

MANAGING THE NON-INSULIN DEPENDENT DIABETIC PATIENT

Previously I discussed the epidemiology of diabetes, principles of screening and diagnosis and the initial assessment of the new diabetic. In this issue I address the management of the non-insulin dependent diabetic patient. The reader is referred to the South African guidelines for the management of non-insulin dependent diabetes mellitus recently published¹.

The primary objectives of treatment are summarised by the European non-insulin dependent diabetes mellitus policy group².

1. Relief of symptoms
2. Improvements of the quality of life
3. Prevention of acute and chronic (long term) complications
4. Reduction of mortality
5. Treatment of accompanying disorders

The management plan of the new non-insulin dependent diabetic should include the three following elements:

1. Education to enable self-care
2. Nutritional advice
3. Evaluation of metabolic and risk factor targets with initiation of appropriate therapy.

Education

This is one of the most neglected aspects in the initial contact with the diabetic patient. Diabetes is a life-long disease, which will affect most aspects of the patient's life.

During the initial visit, two issues are important:

- a. The pathophysiology of diabetes described in layman's terms so that the patient has a clear idea about cause and effect.
- b. Nutrition and exercise. The patient should be encouraged to exercise and referred to a dietician if at all possible. Exercise guidelines are available^{3,4}. Exercise at aerobic levels, such as walking, which is less than that recommended in guidelines, may be valuable⁵.

It is critical however, that the doctor realises that there are other issues that will need to be addressed at future visits. Some of these are:

1. What constitutes good control and how to achieve it?
2. Medication — dosing and side-effects
3. Recognising hypoglycaemia and impending hyperglycaemic emergencies
4. Foot and eye care
5. Psychological aspects of disease

Some centres may be fortunate enough to have the help of a diabetes nurse/educator. She will be worth her weight in gold by enabling the patient to come to terms with

his/her diabetes. If this is not available, however, it is advisable that the doctor keeps a checklist of topics to cover on subsequent visits.

Nutritional advice

The importance of weight control cannot be over emphasised. The obese patient must be encouraged to lose weight. Even a modest reduction by a few kilograms may lead to improved glycaemic⁶, blood pressure and blood lipid profiles. Thus, realistic targets for weight control should be set.

Again the help of a dietician is indispensable. The patient should avoid free sugar and foods should be pointed out that need to be avoided or taken in moderation.

Evaluation of metabolic and risk factor targets

During the initial evaluation risk factors such as smoking and obesity will have been identified. These should be addressed and a plan of action decided upon with the patient actively taking part in the decision-making process.

The first metabolic target of concern is the level of glycaemic control: most guidelines regard fasting blood glucose values >7.8 mmol/L; non-fasting values > 10.0 mmol/L and HbA^{1c} > 2% points above the upper limit of normal, as acceptable¹.

The initial management of most of these patients should be a 4-8 week trial of dietary therapy. If initial values exceed 20 mmol/L some advocate a more aggressive approach with the Mayo group⁷ giving insulin in this group till better control is achieved and then considering oral therapy. The South African guideline for management of non-insulin dependent diabetes mellitus at primary care level advises that for random blood glucose values greater than 15 mmol/L, lifestyle modification plus oral agents should be initiated¹. If the patient is thin and/or severely symptomatic referral to a specialist is preferable from the start.

The minority of subjects will achieve good control on diet alone and a subsequent intervention is warranted.

Traditionally, the patients are divided into two groups: non-obese and obese. If oral agents are indicated sulphonylureas are started in the non-obese and biguanides in the obese.

Sulphonylureas (Table 1) should be started at a lowest dose and increased as needed to the maximum every 3-4 weeks. In the elderly, hypoglycaemia poses a serious risk and shorter acting drugs such as tolbutamide

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In this series of articles various experts share their understanding and management of medical problems with us. The emphasis is on practical approaches to the problem concerned and reconciliation of the Ivory Tower and the Coalface.

