UTAH SOCIETY OF HEALTH-SYSTEM PHARMACISTS

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AACE/ACE vs ADA: The Clinical Dilemma of Conflicting Guidelines

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Disclosure

I have nothing to disclose.

I will not be discussing off-label indications.

Pharmacist Learning Objectives

At the conclusion of this activity, participants should be able to successfully:

1. **Identify 3 areas where the ADA guidelines differ from the ACE/AACE guidelines in the treatment of type 2 diabetes.**
2. **Choose the correct medication and dose to lower ASCVD risk in a patient with diabetes.**
3. **Develop a plan to initiate basal insulin in a patient with type 2 diabetes.**

Technician Learning Objectives

At the conclusion of this activity, participants should be able to successfully:

1. **Identify 3 areas where the ADA guidelines differ from the ACE/AACE guidelines in the treatment of type 2 diabetes.**
2. **Recite the general A1C goal for type 2 diabetes according to the American Diabetes Association.**
3. **List drug classes that have a high potential to cause hypoglycemia.**

American Diabetes Association

- 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)
  - http://care.diabetesjournals.org/content/35/6/1364
- Management of Hyperglycemia in Type 2 Diabetes, 2015: A Patient-Centered Approach: Update to a Position Statement of the American Diabetes Association and the European Association for the Study of Diabetes
  - http://care.diabetesjournals.org/content/38/1/140.full
- Standards of Medical Care in Diabetes—2017
  - http://care.diabetesjournals.org/content/40/Supplement_1

American Association of Clinical Endocrinologists and American College of Endocrinology (AACE/ACE)

- Consensus Statement By The American Association Of Clinical Endocrinologists And American College Of Endocrinology On The Comprehensive Type 2 Diabetes Management Algorithm – 2017 Executive Summary
  - https://www.aace.com/sites/all/files/diabetes-algorithm-executive-summary.pdf
- American Association Of Clinical Endocrinologists And American College Of Endocrinology – Clinical Practice Guidelines For Developing A Diabetes Mellitus Comprehensive Care Plan – 2015
  - https://www.aace.com/files/dm-guidelines-ccp.pdf

Patient Case

MA is a 54-year-old white male who presented to the family medicine clinic to establish care and has a chief complaint of high blood pressure. He is married and denies smoking or illicit drug use, but does acknowledge occasional alcohol use. He states that he exercises lightly 30 minutes, 4 times a week. He had previously been on verapamil, but has not taken anything for about 3 years. It has also been about 3 years since he last saw a physician. He works at a local school district and is insured. His blood pressure is 190/130 mmHg, and he is started on benazepril/amlodipine 20/5mg PO daily. He weighs 96 kg and has a BMI of 31.12. Labs are drawn for a chemistry panel, lipid panel and A1C. A referral is made to GI for a screening colonoscopy.

Patient Case Continued

Labs:

Blood glucose – 283mg/dL
A1C – 11.6%
LDL 67mg/dL TG – 279mg/dL HDL – 32mg/dL
SrCr – 0.97mg/dL

After the physician reviewed the labs, the patient was instructed to return to the clinic the next day for a diabetes consult. MA's blood pressure has decreased to 160/118 mmHg. He denies polyuria, polydipsia or polyphagia. The physician consults with you to provide the best care for the patient with his newly diagnosed diabetes.

Diagnosis of Diabetes

ADA

- FPG ≥126 mg/dL. Fasting is defined as no caloric intake for at least 8 h
- 2-h PG ≥200 mg/dL during an OGTT
- A1C ≥6.5%
- In a patient with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose ≥200 mg/dL
- FPG and OGTT should be confirmed with another test

AACE/ACE

- FPG ≥126 mg/dL
- 2-h PG ≥200 mg/dL during an OGTT
- Symptoms of hyperglycemia (e.g., polyuria, polydipsia, polyphagia) and a random (casual, nonfasting) plasma glucose concentration ≥200 mg/dL
- A1C level ≥6.5% (Not preferred)
- FPG, OGTT and A1C should be confirmed with another test

Thoughts on Diagnosis With A1C

- AACE/ACE does not recommend using A1C as the primary test of diagnosis
- A1C may not be accurate for some populations
  - Hemoglobinopathies
  - Iron deficiency
  - Hemolytic anemias
  - Thalassemias
  - Spherocytosis
  - Severe hepatic or renal disease
  - African-Americans
- A1C should not be used to diagnose Type 1 diabetes or gestational diabetes

Diagnosis of Pre-Diabetes

ADA

- Fasting Plasma Glucose between 100 and 125mg/dl
- 2-Hour-PG between 140-199mg/dl
- A1C between 5.7 and 6.4%

AACE/ACE

- Fasting Plasma Glucose between 100 and 125mg/dl
- 2-Hour-PG between 140-199mg/dl
- A1C between 5.7 and 6.4%*

