

Extensive clinical experience

Rational use of oral antidiabetic drugs during War Dwin, the Buddhist Lent

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Abstract

The Buddhist Lent (known as War Dwin in Myanmar) is a 3 lunar month long period of fasting observed by devout Buddhist during the monsoon each summer. Dietary patterns during the War Dwin pose a challenge for patients with diabetes who wish to fast, as well as for diabetes care providers who have to provide effective, yet safe therapeutic regimes. During the War Dwin, people take solid meals only from midnight to noon. Intake is limited to jaggery and from noon to midnight. This predisposes to hypoglycemia, which in turn encourages defensive snacking and leads to poor glycemic control.

This article discusses rational oral drug therapeutic options during War Dwin.

It draws from available pharmacological evidence, combined with clinical experience, to suggest possible antidiabetic regimes which combine efficacy with safety and tolerability.

Key words: Alpha-glucosidase inhibitors, Buddhism, diabetes, dipeptidyl peptidase-4 inhibitors, gliclazide, glimepiride, metformin, pioglitazone, religion, type 2 diabetes.

Introduction

Buddhism is one of the major world religions, and has adherents in every continent of the world. It is the main religion of a large number of Asian countries, including Sri Lanka, Bhutan, Myanmar, Thailand, Laos, Cambodia, and Vietnam. These countries have not escaped the diabetes pandemic, and they report increasing prevalence of diabetes in recent years (1). The Buddhist Lent (known as War Dwin in Myanmar) is 3 lunar month long annual period of fasting observed by devout Buddhists during every monsoon. This poses a special health challenge for people with diabetes who wish to observe the fast, and follow a specific dietary restriction associated with it.

The Buddhist Lent fast is characterized by a 12-h long fasting period (in Myanmar) (noon to midnight) and a 12-h long period in which the fast is broken (midnight to noon). The long duration of the period (3 months) as well as the 12 hourly cycles of fasting and eating makes it a major challenge for the devout. This is especially true for the elderly, who are usually keener on fasting, and for those with diabetes, who face challenges related to glycemic control.

Extensive literature has been published, including from South Asia, on management of diabetes during Ramadan (2). It is surprising that only scanty references are available on the impact of Buddhist Lent on diabetes, and vice versa, in English literature.

As the prevalence of diabetes increase in Buddhist countries, and as the age of onset of diabetes falls, a greater number of devout Buddhist with diabetes will request their doctor for advice on how to fast in a healthy manner. Healthcare providers, however, are often not sensitized to the specific needs and requirement for this patient population.

This communication tries to address this issue. While it focuses on Myanmar tradition, it is equally relevant to other countries of the region. The proposed management strategies are written in a style that can be followed by all healthcare providers, including specialist diabetologists and diabetes nurses. This article also hopes to stimulate, in English language medical literature, a discussion, and an eventual consensus-building, on appropriate management of diabetes during the Buddhist Lent.

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Nutrition during the Buddhist Lent

The Buddhist Lent is characterized by strict and stringent rules regarding food intake. Each day of the 3-month long period is divided into two 12-h long periods; keeping the fast from noon to midnight and breaking it from midnight to noon.

During the fasting period, devout Buddhists can drink liquids, but are not allowed to take solids or alcohol. People tend to take high caloric liquids; including fruit juice, soya bean milk, and soft drinks; apart from green tea and water. Most people take jaggery and a few people accept ginger, onion, and fruits during the fast. During the rest of the day, people often take a small snack after midnight, a normal serving of breakfast, and heavy lunch before noon.

Lent is the time of meditation as well as fasting. People engaged in meditation at multiple times, both during fasting and feasting period. Meditation while sitting (ta yar myat) and while walking (ta yar them) are allowed.

Impact of lent on diabetes

Diabetes is a multifaceted disease with varied complications. Patient with diabetes often have to juggle strict dietary advice, complex therapeutic regimes (both oral and injectable), and rigid lifestyle to manage their condition. It may become difficult for them to adjust their life style and dietary patterns to conform to religious guidance. Acute complications such as hypoglycemia caused by delayed meals and hyperglycemia because of defensive snacking and calorie rich food intake tend to occur more frequently during fasts. Chronic complications, both macrovascular and microvascular, may worsen during prolonged fasting, as a corollary of poor glycemic control. Hypoglycemia may manifest only as subtle symptoms like lack of concentration, inability to meditate, or difficulty in practicing meditation. This is a delicate issue for the devout and must be probed with care and sensitivity.

