Perfecting the Diabetes Long Case

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History

Type of Diabetes

- Type 1
- Type 2
- LADA (> 30 years, +ve ≥ 1 Ab, usually on OHGs > 6/12)
- MODY (AD, < 30 years, “lean”)

Helpful questions when type is not clear:-

- When were you diagnosed and how did you present eg DKA?
- Were you managed with OHGs to begin with and did they work?
- How long after diagnosis were you started on insulin?
- Don’t assume that all elderly people on small doses of insulin have T2DM

Glucose Monitoring

- Type of glucometer - ? ketone testing (T1DM, LADA, SGLT2i)
- **Frequency**
- Tailored to the patient - age, OHGs with potential for hypoglycaemia
- Always cross check reported data with glucometer

Continuous Glucose Monitoring System (CGMS) – real time, flash glucose monitoring

- T1DM
- Insulin requiring T2DM
- Asymptomatic hypoglycemia

Glucose targets

- Individualised targets – HGBM and HbA1c
- Time In Range

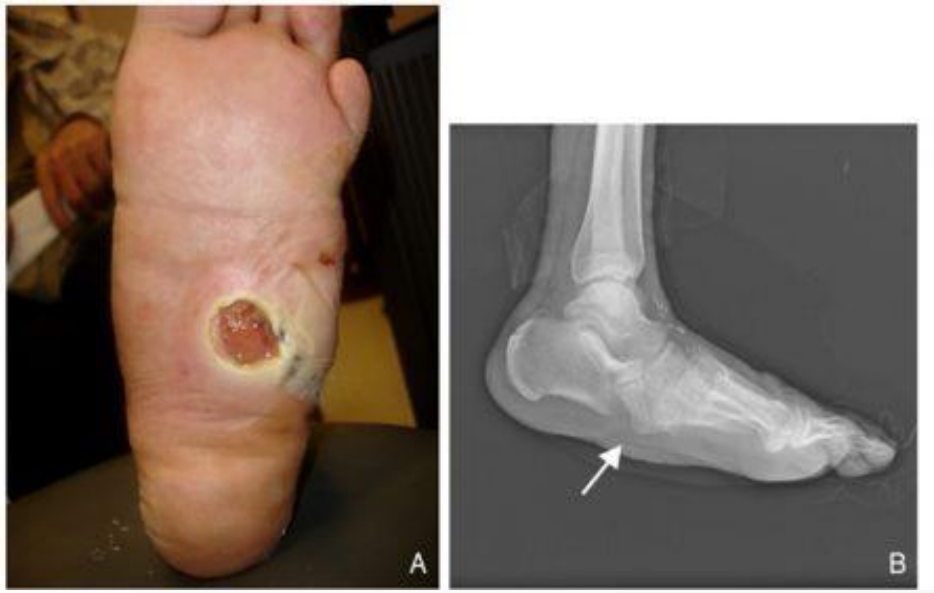
Hyperglycaemia

- Sick day management
- Ketone testing/interpretation

Hypoglycemia

- Hypoglycaemia: symptoms (beware reduced or unawareness), frequency, severity
  - Do other people notice your hypoglycaemia before you?
  - External assistance (MAS, 3rd party)
  - Glucagon??
  - Psychological impact on the patient +/- family members (diabetes distress)
  - **Implications for driving (> 5mmol/L to drive!)**
- Strategies to improve hypo unawareness
  - Avoid further hypoglycaemia
  - Islet cell transplantation for severe cases