** A1C should only be used for screening and confirmed by another test*

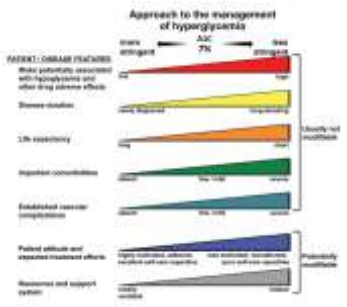
Blood Glucose Goals

ADA
- A1C<7.0%
- Fasting or preprandial glucose 80-130mg/dL
- Postprandial glucose <180mg/dL

These goals should be individualized based on the patient

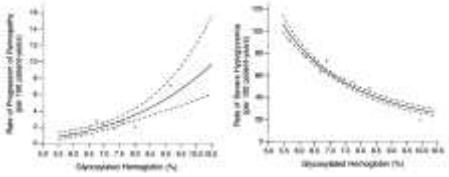
AACE/ACE
- A1c<6.5%
- Fasting or pre-prandial glucose <110mg/dL
- Post-prandial glucose <140mg/dL

Goals should be individualized – closer to normal levels for healthy patients and less stringent for those less healthy



Standards of Medical Care in Diabetes—2017 http://care.diabetesjournals.org/content/40/Supplement_1

Efficacy vs Toxicity



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ACCORD, VA DT, ADVANCE

	ACCORD	ADVANCE	VADT
N	10251	11140	1791
Duration of Diabetes	10	8	11.5
BMI	32	28	31
Initial A1C	8.1	7.2	9.4
Medication Protocol	Provider Choice	Additional drugs added to sulfonylurea vs multiple drugs without sulfonylurea	Provider choice
Weight Change (kg)	+3.5	-0.1	+7.8
Primary Outcome	Nonfatal MI, nonfatal stroke, CVD death	Micro and macrovascular outcomes	Nonfatal MI and stroke, CVD death, hospitalization for heart failure, revascularization
HR for Primary Outcome	0.90 (0.78-1.04)	0.94 (0.84-1.06)	0.88 (0.74-1.05)
HR for Mortality	1.22 (1.01-1.46)	0.93 (0.83-1.06)	1.07 (0.81-1.42)

Skyler JS, Bergenstal R, Bonow RO, et al. Intensive glycemic control and the prevention of cardiovascular events: implications of the ACCORD, ADVANCE, and VA Diabetes Trials: a position statement of the American Diabetes Association and a scientific statement of the American College of Cardiology Foundation and the American Heart Association. Diabetes Care 2009;32:187–192

Blood Glucose Goal Review

ADA tends to be more conservative while AACE/ACE is more aggressive

Attempts to get patients closer to normal A1C values can result in more hypoglycemia

There is a definite relationship between a lower A1C and lower rates of microvascular complications

ACCORD trial showed increased mortality in high cardiovascular risk patients who tried to get to a goal A1C <6%

Other trials have shown no difference in mortality between high and low A1C goals.

Patient individualization and consultation is key when setting A1C goals

Which of the following is an appropriate blood glucose goal for MA? (Technicians and Pharmacists)

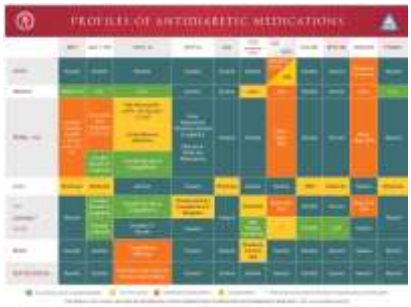
Please use your supplied audience response cards to answer.

- **A. <6.0%**
- **B. <6.5%**
- **C. <7.0%**
- **D. <7.5%**

Which of the following is an appropriate blood glucose goal for MA?

- A. <6.0%
- ***B. <6.5%***
- *C. <7.0% (Also correct according to ADA)*
- D. <7.5%

AACE/ACE would recommend an A1C goal of <6.5% and the ADA recommends <7.0% with both being adjusted based on comorbidities. This patient has just been diagnosed, has a long life expectancy, does not complain of microvascular symptoms, but does have high blood pressure. He performs light exercise and is overweight. I think there is some room for lifestyle modifications to lower the A1C significantly. He has a good support system and has access to medications and care with his insurance.