Nutritional management

Suggestions to optimize nutritional intake for people with diabetes during Buddhist Lent have been published recently (3). One should encourage intake of small frequent meals during the feasting period, while advising frequent intake of low or medium calorie liquids during the fast.

The nutritional and drug management of diabetes should be planned in accordance with each other. Drug therapy should be tailored according to the diet of the patient (4).

The patient dietary and exercise habits should be reviewed and modified. Low calorie drink such as

lemonade, green tea, soya bean milk, and freshly squeezed fruit juice should be encouraged. Calorie rich drink like soft drinks and processed juice should be avoided.

Meals may be modified to reduce calorie content and glycemic index. For example, boiled noodles (khat swae pyote) can replace fried noodles (khat swae chow) and help improve glycemic control.

Lifestyle modification, for example, changing from sitting meditation to walking meditation, may be suggested to the patient, while respecting his or her religious beliefs. Short episodic exercise (30 min of walking meditation, for example) may be proposed as an alternative to prolonged sitting or walking.

Physical activity management

While one should encourage physical activity at all times, it may not be feasible to do so during fasting. One can advise patient to perform walking meditation (ta yar myat) instead of sitting meditation (ta yar them) wherever possible. This will help improve general health, while increasing calorie utilization and avoiding hyperglycemia.

Oral antidiabetic drug (OAD) initiation during Buddhist Lent

In a clinical scenario where OADs need to be initiated in a recently diagnosed type 2 diabetes patient, metformin is the drug of choice.

Metformin is economical, widely available, effective, and free of major side effects including hypoglycemia. It is recommended by major international guidelines as well. During Buddhist Lent, the following regime is suggested for initiation of conventional metformin with breakfast and sustained-release metformin with lunch. This will cover the postprandial period after breakfast, and provide sustained coverage post lunch, without any risk of hypoglycemia. In case metformin is contraindicated, another OAD can be used. If the patient is symptomatic, and needs insulin initiation, it may be safer to seek exemption from fasting. However, modern insulin analogues are available which make it easier to maintain adequate glycemic control while observing the Buddhist Lent.

If metformin is not tolerated or contraindicated, one may initiate therapy with pioglitazone, a dipeptidyl peptidase 4 (DPP4)-inhibitor or an alpha-glucosidase inhibitor during Lent. The relative advantages and disadvantages of these drugs have been discussed in detail recently.

During Lent, once daily administration of drug is preferred by most devout. Fixed dose combination (FDC)

fulfills this need by providing two or more drugs in single tablets. During Lent, in patients with significant hyperglycemia, or a high baseline hemoglobin A1c (HbA1c), one may initiate therapy with an FDC of metformin+pioglitazone, or metformin+DPP4-inhibitor.

Insulin secretagogues may also be used during Lent for initiation of therapy, if metformin is not tolerated. It is preferable to use drugs with a lower risk of hypoglycemia, such as low dose glimepiride, glipizide, or repaglinide. Long acting sulfonylureas such as glibenclamide (glyburide) should be avoided.

Oral drug modification during Buddhist Lent

Another clinical scenario that often occurs is decompensation of glycemic control Buddhist Lent, in a patient who was previously well controlled on OADs. The patient may present with hypoglycemia, hyperglycemia, or both, and this will necessitate modification of therapy. Various options are available to manage this situation.

Dose escalation or reduction

Patient who experience suboptimal control during Lent while on oral sensitizer therapy should have their drug dosage optimized, till submaximal dose is reached. Thus, a patient on low dose metformin should have his or her dose increased up to 1.5-2.0 g, or on pioglitazone up to 30 mg daily. Patient with high glucose levels taking sulfonylurea monotherapy may be offered dose escalation with great caution. Dose reduction is an easy way of managing hypoglycemia, irrespective of class of drug.

