Meet Michael

Learning Outcomes

- Individualising glycaemic treatment targets depending on patient wishes, comorbidities and hypoglycaemia risk
- Determine when to escalate to triple oral therapy and insulin treatments
- Diagnosis and management of diabetes-related complications, particularly cardiovascular risk
- Implications of insulin therapy for commercial drivers

VISIT ONE

Michael is a 58-year old male. He was diagnosed with type 2 diabetes six years ago with a background history of diastolic hypertension for ten years. He was unable to tolerate metformin or metformin XR due to severe gastrointestinal side effects. A sulfonylurea was commenced five years ago and a DPP-4 inhibitor added two years ago. He was also prescribed an ACE inhibitor for hypertension and mild proteinuria five years ago. Screening for complications is up-to-date with no evidence of peripheral neuropathy or retinopathy. Michael works as a driver for a long-haul trucking company. His job is physically active as he loads and unloads the truck with each delivery. He states that he would prefer to avoid insulin therapy unless absolutely necessary. He smoked a pack of cigarettes a day for the 30 years but ceased five years ago. He drinks two, four standard drinks of alcohol on weekends. He is adopted and unaware of his biological family's medical history.

Current medications

Glimepiride 4mg daily
Linagliptin 5mg daily
Perindopril 4mg daily

Allergies

Nil known drug allergies

Examination

Blood pressure 145/85 mmHg
Weight 87kg, Height 180 cm, BMI 31 kg/m^2
Ankle jerks present, monofilament sensation intact, pedal pulses present, nil evidence of ulceration

Investigations

HbA1c 69 mmol/mol (8.5%)
eGFR 55 ml/min/1.73m^2

What are the management issues for this patient?

- Patient's age and medical co-morbidities suggest that an HbA1c target of 53 mmol/mol (6.5-7%) would be appropriate Individualising glycaemic treatment targets depending on patient wishes, comorbidities and hypoglycaemia risk
- Selection of triple therapy to improve glycaemic control
- Assessment of absolute cardiovascular risk
- Optimal management of high blood pressure

What is your management plan?

1. Patient's age and lack of medical co-morbidities suggest that an HbA1c target of 53 mmol/mol (6.5-7%) would be appropriate.
2. Presence of CKD makes a SGLT2i the preferred additional therapy. If contra-indicated or not tolerated, a GLP1 agonist would be an appropriate alternative.
3. Change glimepiride to gliclazide MR 120 mg daily to prevent long-acting metabolites that could contribute to increased risk of hypoglycaemia with renal impairment.
4. Continue DPP-4 inhibitor. Start empagliflozin 10 mg daily.
5. Ensure patient is educated regarding blood glucose testing before driving.
6. Ensure the road traffic authority is informed of Michael's diabetes.
7. Measure lipid profile and urine albumin/creatinine ratio (ACR).

Australian Diabetes Society is a National Health Professional Body Agent for the NDSS.

NDSS Helpline 1800 637 700
ndss.com.au

The NDSS is administered by Diabetes Australia

Version 2 April 2022. First published November 2016.

VISIT TWO

When Michael is reviewed in two weeks, he has improved his diet. Michael's friend Alec has recently had a triple coronary bypass, and although he has not had any symptoms, Michael is concerned about his own risk of heart disease.

Current medications

Gliclazide MR 120mg daily
Empagliflozin 10mg daily
Perindopril 4mg daily
Linagliptin 5mg daily

Examination

Blood pressure 138/80 mmHg
Weight 87 kg

Investigations

ECG – Sinus 65 BMP, nil abnormalities detected
Total Cholesterol 4.5mmol/L, HDL 1.2 mmol/L, LDL 3.3 mmol/L
TG1.5 mmol/L
Urine ACR 5.5 mg/mmol

The Australian absolute cardiovascular risk calculator is used to estimate Michael's cardiovascular risk and indicates a 12% risk in the next five years.

What are the management issues for this patient?

- Calculation of absolute cardiovascular risk
- Prevention of cardiovascular disease

What is your management plan?

1. Provide information on prevention of cardiovascular disease.
2. Commence statin therapy.
3. Monitor blood pressure and titrate anti-hypertensive therapy.

VISIT THREE

Michael is reviewed in three months, HbA1c continues to be above target. His home blood glucose recordings indicate some elevation in fasting and pre-prandial glucose levels (7.5-9.0 mmol/L). What is the next line of therapy?

Current medications

Gliclazide MR 120mg daily
Empagliflozin 25mg daily
Perindopril 4mg daily
Atorvastatin 40mg daily
Linagliptin 5mg daily

Examination

Blood pressure 120/80 mmHg
Weight 83 kg, Height 180 cm,
BMI 28 kg/m^2

Investigations

HbA1c 62 mmol/mol (7.8%)

What are the management issues for this patient?

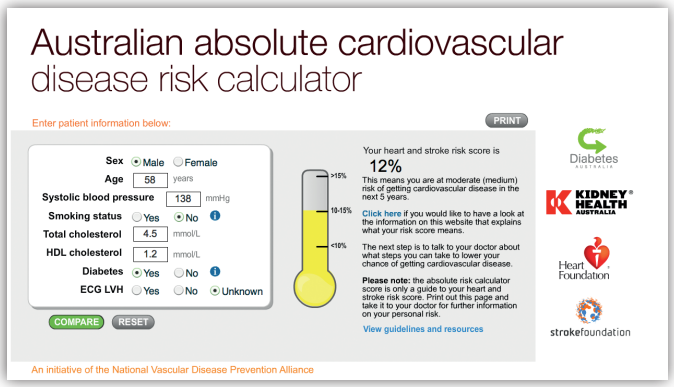
- Intensification of diabetes therapies
- Potential commencement of insulin and how this can be managed safely in a long-haul truck driver

What is your management plan?

1. Consider commencement of basal insulin as HbA1c target has not been achieved with the dual oral therapy. An alternative could be the addition of GLP1 agonist but this would not be PBS subsidised currently in combination with a SGLT2i.
2. If basal insulin is started, DPP4i, Sulfonylurea and SGLT2 inhibitor may be continued to reduce insulin requirements.
3. Referral to diabetes nurse educator for information on insulin injecting technique, hypoglycaemia management and prevention while working and insulin storage on the road. Dietitian review to ensure that Michael is evenly distributing his carbohydrate intake to reduce the variability in his BGLs.
4. Ensure the driving authority has been informed of insulin therapy commencement.

VISIT FOUR

Three months later, Michael presents for follow up. He has seen an endocrinologist for review of his diabetes. He is tolerating his medications and reports no episodes of hypoglycaemia. His ability to hold a commercial driving license is not affected as his control has improved on the new regimen with an HbA1c of 55mol/mol (7.2%)



Additional resources

http://www.cvdcheck.org.au
https://www.diabetesaustralia.com.au/driving