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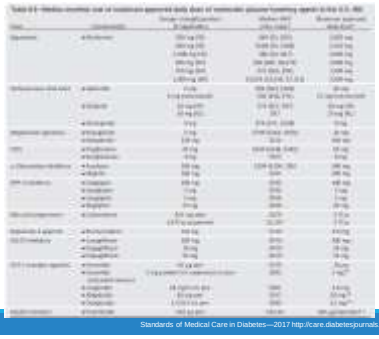

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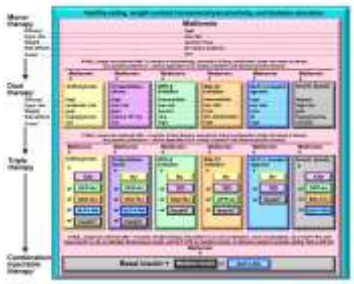

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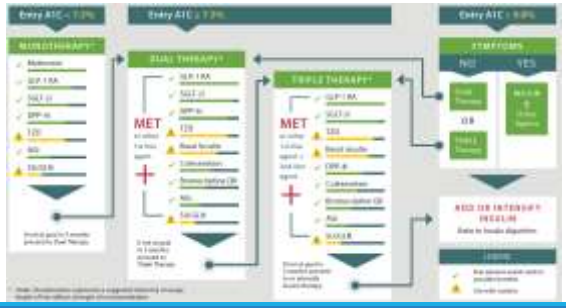

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What medication(s) would you initiate for blood glucose control for MA? (Pharmacists)

Please use your audience response cards

- **A. Insulin Glargine**
- **B. Metformin**
- **C. Metformin and liraglutide**
- **D. Metformin and insulin detemir**

What medication(s) would you initiate for blood glucose control for MA?

The ADA suggests starting with metformin alone, and then retesting the A1C in 3 months. AACE/ACE recommends dual or triple therapy. Insulin is not recommended at this time because the patient is not symptomatic.

- A. Insulin glargine
- ***B. Metformin***
- *C. Metformin and liraglutide*
- D. Metformin and insulin detemir

Macrovascular Risk Reduction - Hypertension

ADA

- Blood pressure goal - <140/90
  - <130/80 for high cardiovascular risk (albuminuria)
- Use ACE or ARB first if patient has albuminuria
- Add either a thiazide diuretic or CCB if combination therapy is needed

AACE/ACE

- Blood pressure goal - <130/80
  - <120/80 for otherwise healthy individuals if the goal can be reached with minimal side effects
- Use ACE or ARB first
- Add either a thiazide diuretic, CCB or beta-blocker if needed

Macrovascular Risk Reduction - Lipids

ADA

- Follow general ACC/AHA guidelines
- For patients with ASCVD – High intensity statin
- For patients between 40 and 75 without ASCVD but high risk – High intensity statin
- For patients less than 40 or higher than 75 – moderate or high intensity statin
- Combination therapy with fenofibrate or niacin not warranted unless triglycerides are very high (>500mg/dL)

AACE/ACE

- Lipid therapy is goal based (see next slide)
- Combination therapy is suggested for low HDL-C, unmet LDL-C goals or high triglycerides

American Association Of Clinical Endocrinologists And American College Of Endocrinology – Clinical Practice Guidelines For Developing A Diabetes Mellitus Comprehensive Care Plan – 2015 https://www.aace.com/files/dm-guidelines-ccp.pdf

Macrovascular Risk Reduction – Antiplatelet

ADA
- Daily low dose aspirin should be used for secondary prevention
- Daily low dose aspirin should be used for primary prevention in those patients at high cardiovascular risk
  - Men and women ≥ 50 years with an additional cardiovascular risk factor
- Clopidogrel can be used for aspirin allergies

AACE/ACE
- Recommended for secondary prevention
- Suggested for primary prevention for those at high risk (10 year risk >10%)

What additional medications should be initiated to help reduce macrovascular complications? (Pharmacists)

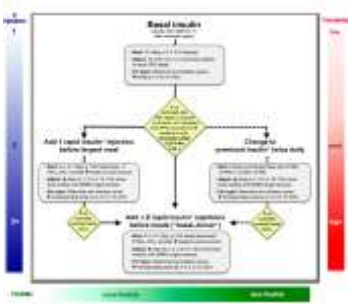
Please use the audience response cards.

- **A. Atorvastatin 40mg PO daily and Aspirin 81mg PO daily**
- **B. Simvastatin 40mg PO daily and Aspirin 81mg PO daily**
- **C. Rosuvastatin 40mg PO daily, HCTZ 12.5mg PO daily**
- **D. Atorvastatin 80mg PO daily, fenofibrate 140mg PO daily and Aspirin 81mg PO daily**

What additional medications should be initiated to help reduce macrovascular complications?

The patient's current LDL-C level is 67mg/dL. According to AACE/ACE, MA would fall under the very high risk category with a LDL-C goal of <70mg/dL. He also has low HDL-C levels and high triglycerides. The ADA suggests a statin regardless of baseline lipid levels. He would fall into the high risk category and need a high potency/intensity statin. He qualifies for aspirin therapy for primary prevention. For blood pressure, he was just started on the benazepril/amlodipine and should be given another week to see if his blood pressure normalizes with this medication.