Complication Screening

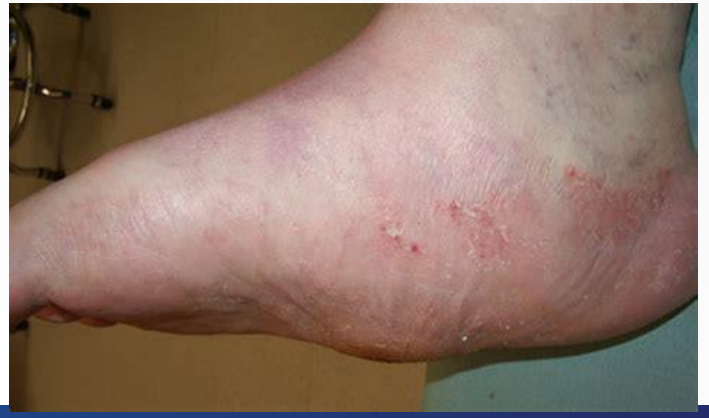


Microvascular

- Retinal screening
- Nephropathy (ACR)
- Neuropathy – peripheral, **autonomic**
  - Remember gastroparesis (early satiety, nocturnal diarrhoea, postural hypotension)
  - Ask about erectile dysfunction (if present exclude incident CAD)
  - Charcot's

Macrovascular complications

- IHD
- CVD
- PVD-ulceration/amputation



Screen for Associated Conditions (T1DM)

- Thyroid disease (Hashimoto’s or Graves disease) - 15-30%
- Celiac disease - 4-9%
- Addison’s disease - 0.5%
- Vitiligo - 2-10%

Relevant Co-Morbidities (T2 > T1DM)

Cardiovascular Risk Factors

- Hypertension
- Hyperlipidaemia

OSA

NAFLD – more common in T2DM

- LFTs a poor indicator (consider Fibroscan in all pts with T2DM with features of the metabolic syndrome)

Gout

Examination

- *Postural drop/tachycardia*
- General appearance : *secondary causes, features of OSA, vitiligo*
- *BMI*
- *Waist Circumference*
- CVS
- *Carotid*
- Abdo: hepatomegaly, cirrhotic features
- Foot examination

Practical Aspects of Insulin Treatment

- Type and device (eg Innolet device good for those with manual dexterity issues)
- Regimen (basal bolus, premixed, basal plus)

- Ask them to take you through the steps of insulin administration:-
  - Mixing (premixed insulins only)
  - When do they inject in relation to their meal?
  - Test dose ?
  - Dialling to the right number or listening to the clicks for those with visual impairment
  - Inject sites (rotation)
  - When injecting do they count to 10?
  - How often do they change their needle?
- Are they an NDSS member?

Beware the unconventional regimen

Beware the insulin deficient patient with T2DM - ketone prone when fasting or unwell

Continuous Subcutaneous Insulin Infusion (CSII)

