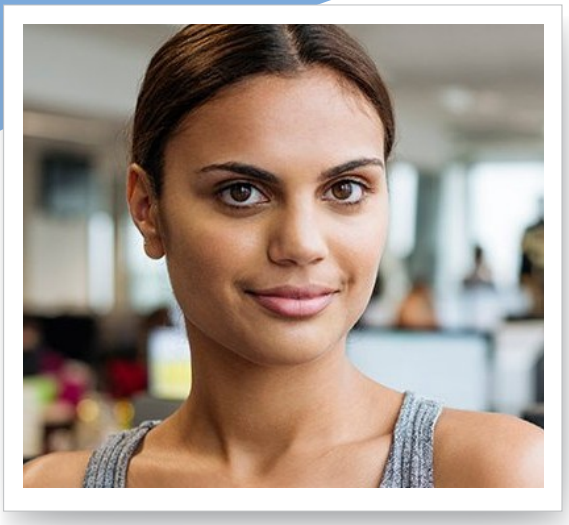
Meet Mary Ann



Learning Outcomes

- Escalation of diabetes therapy from dual to triple oral agents Consideration of other medical comorbidities which may affect agent of choice
- Calculation of cardiovascular risk in patients with diabetes Consideration of pregnancy in patients with type 2 diabetes Individualising glycaemic treatment targets depending on patient wishes, comorbidities and hypoglycaemia risk

VISIT ONE

Mary Ann is a 31-year old woman who is Aboriginal. She was diagnosed with polycystic ovary syndrome (PCOS) at the age of 18 and type 2 diabetes three years ago. Mary Ann recalls an eye examination at diabetes diagnosis but has not had any complication since screening. She has been on her current treatments for three years.

Mary Ann underwent surgery as a child to correct vesico-ureteral reflux. She has normal renal function and no hypertension. On ultrasound there is evidence of some renal scarring from previous episodes of pyelonephritis. She has no other medical problems. Family history is significant for type 2 diabetes affecting her mother and father. Her father was diagnosed with a stroke at 47 years of age. Her mother had a heart attack at 47 years of age years. Mary Ann has a sedentary job as a campaign manager at the mayor's office. She walks her dog every day for 1 hour. She lives with her husband and seven year old son. She does not drink alcohol. She has smoked 10 cigarettes per day for the last 15 years.

Current medications

Metformin 1g twice daily
Gliclazide MR 120mg daily

Allergies

Nil known drug allergies

Examination

Blood pressure 125/80 mmHg
Weight 74 kg, Height 162 cm, BMI 28 kg/m^2
Ankle jerks present, monofilament sensation intact, pedal pulses present

Investigations

HbA1c 58.5 mmol/mol (7.5%)
Urine albumin/ creatinine ratio (ACR) <2.5 mg/mmol
eGFR 80 ml/min/1.73m^2
Urine MC/S no abnormalities detected
Total cholesterol 4.0 mmol/L, LDL 1.9 mmol/L, HDL 1.0 mmol/L

What are the management issues for this patient?

- Calculation of absolute cardiovascular risk given her strong family history of cardiovascular disease
- Demonstrate that smoking cessation will halve her absolute risk of cardiovascular disease in the next five years
- Mary Ann's low absolute risk of cardiovascular events in the next five years suggest that antihypertensive, antiplatelet and lipid lowering therapies are not yet indicated, however this should be reconsidered if her absolute risk increases
- Diabetes is associated with increased rates of congenital malformations, the rate of which increases with poor glycaemic control
- Pre-pregnancy planning and use of contraception when not desiring pregnancy is essential

What is your management plan?

1. Patient's age and lack of medical co-morbidities suggest that an HbA1c target of 48-53 mmol/mol (6.5-7%) would be appropriate. Apart from the desirability of a degree of weight loss, there is no specific indication for one class of additional therapy over another. SGLT2i use may be less preferable for her because of her history of vesico-uretic reflux and pyelonephritis.
2. Start a DPP-4 inhibitor or GLP1 agonist according to her preference. Acarbose, thiazolondinediones or SGLT2i would be less desirable alternatives.
3. Complete diabetes screen – retinal examination.
4. As Mary Ann is of childbearing age, advise her of the importance of pre-pregnancy planning and the use of contraception when not desiring pregnancy.
5. Advise to quit smoking and support efforts.

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

Mary Ann presents the following year for review. Her blood glucose levels are well controlled with no episodes of hypoglycaemia. Her diet and lifestyle remain excellent and she is no longer smoking. She is considering another pregnancy in the next 12 months.

Current medications

Sitagliptin 100mg daily
Metformin 1g twice daily
Gliclazide MR 120mg daily
Ethinyl estradiol and Levonorgestrel 20mg daily

Investigations

HbA1c 48.6 mmol/mol (6.6%)

What are the management issues for this patient?

- As limited data are available regarding the use of the newer glucose lowering agents such as DPP-4 inhibitors, it would be reasonable to switch over to agents with more evidence for use prior to pregnancy
- Referral to a specialised multidisciplinary team comprising an obstetrician, endocrinologist, diabetes educator and dietician for pre-pregnancy counselling and ante-natal diabetes management
- Given the clear benefits of tight glycaemic control for reducing the risk of miscarriages, congenital malformations, perinatal mortality and other complications, women planning pregnancy should be advised to not attempt conception until glycaemic control is optimal
- Folic acid 5mg/d should be prescribed to reduce the risk of neural tube defects and other congenital malformations

What is your management plan?

1. Given that she is considering pregnancy, aim for tight glycaemic control, HbA1c target of 42mmol/mol (6.0%) whilst avoiding hypoglycaemia.
2. Cease gliclazide and DPP-4 inhibitor.
3. Continue metformin.
4. Commence insulin therapy and titrate to target HbA1c of 6.0% while avoiding hypoglycaemia.
5. Commence high dose (5mg) folic acid prior to conception.
6. Screen for retinopathy now and during each trimester as retinopathy, if present, may progress at a much faster rate during pregnancy.
7. Screen for nephropathy as patients with pre-existing microalbuminuria are much more likely to develop pre-eclampsia.
8. Refer to a specialised diabetes in pregnancy service for prepregnancy counseling.

Cardiovascular risk calculation in Aboriginal and Torres Strait Islander adults

Absolute cardiovascular risk in Aboriginal and Torres Strait Islander adults aged 35–74 years, who are not known to have cardiovascular disease or to be at clinically determined high risk, should be calculated using the Framingham Risk Equation. Although the Framingham Risk Equation might underestimate risk in this population, available evidence suggests that this approach will provide an estimate of minimum cardiovascular risk.

Additional resources

https://framinghamheartstudy.org/fhs-risk-functions/cardiovascular-disease-10-year-risk/

D'Agostino RB, Vasan RS, Pencina MJ, Wolf PA, Cobain M, Massaro
JM, Kannel WB. General cardiovascular risk profile for use in primary care the Framingham Heart Study. Circulation. 2008 Feb 12;117(6):743-53.

https://www.diabetesaustralia.com.au/pregnancy

http://adips.org/

http://adips.org/downloads/adips_pregdm_guidelines.pdf

Blumer I, Hadar E, Hadden DR, et al. Diabetes and pregnancy: an endocrine society clinical practice guideline. J Clin Endocrinol Metab.2013; 98(11):4227-4249

www.quitnow.gov.au/Support