



Meds for Type 2 DM – A Patient Centered Approach

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Meds for Type 2 DM – A Patient Centered Approach



1. Discuss a patient centered approach to manage hyperglycemia.
2. State strategies to treat hyperglycemia from lifestyle to medications.
3. Discuss how the unique characteristics of patients determine the best approach to hyperglycemic management.
4. State the different approaches to glycemic control

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Management of Hyperglycemia in Type 2 Diabetes: A Patient-Centered Approach

Position Statement of the American Diabetes Association (ADA) and the European Association for the Study of Diabetes (EASD)



Diabetes Care 2012;35:1364–1379
Diabetologia 2012;55:1577–1596





ADA-EASD Position Statement: Management of Hyperglycemia in T2DM



1. Patient-Centered Approach

“...providing care that is respectful of and responsive to individual patient preferences, needs, and values - ensuring that patient values guide all clinical decisions.”

- Gauge patient’s preferred level of involvement.
- Explore, where possible, therapeutic choices.
- Utilize decision aids.
- **Shared** decision making – final decisions re: lifestyle choices ultimately lie with the patient.



Diabetes Care 2012;35:1364–1379
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ADA-EASD Position Statement: Management of Hyperglycemia in T2DM



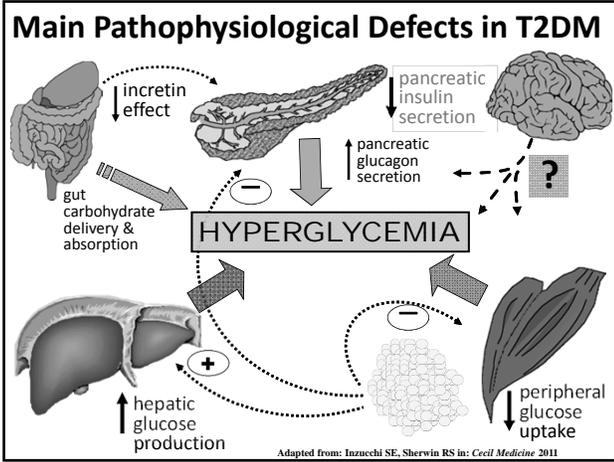
2. BACKGROUND

- **Overview of the pathogenesis of T2DM**



- Insulin secretory dysfunction
- Insulin resistance (muscle, fat, liver)
- Increased endogenous glucose production
- Deranged adipocyte biology
- Decreased incretin effect
- Increased renal glucose reabsorption

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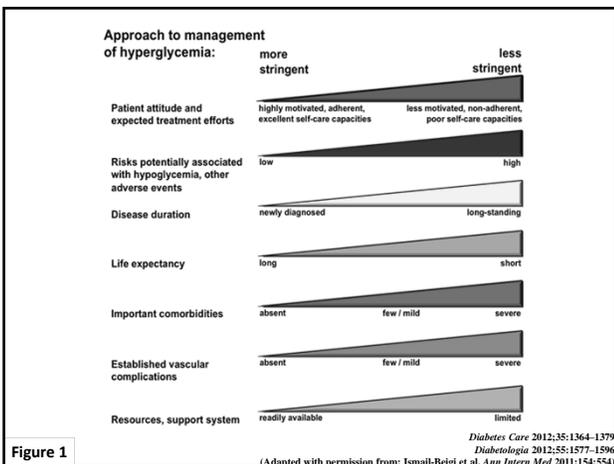
American Diabetes Association. ADA-EASD Position Statement: Management of Hyperglycemia in T2DM. EASD

3. ANTI-HYPERGLYCEMIC THERAPY

- Glycemic targets**
 - HbA1c < 7.0% (mean PG ~150-160 mg/dl [8.3-8.9 mmol/l])
 - Pre-prandial PG <130 mg/dl (7.2 mmol/l)
 - Post-prandial PG <180 mg/dl (10.0 mmol/l)
 - Individualization is key:
 - Tighter targets (6.0 - 6.5%) - younger, healthier
 - Looser targets (7.5 - 8.0%+) - older, comorbidities, hypoglycemia prone, etc.
 - Avoidance of hypoglycemia

PG = plasma glucose

*Diabetes Care 2013;35:1364-1379
Diabetologia 2012;55:1577-1596*



American Diabetes Association. ADA-EASD Position Statement: Management of Hyperglycemia in T2DM EASD

3. ANTI-HYPERGLYCEMIC THERAPY

- Therapeutic options: Lifestyle
 - Weight optimization
 - Healthy diet
 - Increased activity level



*Diabetes Care 2012;35:1364-1379
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Initial drug monotherapy	Healthy eating, weight control, increased physical activity
Efficacy (1 HbA1c)	Metformin
Hypoglycemia	high
Weight	low risk
Side effects	neutral/loss
Costs	GI / lactic acidosis
	low

At diagnosis, a highly motivated patient with a A1c near target (<7.5%) could try lifestyle for 3-6 months before starting metformin therapy.



