

Diabetes Mellitus Type 1

Diabetes Mellitus is caused by defects in insulin secretion, insulin action or both. The condition is regarded as one of the increasing health problems in the world, including South Africa. It is estimated that in 2011, a total of 366 million people worldwide had diabetes, and as many as 4.6 million deaths were attributable to the disease. In South Africa, eight out of a hundred people are living with the disease. There are mainly 2 types of Diabetes Mellitus, namely, Type 1 Diabetes Mellitus and Type 2 Diabetes Mellitus. The focus of this article will be on Type 1 Diabetes Mellitus. It is estimated that 76 000 children aged between 0 and 14 years are developing this condition worldwide, each year.

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What is Diabetes Mellitus Type 1?

Type 1 Diabetes Mellitus occurs at any age but is commonly diagnosed in children, adolescents and young adults. In this condition, the body produces little or no insulin because the cells in the pancreas that are responsible for producing insulin are destroyed. Insulin helps keep the blood sugar level from getting too high or too low. When the insulin is not enough, glucose (sugar) builds up in the bloodstream instead of going into the cells where it is used for energy.

Causes

The exact cause of the condition is not clear. It is however attributed to the autoimmune diseases or conditions where the immune system mistakenly attacks and destroys the healthy cells in the pancreas. The tendency to develop autoimmune diseases, including Type 1 Diabetes Mellitus can be passed down through family lineage.

What are the signs and symptoms?

The signs and symptoms for Type 1 Diabetes Mellitus are excessive thirst, increased appetite, blurring of vision, weight-loss, feeling tired all the time. In the very young children, symptoms may be subtle and are frequently misjudged.

Diagnosis

It is generally easy to diagnose the condition based on information provided by the patient or the caregiver. Simple

tests like urine dipsticks and blood glucose test strips can help in making a diagnosis. The laboratory tests such as a fasting blood sugar, oral glucose tolerance test, random blood sugar and Haemoglobin A1c (HbA1c) can be performed to validate the diagnosis.

Treatment and lifestyle modification

Patients who have just been diagnosed with the condition may need to be admitted and stay in the hospital until they are stable. After the discharge from the hospital, regular follow-ups may be needed to ensure that the blood sugar is under control. Once the condition is stable, fewer visits with the doctor will be required. The importance of treatment is to obtain a blood sugar level that is as close to the normal range as possible. Daily self-monitoring of blood glucose, using blood glucose test strips and injections with insulin, are essential. In addition, healthy eating, maintaining a healthy weight and exercising or increasing physical activity can help with the management of the disease as shown in figure 1 on page 2.

Periodic monitoring of long-term concentration of glucose (HbA1c) is required because this test provides an indication of the average blood glucose level of the previous 10-12 weeks. A limitation of HbA1c is that it does not take into account fluctuations in the blood sugar which can play a role in development of complications. Management of this condition requires a multidisciplinary team approach.



Figure 1: Important elements in the management of type 1 diabetes mellitus

Complications

Due to the lack of insulin, patients with Type 1 Diabetes Mellitus are likely to develop diabetic ketoacidosis (DKA) which is a life threatening condition. Signs and symptoms of DKA are deep rapid breathing, dry skin and mouth, flushed face, fruity breath odour, nausea and vomiting, and abdominal pain.

Hypoglycaemia (low blood sugar levels) can occur due to the mismatch between the dose of insulin, food intake, and recent exercise. The signs of low blood sugar include hunger, headache, nervousness, rapid heartbeat, sweating, tremors (shaking) and weakness. A glass of sweet beverage can be taken when a patient who is on treatment experiences these symptoms whilst on the way to consult a healthcare worker.

There are late complications related to the condition which include conditions such as foot ulcers and delay in their healing, diabetic neuropathy (nerve damage commonly in the legs and feet), diabetic retinopathy (diabetic eye disease) and kidney failure.

What is covered under PMBs?

Type 1 Diabetes Mellitus is a PMB condition under the Chronic Disease List. The treatment component specified for this condition according to the PMB Regulations is medical management. The diagnosis, treatment and care of this condition should be funded according to the PMB Regula-

tions. It is important to note that treatment and care include urine tests, blood tests, blood glucose test strips for home testing and other required monitoring services. Therefore, consultations with an eye specialist, a dietician and a podiatrist where necessary constitute PMB level of care. Additionally, acute and chronic medication should also be funded according to the PMB Regulations.

Management of this condition according to the PMB CDL algorithm is specified on figure 2 on the next page.

Based on this algorithm, lifestyle modification and home glucose monitoring are important. Insulin therapy for all the patients is vital. Insulin pump therapy and pancreatic transplant do not fall within the scope of this PMB algorithm. In terms of accessing the PMB benefits, it is important for the doctor to register the member's condition with the medical scheme so that the benefits for the diagnosis, treatment and care can be paid as PMB.