Change of preparation

Some patient may benefit from changing a sustained release to immediate release preparation. For example, patients who cannot maintain smooth glycemic control during Lent while on modified release gliclazide may be shifted to immediate release gliclazide twice daily. Similar changes may be made with metformin if needed.

Drug switch

Suboptimal control may be managed by switching a drug during Lent. This switch may be intraclass (e.g., from one sulfonylurea to another) or interclass (e.g., from one sensitizer to another). Patient with a tendency towards hyperglycemia may be changed from less potent sulfonylurea to more effective, yet safe, drugs like glimepiride. Those experiencing hypoglycemia too, with twice daily regimes of glipizide or once daily glibenclamide, may respond better to once daily glimepiride.

The shorter acting repaglinide may also be tried in twice daily regimes (with breakfast and lunch).

Intensification or deintensification

Patient on oral therapy who experience poor control may be offered intensification of therapy, by adding a second (or third) class of drugs. Basic clinical guidelines, as updated recently, should be followed. The use of FDCs offers comfort, convenience, compliance, and better control to the patient (6). Use of FDCs with scored tablets helps in accurate dose titration during the course of treatment.

Deintensification may be required for patient with biochemical or symptomatic hypoglycemia. Frequent hypoglycemia episodes may occur in patients on dual or triple combination therapy.

The suggested rational changes in OADs prescription during Buddhist Lent are summarized in the Table. The framework presented in this table encourages diabetes care professional to follow a rational approach to OAD modification during the fasting month.

Differences between OAD use during Lent and otherwise

While much of the recommendations mentioned in this paper are similar to those of current international guidelines, a few suggestions make this article unique.

This paper highlights the differential utility of various preparation of the same molecule, for example, immediate and sustained-release metformin. It follows that the authors also recommended careful and rational use of the appropriate preparation, based on target for glycemic control (fasting vs postprandial vs both) and side effect profile. This aspect of diabetes pharmacotherapy has not been highlighted earlier, though the different pharmacokinetics of various preparations of OADs allows ample choice to the prescriber.

This paper also suggests and recommends intraclass drug switch of sulfonylureas during Buddhist Lent. Though this is not recommended during routine practice, the unique dietary pattern of Buddhist Lent makes it imperative for doctors to ensure that appropriate OADs (including sulfonylurea) are prescribed.

A short acting preparation with breakfast and at lunch or a single acting drug at breakfast should be preferred. Examples include glipizide or gliclazide (conventional) twice a day and glimepiride once a day. Glibenclamide should be avoided.

Table. OAD modification during Buddhist Lent

<i>Patient's status/intervention</i>	<i>Euglycemia</i>	<i>Significant hypoglycemia</i>	<i>Significant hyperglycemia</i>
Nutrition	Reinforce dietary advice	<ul style="list-style-type: none"> • Frequent meals • Liquid food supplements 	<ul style="list-style-type: none"> • Low calorie meals, e.g, boiled noodles to replace fried noodles • Low calorie liquids
Meditation	Reinforce healthy habits	Sitting meditation	Walking meditation
Dose change	None	Reduction	Escalation <ul style="list-style-type: none"> • Increase SU dose with caution
Change in pharmaceutical preparation		Shift from modified release (long acting) to short acting gliclazide	Shift to IR to control PPG, shift to SR to control FPG
Drug substitution <ul style="list-style-type: none"> • Interclass • Interclass 	None	Shift to safer SU, e.g, glimepiride or short acting meglitinide, e.g., repaglinide	Shift to rapid acting drug to control PPG, shift to longer acting drug to control FPG
Intensification or deintensification	None	Discontinue the more potent drug, e.g., SU	Add another class of drug, e.g., secretagogue to sensitizer

OAD = Oral antidiabetic drug, SU = sulfonylurea, IR = immediate release, SR = sustained release

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Conclusion

The Buddhist Lent fast is an important part of life for the devout Buddhist. The unique dietary pattern followed during this 3 lunar month long period poses special challenges for the patients with diabetes. Rational prescription and modification of OADs, as detailed in this paper, along with appropriate nutritional and lifestyle advice, can help the devout patient with diabetes complete the Buddhist Lent fast. This can be done with minimal or no impact on the individuals health.

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