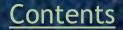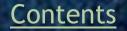# Blood glucose & Diabetes

Introduction

Diabetes mellitus, or simply **diabetes**, is a group of metabolic diseases in which a person has high blood sugar, either because the pancreas does not produce enough insulin, or because cells do not respond to the insulin that is produced .This high blood sugar produces the classical symptoms of polyuria (frequent urination), polydipsia (increased thirst) and polyphagia (increased hunger).

Type 1 diabetes

- Most frequently affects children and adolescents.
- Symptoms include excessive thirst, excessive urination, weight loss and lack of energy.
- Daily insulin injections required for survival.

Type 2 diabetes

- Occurs mainly in adults.
- Usually people have no early symptoms.
- People may require oral hypoglycaemic drugs and may also need insulin injections.

People at high risk of diabetes

Factors associated with increased risk for diabetes include:

- Metabolic syndrome
- Impaired glucose tolerance
- Polycystic ovary syndrome
- History of gestational diabetes or having a baby over 4 kg
- Family history of diabetes
- Increased BMI
- Central obesity
- Adverse lipid profile
- Patients taking some drugs e.g. prednisone or anti-psychotic drugs (haloperidol, chlorpromazine).
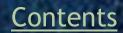
How to test

Testing for diabetes

- Fasting morning blood glucose is the best initial test.

- Urine glucose and HbA_{1C} should not be used for diagnosis.

People with symptomatic hyperglycaemia

Symptomatic hyperglycaemia may have an acute onset, usually in younger people with type 1 diabetes, or a more insidious onset, usually in older people with type 2 diabetes. The usual symptoms of hyperglycaemia are thirst, polyuria and weight loss but hyperglycaemia can also cause fatigue, lack of energy, blurring of vision or recurrent infections, such as candida.

Key points

- Fasting morning venous glucose is the best initial test for diagnosing diabetes.

- An oral glucose tolerance test is reserved for people with equivocal fasting glucose results.

- Patients with impaired glucose tolerance or impaired fasting glucose benefit from lifestyle intervention and annual review.

- HbA_{1c} is the best test of glycaemic control in diabetes.

Target level for HbA$_{1C}$

- Any sustained reduction of HbA$_{1c}$ is worthwhile because there appears to be a direct relationship between cardiovascular risk and HbA$_{1c}$.

- The goal is to achieve an HbA$_{1c}$ as low as possible, preferably less than 7.0%, without causing unacceptable hypoglycaemia.

- HbA$_{1c}$ > 8 mmol/L is a sign of inadequate control for most people.

Contents

Self monitoring blood glucose (SMBG)

- People who take insulin should regularly self monitor blood glucose.

- For people with non-insulin treated type 2 diabetes testing is most useful if patients use the results to learn and alter behaviour, or medication.

Other tests

Testing of LFTs is recommended for people with diabetes:

- at diagnosis,
- at the start of antidiabetic drug therapy, and
- at any other time indicated by clinical judgement

Other laboratory tests

In patients with type 1 diabetes, intermittent checks for other autoimmune conditions may be useful. This could include testing for thyroid dysfunction as example.

- Thank you