It is always important for the member to confirm with the medical scheme the benefits and diagnostic tests covered per year. This is important because the medical scheme is allowed to limit the number and types of tests covered per year. If the doctor deem it necessary for tests that the medical scheme does not normally fund, to be conducted, he/she should write a clinical motivation to the medical scheme for payment to be considered as PMB.

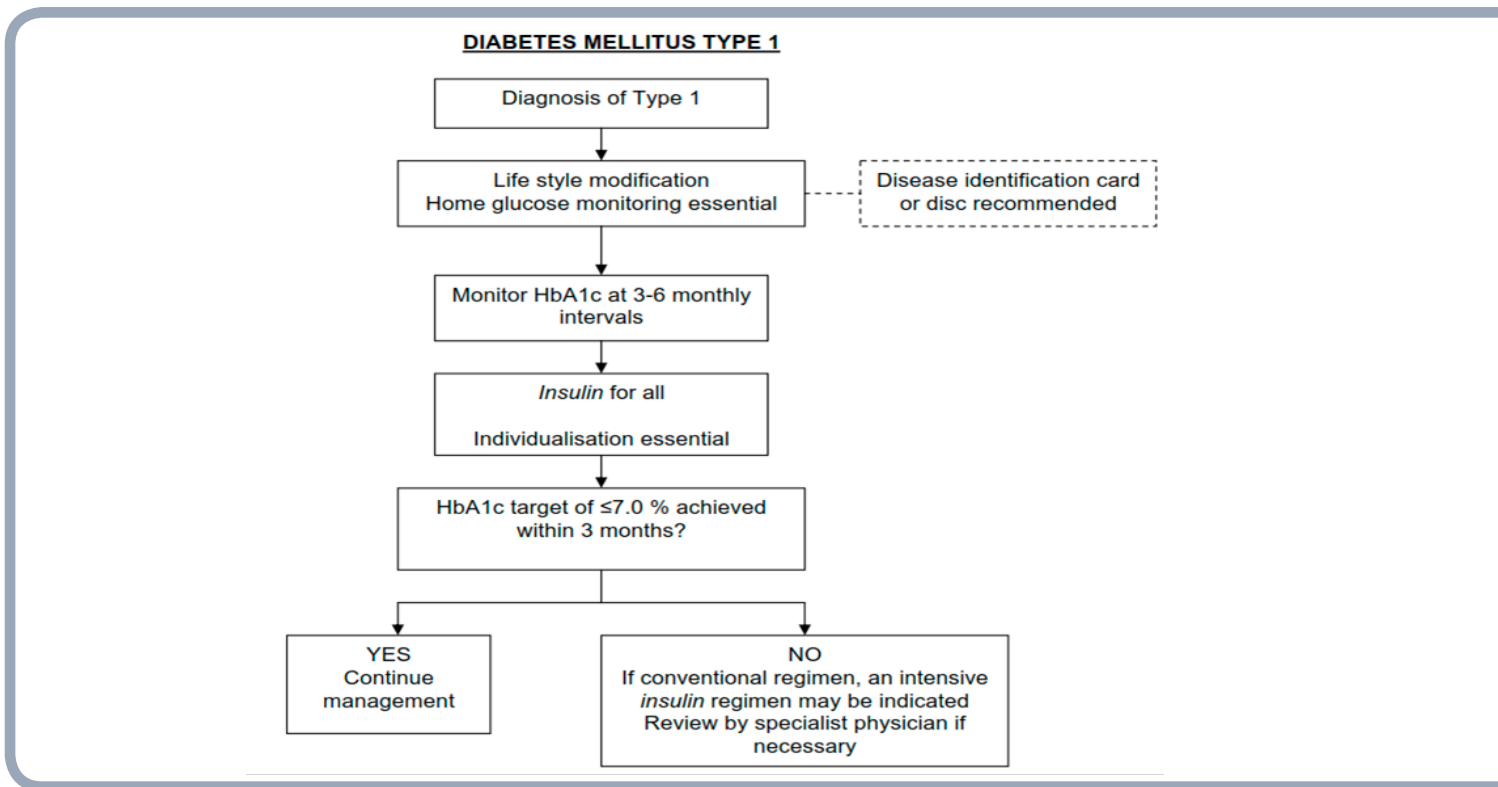


Figure 2: Therapeutic algorithm for Diabetes Mellitus Type 1

References

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WHAT ARE PRESCRIBED MINIMUM BENEFITS?

Prescribed Minimum Benefits (PMBs) are defined by law. They are the minimum level of diagnosis, treatment, and care that your medical scheme must cover – and it must pay for your PMB condition/s from its risk pool and in full. There are medical interventions available over and above those prescribed for PMB conditions but your scheme may choose not to pay for them. A designated service provider (DSP) is a healthcare provider (e.g. doctor, pharmacist, hospital) that is your medical scheme's first choice when you need treatment or care for a PMB condition. You can use a non-DSP voluntarily or involuntarily but be aware that when you choose to use a non-DSP, you may have to pay a portion of the bill as a co-payment. PMBs include 270 serious health conditions, any emergency condition, and 25 chronic diseases; they can be found on our [website](#)

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