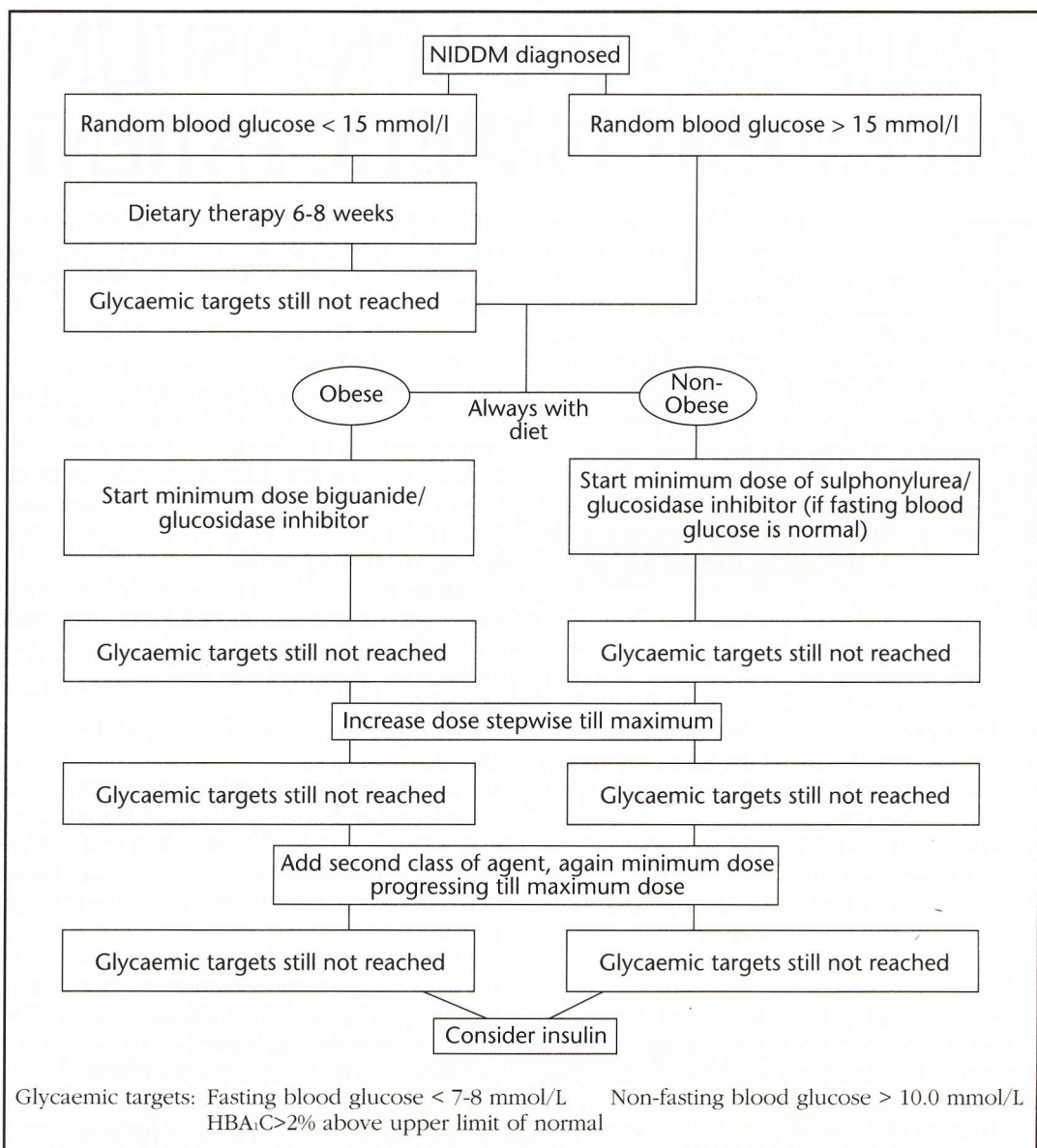


Figure 1: Managing non-insulin-dependent diabetes mellitus in the patient who is neither acutely ill nor has rapid weight-loss

are preferable. Mild renal insufficiency may require dose reduction and, if severe, it is contraindicated.

