BCDIABETES.CA

Principles of Type 2 diabetes management

“once daily treatment & monitoring where feasible”

Glycemic targets

- in hospital A1c n/a, FBS 5.0-10.0
- nursing home: A1c < 9.0, FBS 5.0-10.0
- age 75+: A1c < 8.0, FBS 5.0-8.0
- age 55-75: A1c < 7.5, FBS 5.0-7.0
- age 40-54: A1c < 7.0, FBS 5.0-7.0
- age < 40: A1c < 6.5, FBS 4.0-6.0
- vasculopathy: A1c < 8.0, FBS 5.0-7.0
- diabetes duration > 15 yr: A1c < 8.0, FBS 5.0-7.0
- symptomatic neuropathy: A1c < 6.5, FBS 4.0-6.0
- severe retinopathy: A1c < 6.5, FBS 4.0-6.0

Lifestyle therapy is always #1

“have you been good?”

- if A1c above target &/or obesity
    - review healthy diet
    - reinforce graded exercise program
- consider referrals to dietitian/fitness coach

Self monitoring blood glucose (SMBG) in all patients

exceptions:

- needle phobia & A1c to target at diagnosis
- needle phobia & A1c < 8.5 no insulin or secretagogues

testing schedule & frequency

before breakfast daily is default

- reduce to M/W/F once A1c to target for 6 months
- reduce to once weekly once A1c to target for 12 months

2 hr pc testing

- for meal-planning/carb-counting
- for rapid insulin titration

before meal testing

- for corrections

Pharmacotherapy

Principle of therapy: medication is added step-wise until blood sugar targets reached.

Medication is only stopped if ineffective or unacceptable side-effects or if insulin therapy leads to acceptable control (exception metformin - never stopped, see below).

First line Rx

metformin is offered to all patients with eGFR > 25, BMI > 18 (F) or 20 (M), FBS > 5.5 and without and without GI upset.

Patients should be told - *"Metformin is typically recommended indefinitely (forever) unless something changes. Metformin not only lowers blood sugar, it reduces heart attack and stroke as well as cancer. It also promotes ovulation in women with polycystic ovarian syndrome."*

- instructions to patient *"begin with 500 mg tabs, half with breakfast & dinner for 3 days & if tolerated increase to one tablet twice daily for 3 days & if still tolerated (& eGFR > 50) two tablets twice daily indefinitely."*
- if patient has extended medical coverage substitute metformin SR 500 mg ($0.60) and take dose at breakfast starting with 1 tab once daily for 3 days then 2 tabs once daily for 3 days then 3 tabs once daily for 3 days then 4 tabs once daily if tolerated. Note metformin SR 1000 mg ($1.21) also available.

Second line Rx

GLP-1 agonist (if BMI > 30 & cost not a consideration, $6-9/day, see Rx below)
or
DPP-4 inhibitor (if cost not a consideration, average $2.80 per day). Choices include sitagliptin "Januvia", saxagliptin "Onglyza", and linagliptin "Trajenta". Once daily in one dose only at 100 mg, 5 mg & 5 mg respectively, given once daily (half tablet if eGFR < 50 for sitagliptin & saxagliptin). Only sitagliptin is a Pharmacare benefit (with Special Authority) though not a benefit if insulin co-administered.
and/or
sulfonylurea
default is gliclazide MR 30 mg ($0.15) started at i daily, increasing to ii daily prn.
alternatives include glyburide 5 mg ($0.07) started at ½ qam increasing to i qam then i BID prn
and/or
Basal insulin (see Rx below)

Third line Rx (injectables)

if FBS elevated start with

- basal insulin, or
- GLP-1 agonist (if BMI > 30 & A1c < 9.0)

if FBS to target but A1c elevated start

- GLP-1 agonist (if cost not a factor & BMI > 30), or
- rapid insulin

Basal insulin

Lantus (or Levemir) 6+ units qam (or 0.1 U/kg qam, whichever is greater), increasing by 1-2 units per day until target FBS met. Do not split dose unless > 80 units per day or patient has day-time lows with morning highs.

or

NPH 6+ units HS (or 0.1 U/kg HS, whichever is greater), increasing by 1-2 units per night until target FBS met. Do not split dose unless > 60 units per day or FBS to target but A1c high.

Rapid insulin

Apidra 1+ units immediately before largest meal of day (or meal with highest post-prandial reading), increasing by 1 units per day vs 2hr pc 6-10. Introduce carb-counting early if patient amenable & motivated. Starting carb-ratio 10:1 (20:1 in Type 1s).

GLP-1 agonist Rx

Victoza 0.6 mg acb (increasing to 1.2 & 1.8 mg after one & two weeks respectively, side-effects permitting), or

Byetta 5 ug BID (before breakfast & dinner) for one month increasing to 10 ug BID thereafter, side-effects permitting.

Management Scenarios

Scenario #1: obese, third party insurance

lifestyle therapy personal diet coach & personal trainer
glumetza 500→1000→1500→2000 mg/day + prn
Victoza 0.6→1.2→1.8 mg/day + prn
gliclazide MR 30→60 mg/day + prn
Lantus + prn
Apidra

Scenario #2: non-obese, third party insurance

lifestyle therapy & personal trainer

glumetza 500→1000→1500→2000 mg/day + prn
DPP-4 inhibitor + prn
gliclazide MR 30→60 mg/day + prn
Lantus + prn
Apidra

Scenario #3: no third party insurance
lifestyle therapy, gym membership
metformin 500 mg BID→1000 mg BID + prn
gliclazide MR 30→60 mg/day + prn
Januvia 100 mg daily
Lantus + prn
Apidra