Type 2 Diabetes Mellitus

Main Takeaways:

***Metformin is first line therapy for all patients and dual therapy should be started for A1C >9-10, symptomatic hyperglycemia, or glucose >300 (think metformin + GLP1 agonist/basal insulin).**

***Refer patients with complex DM needs to Tuesday PM DM clinic (can leave a note in follow up section and or check-out note).**

Use these dot phrases: .DOCDMRESOURCES, .LOWCOSTGLUCOMETER, .LOWCOSTINSULIN, .CGMHOWTO for all the best diabetes resources for your patients.

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WHO to screen: adults age 35-70 who are overweight/obese (USPSTF 2021) or any overweight adult with at least one risk factor (HTN, family hx of DM, hx CVD, PCOS, acanthosis nigricans, etc) or any adult age 35+ (ADA 2020)

WHEN to repeat screening: every 3 years if normal; annually if in prediabetes range; q3 months if they have diabetes (and q6 months once at goal)

Target A1C: 7-8 for most patients; avoid a specific A1C target in patients age 80+ with life-expectancy <10 years, those in a nursing home, or those where medical comorbidities outweigh benefits of stricter A1C (ACP)

Lifestyle recommendations (ADA):

- Pro-tip: use Dr. Zipkin's dot phrase .DAZLOWCARB for the AVS
- If carbs are consumed, focus on nutrient-dense carbs that are high in fiber (>/ 14g fiber/1000 kcal) and minimally processed
- Include non-starchy vegetables, fruits, and whole grains, as well as dairy products with minimal added sugars
- Goal weight loss of 5% if overweight/obese
- 150 minutes of moderate to vigorous exercise weekly

Pharmacologic Treatment:

- **First line: metformin**
  - *contraindicated at GFR < 30
  - *evaluate risk/benefits when GFR 30-45 IF already on it (do not initiate when < 45)
  - Counsel on GI side effects (start low, increase slow, and take with meals)
  - Protip: can prescribe in XL formulation to decrease severity of GI side effects with BID dosing
- **Who should start on dual therapy:** If A1C >9-10, glucose >300, or symptomatic hyperglycemia (think weight loss, polyuria, polydipsia) (AACE/ACE, ADA)
- **Second line medications:** should be targeted to patient risk factors and co-morbidities if not at goal on metformin
  - ASCVD: **GLP1 (preferred)**
    - GI side effects (n/v/diarrhea) most common

        - avoid in patients with hx of pancreatitis, severe gastroparesis, or hx of medullary thyroid cancer
        - ++significant weight loss
    - CKD/HF: **SGLT2 (preferred)**
        - avoid in patients with recurrent UTIs, unreliable diet (long periods of fasting), hx amputation or necrotizing infection, type 1 DM
    - Other options: sulfonylurea (cost effective), DPP-4 (Januvia, frequently cost prohibitive for our DOC patients), insulin (70/30 more cost effective)
- **How do I initiate insulin??**
    - Start at basal insulin 10 u/day or 0.1-0.2 u/kg/day (ADA); can consider higher doses (0.2-0.3 u/kg/day) for A1C >8 (AACE/ACE)
    - Increase dose by 2-4 u/day (or 10-15%) 1-2x per week until glycemic target achieved
    - Decrease by 4 u/day (or 10-20%) for hypoglycemia
    - ADD prandial insulin to largest meal once daily if needed (10% of basal dose or 0.1 u/kg)
    - For 70/30 insulin (more cost effective); calculate basal dose above and give 2/3 in AM and 1/3 in PM

DOC Specific Pearls:

- Tuesday PM Diabetes Clinic (patients with uncontrolled diabetes and complex barriers to care)
- Wednesday Endocrinology Clinic (here at DOC)
- Free Eye Caravan (rotating Mondays outside DOC); write in the check-out section of Wrap Up to schedule with DOC Eye Caravan
- On-site pharmacy team!!
- Nutrition education through pharmacy or nutrition referrals (most patients are eligible for nutrition referral)
- Consider Ambulatory referral to Diabetes Education for patients that need further insulin/medication teaching and instruction on measuring BG at home

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Landmark Trials

- LEADER: liraglutide vs placebo in patients with T2DM and high CV risk (2016)
- SUSTAIN-6: semaglutide vs placebo in patients with T2DM and high CV risk (2016)
- EMPA-REG OUTCOME: empagliflozin vs placebo in patients with T2DM and high CV risk (2015)
- CANVAS: canagliflozin vs placebo in patients with T2DM and high CV risk (2017)
- CREDENCE: canagliflozin vs placebo in patients with T2DM and kidney disease (urine albumin/Cr >300 mg/g) (2019)
- DECLARE-TIMI 58: dapagliflozin vs placebo in patients with T2DM and high CV risk (2018)
- SURPASS-2: *new trial alert* tirzepatide (a combo GIP/GLP1 at varying doses) vs semaglutide in patients with T2DM (2021)