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Fig. 2. T2DM Antihyperglycemic Therapy: General Recommendations



AAACE COMPREHENSIVE DIABETES MANAGEMENT ALGORITHM 2013

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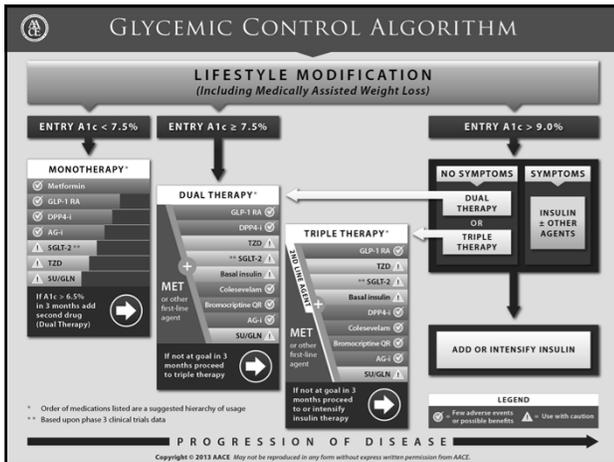
Injectables That Lower Glucose

A Diabetes PocketCard[™]
from Diabetes Education Services

Class/Main Action	Name	Dose Range	Considerations
Incretin Mimetic – Stimulates glucose dependent insulin release, slows gastric emptying, suppresses glucagon, promotes satiety leading to wt loss over time. For Type 2s only. Lowers A1c 0.5 – 1.6%.	exenatide (Byetta)	5 - 10 mcg BID (renally excreted)	Exenatide: SQ injection given within 60 minutes before breakfast and dinner. Exenatide XR: SQ injection once/week. Liraglutide: SQ injection once/day. Side effects for all: Nausea, vomiting, weight loss. Reports signs of acute pancreatitis (severe abdominal pain, vomiting), stop med. Black box liraglutide/exenatide XR: thyroid C-cell tumor warning (avoid if family history of medullary thyroid cancer, notify MD of hoarseness, throat lump). For Type 1 or 2 on insulin. Prevent hypoglycemia, decrease insulin dose when starting pramlintide. Black box warning: severe hypoglycemic risk 3 hrs post injection. Side effects: nausea, wt loss.
	exenatide (XR) extended release (Bydureon)	2mg Once a week (renally excreted)	
	liraglutide (Victoza)	0.6 mg daily for 1 wk 1.2 mg daily for 1 wk then 1.8 mg daily (max dose)	
Amylin Mimetic Slows gastric emptying, suppresses glucagon release, promotes satiety. Lowers A1c 0.5 – 1%.	pramlintide (Symlin)	Type 1: 15 - 60 mcg Type 2: 60 - 120 mcg immediately before major meals	

The information listed here are general guidelines only; please consult prescribing information for details.

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American Diabetes Association. ADA-EASD Position Statement: Management of Hyperglycemia in T2DM

3. ANTI-HYPERGLYCEMIC THERAPY

- Therapeutic options: Insulin
 - Human Neutral protamine Hagedorn (NPH)
 - Human Regular
 - Basal analogues (glargine, detemir)
 - Rapid analogues (lispro, aspart, glulisine)
 - Pre-mixed varieties

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American Diabetes Association. ADA-EASD Position Statement: Management of Hyperglycemia in T2DM EASD

4. OTHER CONSIDERATIONS



- **Weight**
 - Majority of T2DM patients overweight / obese
 - Intensive lifestyle program
 - Metformin
 - GLP-1 receptor agonists
 - ? Bariatric surgery
 - Consider LADA in lean patients

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American Diabetes Association. Bariatric Surgery EASD

- Consider on diabetes pts w/ BMI >35, esp with comorbidities
- Remission (BG normalized)
 - rates range from 40 – 95%
 - Better results with newer diabetes (more beta cell mass)
 - Due to increase incretins (gut hormones)
- Still researching long term benefits, cost effectiveness and risk



Adapted Recommendations: When Goal is to Avoid Weight Gain

Healthy eating, weight control, increased physical activity

Metformin

Efficiency (L, HbA1c)	high
Hypoglycemia	low risk
Weight	neutral/loss
Side effects	GI/ lactic acidosis
Costs	low

If needed to reach individualized HbA1c target after ~3 months, proceed to 2-drug combination (order not meant to denote any specific preference)

Two drug combinations*

Combination	Efficiency (L, HbA1c)	Hypoglycemia	Weight	Major side effect(s)	Costs
Metformin + DPP-4 inhibitor	high	low risk	neutral	none	low
Metformin + GLP-1 receptor agonist	intermediate	high	loss	GI	high
Metformin + SGLT-2 inhibitor	high	low risk	loss	UTI	high

Three drug combinations

More complex insulin strategies

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American Diabetes Association. ADA-EASD Position Statement: Management of Hyperglycemia in T2DM **EASD**

4. OTHER CONSIDERATIONS

- **Comorbidities**
 - **Coronary Disease** ----->

- > Metformin: CVD benefit (UKPDS)
 - > Avoid hypoglycemia
 - > ? Sulfonylureas may increase cardiac ischemic preconditioning
 - > ? Pioglitazone & ↓ CVD events
 - **Heart Failure**
 - **Renal disease**
 - **Liver dysfunction**
 - **Hypoglycemia**

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American Diabetes Association. ADA-EASD Position Statement: Management of Hyperglycemia in T2DM **EASD**

KEY POINTS

- Glycemic targets & BG-lowering therapies must be individualized.
- Diet, exercise, & education: foundation of any T2DM therapy program
- Unless contraindicated, metformin = optimal 1st-line drug.
- After metformin, data are limited. Combination therapy with 1-2 other oral / injectable agents is reasonable; minimize side effects.
- Ultimately, many patients will require insulin therapy alone / in combination with other agents to maintain BG control.
- All treatment decisions should be made in conjunction with the patient (focus on preferences, needs & values.)
- Comprehensive CV risk reduction - a major focus of therapy.

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