Pump type

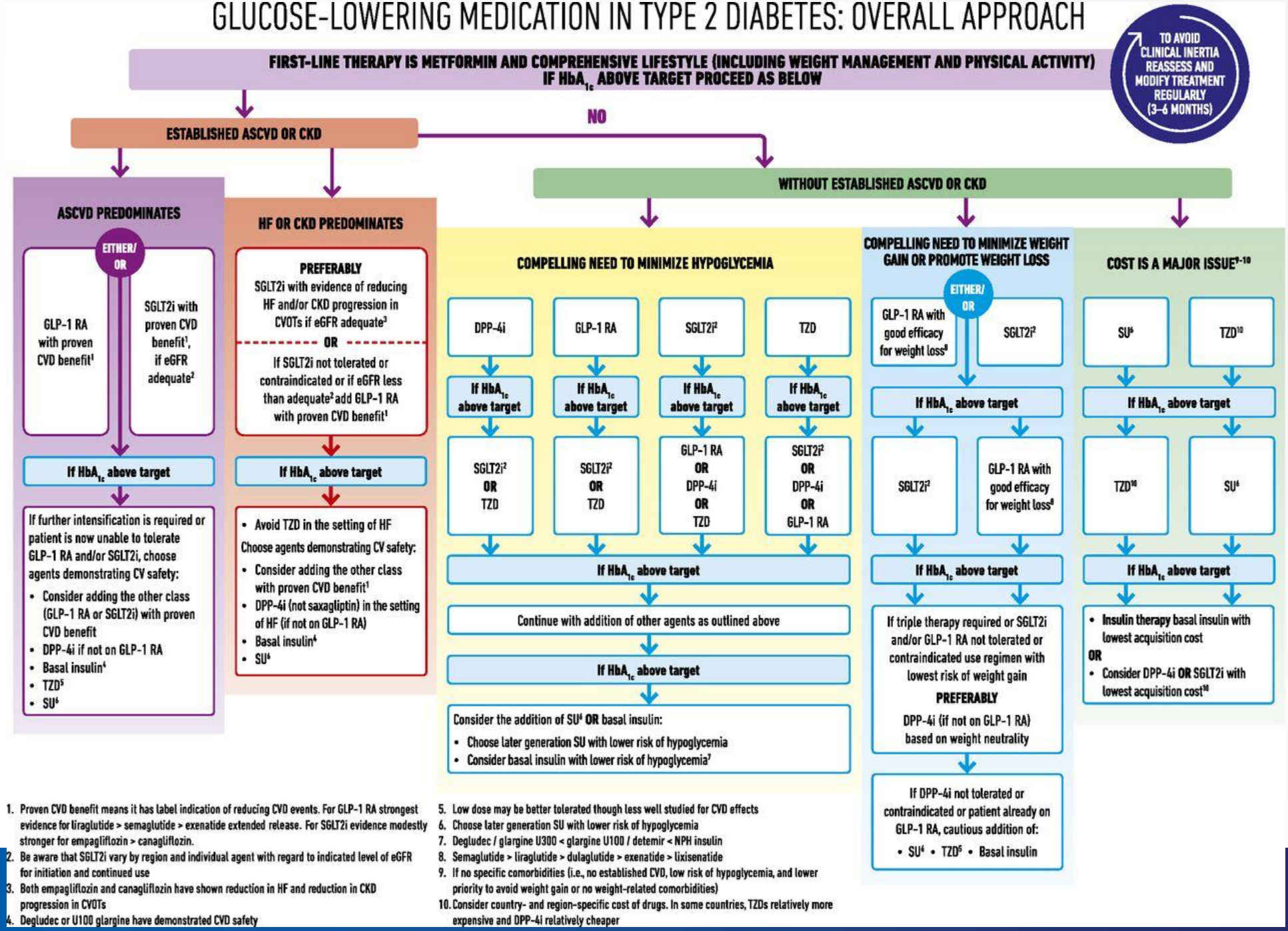
- sensor augmented versus closed loop
- low glucose suspend
- line changes

- Sick day management
  - Correction → Line change → SC injection external to the pump (10% of Total Daily Dose)

- Pump failure
  - Total Daily Dose:
    - 50% basal and
    - Bolus = 50%/3 meals OR according to insulin to carb ratio

670G =closed loop system
Automated basal insulin delivery

GLUCOSE-LOWERING MEDICATION IN TYPE 2 DIABETES: OVERALL APPROACH



1. Proven CVD benefit means it has label indication of reducing CVD events. For GLP-1 RA strongest evidence for liraglutide > semaglutide > exenatide extended release. For SGLT2i evidence modestly stronger for empagliflozin > canagliflozin.
2. Be aware that SGLT2i vary by region and individual agent with regard to indicated level of eGFR for initiation and continued use
3. Both empagliflozin and canagliflozin have shown reduction in HF and reduction in CKD progression in CVOTs
4. Degludec or U100 glargine have demonstrated CVD safety
5. Low dose may be better tolerated though less well studied for CVD effects
6. Choose later generation SU with lower risk of hypoglycemia
7. Degludec / glargine U300 < glargine U100 / detemir < NPH insulin
8. Semaglutide > liraglutide > dulaglutide > exenatide > lixisenatide
9. If no specific comorbidities (i.e., no established CVD, low risk of hypoglycemia, and lower priority to avoid weight gain or no weight-related comorbidities)
10. Consider country- and region-specific cost of drugs. In some countries, TZDs relatively more expensive and DPP-4i relatively cheaper

