

Type 2 Diabetes Treatment

Step 1:

Metformin – unless there is a contraindication to metformin, it should always be first-line treatment.

- Start at a low dose – 500 mg with a full meal
- Titrate to max dose over several weeks if the patient can tolerate – 1000 mg BID
- Always attempt to prescribe extended release version

Step 2:

Patient specific second-line option

- The patient's A1c > 10% - start injectable (see injectable step)
Or
- ASCVD – add evidence-based GLP-1 (Victoza, Trulicity, Ozempic)
Or
- Heart Failure or CKD with CrCl > 30 mL/min – add evidence-based SGLT-2 (Invokana, Jardiance)
Or
- No comorbidities – Any of the above or DPP-4 inhibitor with CV safety (Januvia, Trajenta)
Or
- None of the above are options due to cost – SU or TZD (last resort)

Step 3:

Patient specific third-line option

- If the patient is on metformin plus GLP-1 – add SGLT2 (if CrCl > 30 mL/min)
Or
- If the patient is on metformin plus SGLT2 – add GLP-1 (DPP-4 or oral GLP-1 if the patient refuses injectable)
Or
- Consider adding insulin (see injectable step)

Step 4:

Add injectable medication

- Start with GLP-1 if the patient is not already taking (For patients taking a DPP-4, DC before starting GLP-1)
- If the patient is already on a GLP-1 or can't take a GLP-1 – add long-acting basal insulin (Lantus, Tresiba, etc)
 - Corvino's basal dose calculation
 - Step i – calculate weight-based dose (0.1 – 0.2 units per kg)
 - Step ii – find median between 10 units and weight-based dose (this helps to lower hypoglycemia risk)
 - Step iii – add 1-2 units to the starting dose every 3 days until the patients fasting sugar is consistently between (80 – 130)

Step 5:

For patients already taking GLP-1 plus basal insulin – add prandial insulin (rapid acting)

- Start **one dose** of prandial insulin with the patient's largest meal of the day
- Start with 4 units or 10% of basal dose (i.e. patient takes 60 units once daily of Lantus – add 6 units of Novolog with dinner)
- Titrate the patient's prandial dose by 1 to 2 units every 3 to 4 days based on the fasting glucose reading before the next meal (i.e. patient takes 6 units of Novolog with dinner, her fasting glucose should be 80 to 130 mg/dL before breakfast)
- In more advanced patients, consider adding a sliding scale dose to their set dose
 - If fasting glucose is >150 mg/dL, give 2 additional units, if fasting glucose is >200 mg/dL, give 4 additional units, etc
 - **Example:** if the patient's dose is 4 units with dinner and her glucose reading before dinner is 212 mg/dL – her dose will be 4 units (to cover the meal) plus 4 units (to correct the high fasting glucose) – She will take 8 units total prior to the meal

Step 6:

Add additional prandial meal coverage if A1c is still not at goal

- Add second dose of prandial insulin with the patient's second largest meal (following the same dosing strategy as Step 5)
- After 2 to 3 months, add third dose of prandial insulin with the patient's third meal (following the same dosing strategy as Step 5)
- In more advanced patients, consider adding a sliding scale dose to their set dose

Note:

If a new patient with a high A1c comes to your clinic and is already established on therapy, change the patient's regimen to ensure their treatment is optimized

- Example: a patient comes to your clinic with an A1c of 12% and is currently taking 50 units of Lantus once daily and Novolog 10 units with every meal. The patient is having frequent hypoglycemia and skips doses of Novolog often due to the excessive number of injections per day. What would be a better treatment regimen?
 - Assuming no contraindications and good insurance coverage, I would attempt to restart the patient on metformin ER starting with 500 mg once daily with the biggest meal (I would use the data from the HOME trial to support my suggestion when talking to the patient)
 - I would discontinue the Novolog completely and ideally start a once weekly GLP-1 as the prandial coverage to replace the Novolog
 - The patient now only has 1 injection per day instead of 4 and the hypoglycemia risk is significantly lowered
 - My goal for the patient would be to slowly reduce the dose of the Lantus over time as she makes more lifestyle/diet changes