The only biguanide used is Metformin. The initial dose is 500-850mg/d which can be increased after one week to two tablets per day. Maximum daily dosage is 3 grams. This agent must not be used in patients with impaired renal function, septic shock, ischaemic limb or major surgery. Gastro-intestinal intolerance is common.

A new class of oral agents is now available. α -glucosidase inhibitors (Acarbose) decrease postprandial hyperglycaemia. Their exact roles have to be defined as yet but they are probably as effective as the other agents. It is important to start with a low dose (50mg/day) and to increase to 50-100mg with meals only if no GIT symptoms.

When target goals are not reached despite compliance with diet and taking of tablets, sulphonylureas and a biguanide can be combined. Acarbose can also be added to a different class of oral hypoglycaemic. It should

be stressed that adjustments should be made only if control is poor on a number of occasions and not on one glucose reading only.

If in spite of combination therapy glycaemic control is still poor then insulin should be considered. Always check compliance, diet, and for the presence of other causes of uncontrolled glucose like malignancy, tuberculosis or hyperthyroidism.

There are essentially three options for the normal weight or moderately overweight diabetic¹.

1. To continue oral agents and to add bedtime intermediate acting insulin (Protophane; Monotard, Humulin N) (0,1-0,3U/kg). Increase weekly by four units at a time until adequate control of fasting blood glucose is achieved (up to a max of 0,6U/kg).
2. To initiate insulin once a day without the oral agents.
3. Discontinue oral agents and start twice daily mixed insulin eg. Actraphane (0,3U/kg) two-thirds given in the morning

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and one-third in the evening.

Option one might still need insulin twice daily if once daily does not achieve control or if dose exceeds 40-60 units per day.

Grossly overweight patients who do not control on diet and oral agents should be referred to a specialist. Option one has some possible advantages, one being that less insulin is needed but it is also more costly.

An approach to treatment of non-insulin dependent diabetes mellitus is given in Figure 1.

Self-monitoring

It stands to reason that making major adjustments to therapy on single glucose readings is inadequate. Therefore the ideal is for the patient to do home capillary blood glucose monitoring. This enables the patient to detect hypo- and hyperglycaemia timeously and gives the doctor the opportunity for more rational decision-making.

The patient should monitor his glucose one to three times daily and chart it in a diary. Before meals, two hours after meals, night-time, bedtime and 3 o'clock in the morning are times at which monitoring should be done. In the initial stage, when control needs to be achieved, three readings a day for a week or so would be preferable.

The doctor or experienced nurse should check self-monitoring technique once or twice a year. Extra tests should be performed during illness or prior to strenuous activities. Urinary ketones should be tested for during illness and when blood glucose is > 20 mmol/L and if present the doctor should preferably be contacted.

The importance of achieving adequate glycaemic control cannot be over-emphasised. There is no doubt (even in non-insulin dependent diabetes mellitus when compared to insulin-dependent diabetes mellitus) that glycaemic control is one of the strongest predictors of long-term complications.

Blood pressure and lipid control will be discussed in subsequent issues. ●

	Minimum/day	Maximum/day
Sulphonylureas Glibenclamide (Daonil, Euglucon Glycomin)	2,5mg	15mg
Gliclazide (Diamicon)	40mg	320mg
Glipizide (Minidiab)	2,5mg	30mg
Tolbutamide (Rastinon, Tydadex)	250mg	1,5g
Glucosidase inhibitors Acarbose (Glucobay)	50mg	300mg
Biguanides Metformin (Glucophage, Dextrin)	500mg bd	3g
Glucophage F	850mg	3g

Table I: Dosages of commonly used oral agents

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