Perioperative Management

- SGLTi associated Euglycemic DKA – patient education?
- Withhold when unwell and periprocedure

- No OHGs on day of surgery and restart once eating and drinking

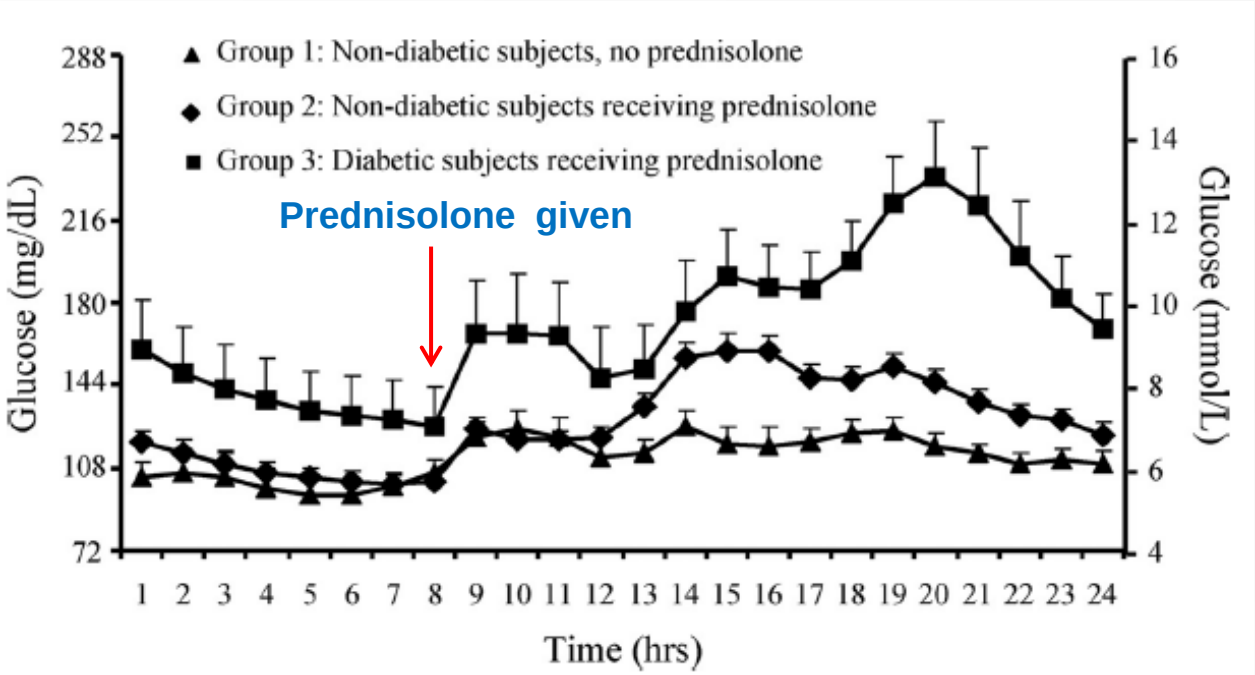
- Insulin Advice: depends on type of DM, procedure, duration of fasting

- NEVER withhold basal insulin in those with T1DM

Glucocorticoids (GCs)

- No pre existing DM
- Screen for the presence of DM PRIOR to commencement
- Monitoring for 24-48 hours on maximal dose and if all < 7.8mmol/L, cease
- If you ONLY test the fasting glucose you will miss GC induced diabetes.
- **<u>Test 6-8 hours after administration of GC</u>**

- Pre existing Diabetes = CHAOS
- ↑ frequency of monitoring
- Intensify therapy



Pyschological Impact of Chronic Disease

- Anxiety
- Depression
- Eating Disorders
- Guilt
- Burnout
- Carer stress