PURPOSE

To assure that DOP inmates with Diabetes are receiving high quality Primary Care for their condition.

POLICY

All DOP Primary Care Providers are to follow these guidelines when treating inmates with Diabetes. Deviations from these guidelines are permissible only on a case by case basis. When deviations are made, they must be clearly documented in the medical record along with a clear explanation of the rationale for the deviation.

PROCEDURE

1) Initial Evaluation: Refer to CD-3 Diabetes
2) General guidelines for all diabetics
   a) Setting target A1C
      i) Though 7.0 is the target for most patients, the target needs to be modified to higher level in a significant minority of patients.
      ii) Co-morbities or conditions that may indicate a need for higher target levels
         (1) Advanced age
         (2) History of CAD
         (3) Long history of DM
         (4) Medically indicated polypharmacy, i.e. patients already taking large numbers of medications
         (5) Short life expectancy
         (6) Non-compliance
         (7) Brittle DM and/or frequent hypoglycemia
      iii) Monitoring control
         (1) Check A1C
            (a) Q 3 months if control inadequate or recent changes in therapy
            (b) Q 6 months if control adequate and no recent changes in therapy
         (2) Glucose checks
            (a) Should not be used to monitor control
            (b) Not needed in patients who are not taking sulfonylurias or insulin
            (c) In type II are only useful making adjustments in recently started therapy
            (d) In stable adequately controlled patients
               (i) Do not need to be done routinely
               (ii) Should not routinely be done more then once daily
   b) Blood pressure control:
      i) Goal: BP < 130/80
      ii) Treatment
         (1) Ace inhibitor (if not tolerated an ARB)
         (2) Add thiazide diuretic if adequate control not obtained with the above
         (3) Add a beta blocker or non-dihydropyridine calcium channel blocker if inadequate control with the above
   c) Lipid control
      i) Statin therapy for all diabetic patients regardless of LDL level if the following is present:
         (1) Overt coronary artery disease
         (2) Age > 40 and one or more risk factors for CAD (other then diabetes)
      ii) Statin therapy for all others with LDL > 100 after life style therapy
      iii) Treatment goal: LDL levels

(1) < 100 for most patients
(2) < 70 maybe desirable in patients with overt or very high risk for CAD

d) Renal monitoring: GFR: Should be estimated annually using MDRD or Cockcroft-Gault formulas (as provided by reference lab). If > 60:
   i) Start ACE (if no contraindications) if not already taking
   ii) Aggressive control of BP (≤ 130/80) using ACE, and/or ARB, diuretics and if needed beta-blockers, non-dihydropyridine calcium channel blockers (DCCBs)
   iii) Consider initiating protein restriction of ≤ 0.8 gm/kg/day

3) Initial Treatment of Newly Diagnosed Type II
   a) Life style modification: All patients regardless of the stage of their diabetes should be encouraged to make/continue the following modifications
      i) Exercise: 30 to 60 minutes most days of the week
         (1) Both aerobic and resistance exercise can be beneficial
         (2) Average reductions of 0.7 % in A1C
         (3) Benefits both diabetes control and cardiovascular risk reduction
      ii) Diet:
         (1) Encourage compliance with standard diabetic diet
         (2) As little as 10 pounds of weight loss can significantly improve glucose control
         (3) Substitute water or diet sodas for regular sodas, fruit juice, or sports drinks
         (4) Avoid sugary snacks and simple carbohydrates
         (5) Increase fiber, fruit and vegetable consumption
         (6) Reduce present calorie consumption by 500 to 1000 calories per day
   b) Metformin
      i) Unless contraindicated this should be started in most new diabetes concurrent with life style modifications
      ii) Do not use if GFR < 30
      iii) Use cautiously if GFR between 30 and 60
      iv) Lowers A1C by 1.0 – 2.0 %
      v) Very little or no risk of hypoglycemia in monotherapy
      vi) Dosing
         (1) Start with 500 mg once or twice a day with meals, or 250 mg once a day if the above causes intolerable G.I. side effects
         (2) Then titrate to 2000 – 2550 mgs/day or the highest tolerated dose
            (a) If gastrointestinal side effects occur during titration reduce the dose to the previously tolerated highest tolerated level
            (b) Then try titrating up again in a later date.

