Diabetes Complications Assessment, Recognition, Prevention and Treatment

Edward Shahady, MD, FAAFP

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Edward Shahady, MD, FAAFP

Medical Director, Diabetes Master Clinician Program; Clinical Professor, University of Miami, Florida; Clinical Professor, University of Florida, Gainesville.

Dr. Shahady is a graduate of the West Virginia University School of Medicine in Morgantown and board certified in Clinical Lipidology. As medical director of the Diabetes Master Clinician Program, he visits physicians' offices and teaches them how to use an Internet-based diabetes registry and conduct group visits. The program enables population-based achievement of quality goals for diabetes, lipids, and blood pressure. More than 500 physicians and 1,000 office staff use the program in seven other states. Dr. Shahady has contributed more than 190 scientific articles and five books to the medical literature in the areas of diabetes, lipidology, the metabolic syndrome, group medical visits, sports medicine, musculoskeletal medicine, behavioral science, physician retirement, patient centered medical home, participatory teams, and the contribution of family medicine to effective health systems. He serves on the editorial boards of Consultant, Consultant for Pediatricians, and the Journal of Clinical Lipidology. He created and manages three websites to help teach primary care physicians and their office staff, Diabetes Master Clinician Program, Diabetes University, and Family Medicine Teams.

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Learning Objectives

1. Conduct appropriate screenings and create diagnostic plans for comorbidities and complications in patients who have diabetes; including provisions of clinical practice guidelines and performance measures (when appropriate).
2. Update management and prevention strategies with current evidence-based guidelines for the prevention and management of complications in patients with diabetes.
3. Utilize high-quality diabetes self-management education (DSME) to improve patient self-management, satisfaction, and glucose control, with a goal of prevention of diabetes complication.

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Audience Engagement System

Step 1 Step 2 Step 3

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Diabetes is the most difficult of all chronic diseases for both the patient and the physician!!

For the patient–Multiple medications, finger sticks, injections, frequent visits to your physician, exercise is no longer optional, food is now a potential enemy, counting carbs, **fear of (complications)** heart attacks, strokes and premature death, the unknown??—Diabetes Distress

For the physician—Multiple responsibilities, **concern about complications** conflicting guidelines, new medications, metabolic defects, pathophysiology, not enough time, confusing goals, various levels of patient literacy, coding, compensation

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Agenda

- Prevalence of Complications and Co-Morbidities
- Understanding T2 diabetes natural progression and complications
- Macrovascular complications-co-morbidities
- Diabetes drugs reduce CV events
- Post Prandial Blood Sugar and CV complications
- Microvascular complications
- Achieving quality goals through registries, planned visits (DSME), and empowered teams

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Agenda

- Prevalence of Complications and Co-Morbidities

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Prevalence of Co-Morbidities & T2 Diabetes

- Cohort of 1.3 million patients with T 2 Diabetes with at least one encounter 2014-2015-EHR review
- 98% of patients had at least one comorbid condition; 89% had at least two.
- **Hypertension (82%), obesity (78%), hyperlipidemia (77%), chronic kidney disease (24%) and cardiovascular disease (22%).**

Iglay K, et al. *Curr Med Res Opin.* 2016;doi:10.1185/03007995.2016.1168291

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Polling Question

Which of the following statements is true?

A. Cases of Type 2 diabetes are very unusual before 40 years of age
B. Diabetes Complications are rare in youth onset Type 2 diabetes
C. Both A and B are true
D. Both A and B are false

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Youth Onset T2 Diabetes Increasing

- Adolescents accounted for 4% of new cases of T2 diabetes 15 years ago
- Recent report, 45% of new cases T2 Diabetes in Adolescents
- Microvascular and Macrovascular complications more aggressive in this age group
- Complication Rate higher with younger onset T2 Diabetes

Abdulghani H et al An Inverse Relationship Between Age of Type 2 Diabetes Onset and Complication Risk and Mortality: The Impact of Youth-Onset Type 2 Diabetes. Diabetes Care 2016;39:823–829

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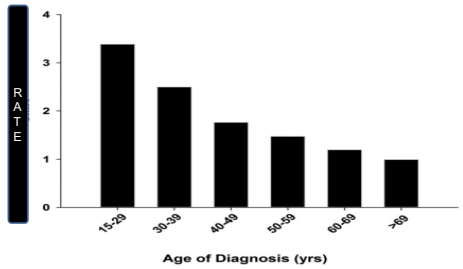
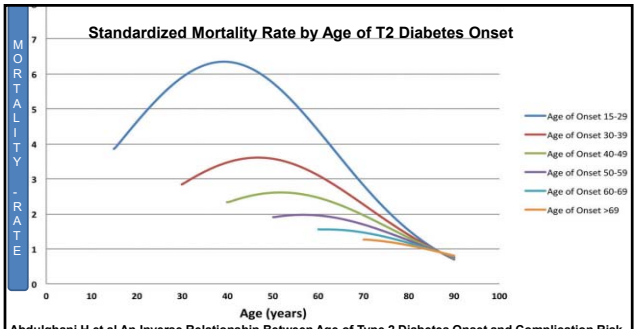
Complication Rate by Age of T2 Diabetes Onset



Abdulghani H et al An Inverse Relationship Between Age of Type 2 Diabetes Onset and Complication Risk and Mortality: The Impact of Youth-Onset Type 2 Diabetes. Diabetes Care 2016;39:823–829

Standardized Mortality Rate by Age of T2 Diabetes Onset



Abdulghani H et al An Inverse Relationship Between Age of Type 2 Diabetes Onset and Complication Risk and Mortality: The Impact of Youth-Onset Type 2 Diabetes. Diabetes Care 2016;39:823–829

Agenda

- Understanding T2 diabetes natural progression and complications

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Polling Question

Natural Progression of T2 diabetes is associated with which of the following?

A. Increased Glucagon
B. Decreased Glucagon
C. Decreased Insulin Levels
D. B & C
E. A & C

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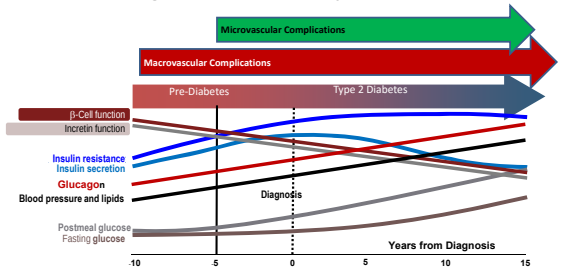
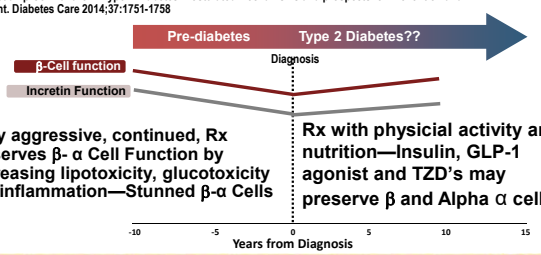
Natural Progression of Type 2 Diabetes



Nathan DM. Initial management of glycemia in type 2 diabetes mellitus *N Engl J Med*. 2002;47(17):1342-1349. *Unger RH, Glucagonocentric restructuring of diabetes: a pathophysiologic and therapeutic makeover J Clin Invest. 2012;122(1):4–12.*

β- α Cell failure in T2 Diabetes- Prevention and Treatment

Halban et al. β-Cell Failure in Type 2 Diabetes: Postulated Mechanisms and prospects for Prevention and Treatment. