneself before a fast
- Obesity
 - Food consumed during the pre-dawn and dusk meals may lead to some unintended indulgence



Dietary comparison

Typical daily dietary intake

Breakfast: Toast, fried egg, tea

Lunch: Chapatti with curry, salad, piece of fruit

Snack: Tea, biscuits

Supper: Rice, meat curry, vegetable curry, salad, yoghurt

Average calorie intake:
2000kcal

Typical intake during fasting

Sahoor: Paratha, fried egg, meat curry, glass of milk, tea

Iftar: Samosa, pakora, spring roll, chaat, fruit salad, potato cutlets, mango pulp, rice, milk pudding

Average calorie intake:
>2500kcal



Advice to give to patients

- Do not over indulge when breaking your fast
- Continue healthy eating pattern – aim for a well balanced diet with modest portion sizes of food
- Reduce intake of preparation foods and intake of fried and sugary foods
- Have sugar free drinks and drink plenty of fluids at Sahoor
- Remain focussed and remember the purpose of fasting
- Incorporate regular physical activity to achieve a healthier lifestyle

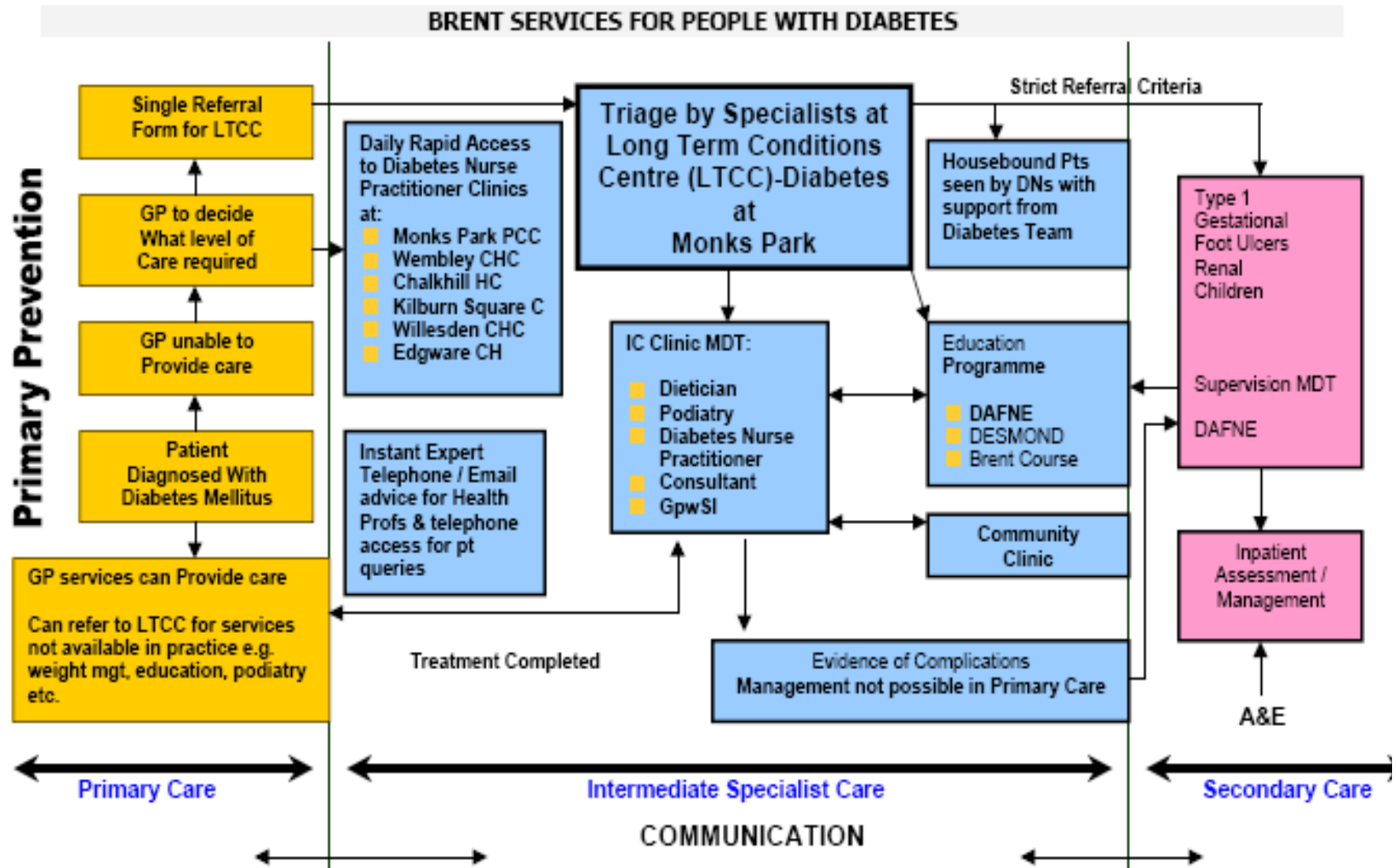


Ramadan and diabetes: activities in Brent PCT

Dr Senan Devendra



Brent services for people with diabetes



Brent services for people with diabetes

Brent Guidelines for the Care of People with Diabetes

Second Version

[REFERRAL / QUERY FOR DIABETES CARE](#)

Brent 

Teaching Primary Care Trust

Long Term Conditions Centre - Diabetes
 Monks Park Primary Care Centre
 Monks Park, Wembley, HA9 6JE
 Tel: 0208 453 5965, Fax: 020 8453 5972
 E-mail: gm.e.bre-pct.diabetes@nhs.net
 or: gm.e.bre-pct.longterm-referral@nhs.net

GP details / stamp (inc. name, address, tel, fax):		
Referral made by:	Signature:	Date:
Patient Name:		Sex: Male <input type="checkbox"/> Female <input type="checkbox"/>
DOB:	NHS Number:	Contact Tel Number:
Address:		
Postcode:		Housebound? <input type="checkbox"/>
Ethnicity:	Interpreter Required: Yes <input type="checkbox"/> No <input type="checkbox"/>	Language:
Type of Diabetes	Duration of Diabetes	