4) Pharmacotherapy: for newly diagnosed and established diabetics who are not meeting their personal targets with the above treatment
   a) Metformin:
      i) Established patients who are not currently on metformin and do not have any contraindications should generally have this added to their regimen and titrated to its highest tolerated dose
      ii) Unless contraindicated metformin should generally be continued as other agents are added
   b) Sulfonylureas
      i) Generally the best second class of drugs to be added to (or replace if not tolerated) metformin
      ii) Has a fairly rapid glucose lowering effect
      iii) Lowers A1C by 1.0 – 2.0%, but tends to lose effectiveness over time
      iv) Short acting agents are preferred due to less risk of hypoglycemia
      v) Generally well tolerated but can cause hypoglycemia sometimes severe
      vi) Glipizide is the prefered DOP drug in this class

(1) It is available in immediate and extended release forms
(2) Usual starting dose is 5 mgs of immediate release qAM (2.5 mgs in the elderly)
(3) The dose can be increased by 2.5 – 5.0 mgs/day at weekly intervals
(4) Maximal hypoglycemic effect is usually archived with doses of 20 mgs/day or less
(5) Maximum daily dose is 40 mgs (very little advantage to using doses > 20 mgs/day), doses greater then 15 mgs (immediate release) should be given BID
(6) Extended release can be used if early AM or late PM glucose control is a not adequate with the immediate release form
(a) Starting dose is 5 mgs
(b) Maximum daily dose is 20 mgs

c) Insulin
i) Also a well validated second drug to be used in combination with metformin
ii) Offers some advantages over sulfonylureas and other diabetic drugs
(1) Rapid onset of action
(2) No upper limit on dose
(3) Any level of A1C can be controlled
(4) In new onset patients with very high glucose/A1C levels can be used temporarily to rapidly bring patient under control while PO drugs are started
(5) Improved lipid profile
iii) Disadvantages:
(1) Requires 1 to 4 or more injections/day
(2) Can cause frequent and/or severe hypoglycemia
(3) Weight gain is common
iv) Dosing: refer to CP XX – Insulin Dosing

d) Pioglitazone
i) Only TZD approved for use in the DOP
ii) Generally used as a third line drug or as an alternative to sulfonylurea if not tolerated
iii) Lowers A1C by 0.5 – 1.4%
iv) Advantages
(1) Improved lipid profile
(2) Potential decrease in MI risk
v) Disadvantages
(1) Fluid retention/CHF
(2) Weight gain
(3) Bone fractures
(4) Expensive

e) Other therapies
i) Drugs/drug classes
(1) GLP-1 agonists
(2) Alpha-Glucosidase inhibitors
(3) Glinide
(4) Pramlintide
(5) DPP-4 Inhibitors
ii) Advantages: There are no well proven outcome advantages over the above more established medications
iii) Disadvantages
(1) Expense
(2) Unknown long term safety
(3) Many require injection or multiple daily doses

iv) In general should only be consider when the above better validated medications can not be tolerated

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5/30/12

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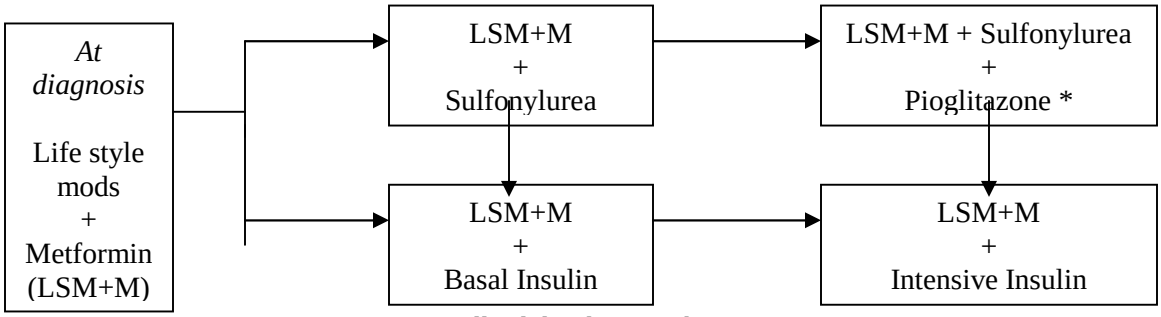
Algorithm for Metabolic Control of Type 2 Diabetes



* Less well validated approach

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