- ***A. Atorvastatin 40mg PO daily and Aspirin 81mg PO daily***
- B. Simvastatin 40mg PO daily and Aspirin 81mg PO daily
- C. Rosuvastatin 40mg PO daily, HCTZ 12.5mg PO daily
- D. Atorvastatin 80mg, fenofibrate 140mg and Aspirin 81mg PO daily



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American Association Of Clinical Endocrinologists And American College Of Endocrinology – Clinical Practice Guidelines For Developing A Diabetes Mellitus Comprehensive Care Plan – 2015 https://www.aace.com/files/dm-guidelines-ccp.pdf

Unfortunately, MA has not reached his blood glucose goals (A1C = 8.5% taking metformin and empaglifozin) and needs to start an insulin regimen. What would you recommend? (Pharmacists)

Please use the audience response cards

- **A. Insulin glargine 30 units SQ QHS titrated twice weekly based on post prandial blood glucose values**
- **B. Insulin detemir 10 units SQ daily titrated twice weekly based on fasting blood glucose**
- **C. Insulin glargine 10 units SQ daily plus liraglutide 18 units SQ daily**
- **D. Insulin detemir 20 units SQ daily plus insulin glulisine 6 units SQ before meals**

Unfortunately, MA has not reached his blood glucose goals (A1C = 8.5% taking metformin and empaglifozin) and needs to start an insulin regimen. What would you recommend?

According to the ADA, the recommended starting dose for basal insulin is 10 units or 0.1-0.2 units/kg/day. AACE/ACE suggests a starting dose of 0.2-0.3 units/kg/day for his A1C. Both organizations suggest starting with just a basal insulin and then progressing to post prandial if needed.

- A. Insulin glargine 30 units SQ QHS titrated twice weekly based on post prandial blood glucose values
- ***B. Insulin detemir 10 units SQ daily titrated twice weekly based on fasting blood glucose***
- C. Insulin glargine 10 units SQ daily plus liraglutide 0.6 mg SQ daily titrated appropriately
- D. Insulin detemir 20 units SQ daily plus insulin glulisine 6 units SQ before meals

Nephropathy Prevention

ADA
- Yearly assessment of GFR and urinary albumin
- Start ACE-i or ARB for albumin/creatinine ratio >30 mg/g

AACE/ACE
- Same as ADA

Neuropathy Screening

ADA
- Annual 10g monofilament testing
- Annual assessment for temperature or pin-prick plus vibration testing
- Annual comprehensive foot exam
- Check feet at every visit

AACE/ACE
- Same as ADA

Retinopathy Prevention

ADA
- Initial dilated comprehensive eye exam
- If no retinopathy, and blood glucose is under control – repeat every other year
  - Those with retinopathy needs repeat assessment at least yearly

AACE/ACE
- Same as ADA

Vaccinations

ADA
- Pneumococcal polysaccharide 23 (PPSV23) once between the ages of 19 and 65
  - At age 65, give pneumococcal conjugate 13 (PCV13) once and then repeat the PPSV23 once 1 year later if at least 5 years has passed since the last PPSV23 administration
- Annual influenza
- Hepatitis B series for ages 19-59
  - Consideration for adults ≥ 60

AACE/ACE
- Same as ADA (follows CDC recommendations)

Which of the following are areas where the ADA and AACE/ACE differ in their recommendations? (Pharmacists and Technicians)

Please use your audience response cards – raise a card for each that applies.

- **A. Blood glucose goals**
- **B. Hypertension goals**
- **C. Anti-platelet recommendations**
- **D. Use of sulfonylureas**

Which of the following are areas where the ADA and AACE/ACE differ in their recommendations?

The ADA recommends a blood pressure goal of <140/90, whereas AACE/ACE suggests <130/80. For blood glucose, AACE/ACE is more aggressive with an A1C goal of <6.5% with the ADA <7%. AACE/ACE suggests avoiding sulfonylureas, whereas the ADA has them as an equal choice with other agents. Both organizations have similar recommendations for aspirin use.

- ***A. Blood glucose goals***
- ***B. Hypertension goals***
- C. Anti-platelet recommendations
- ***D. Use of sulfonylureas***

Summary

Diabetes is a complex disease state that requires individual patient adaptation to clinical recommendations

The ADA and the AACE/ACE guidelines differ in their recommendations

ADA = conservative

AACE/ACE = aggressive, prescriptive

Blood glucose control is the cornerstone of diabetes management, but does not prevent all complications associated with diabetes

Lifestyle changes, antiplatelet medications, blood pressure and lipid control are important factors for macrovascular disease prevention

Foot checks, albuminuria screening, retinopathy screening and appropriate immunizations help prevent macrovascular complications.

Red vs Blue
You decide!

http://byutvtest.byu.edu/seethegood/post/Utah-vs-BYU-broadcast-details.aspx

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