Controlled With	Diet only <input type="checkbox"/> Oral Hypoglycaemic drugs <input type="checkbox"/> Insulin <input type="checkbox"/>	
Reason for Referral	<input type="checkbox"/> New diagnosis of Diabetes <input type="checkbox"/> Poor glycaemic control <input type="checkbox"/> Education programme <input type="checkbox"/> Retinopathy & HbA1c > 7% <input type="checkbox"/> Preconception advice <input type="checkbox"/> Dietitian <input type="checkbox"/> Weight management <input type="checkbox"/> Podiatry -Grade 2 <input type="checkbox"/> Podiatry -Grade3 Please call 020 8453 2401 for advice <input type="checkbox"/> Rapid Access Diabetes Nurse led clinic <input type="checkbox"/> Other – please specify: _____	
Specific questions / problems:		
Please give details of Diabetes and other medication here: Or attach computer printout		



Brent services for people with diabetes

<p>Monks Park Primary Care Centre Monks Park, Wembley, HA9 6JE Every Monday 2:00 pm ** Registration 13:30-14:30 **</p>	<p>Kilburn Square Clinic 91 Kilburn Square, London, NW6 6PS Every Tuesday 9:30 am ** Registration 09:00-10:00 **</p>
<p>Edgware Community Hospital Burnt Oak Broadway, Edgware, HA8 0AD Every Tuesday 9.30am ** Registration 09.00 – 10.00 **</p>	<p>Wembley Centre for Health and Care 116 Chaplin Road, Wembley, HA0 4UZ Every Wednesday 2:00 pm ** Registration 13:30-14:30</p>
<p>Willesden Centre for Health and Care Robson Avenue, London, NW10 3RY Every Thursday 9:30 am ** Registration 09:00-10:00 **</p>	<p>Chalkhill Health Centre Chalkhill Road, Wembley, HA9 9ER Every Friday 9:30 am ** Registration 09:00-10:00 **</p>



Group patient education sessions

Date	Time	Venue	Language
04/08/07	10am -12pm	Chalkhill Health Centre Chalkhill Road Wembley. HA9 9ER	English/Arabic
11/08/07	10am -12pm	Wembley CHC 116 Chaplin Road Wembley. HA0 4UZ	English/Somali
18/08/07	10am -12pm	Willesden Green Surgery 59 Anson Road London. NW2 3UY	English/Arabic
25/08/07	3-5 pm	Pakistan Community Centre Marley Walk (Off Station Parade) Willesden Green London. NW2 4PU	English/Urdu



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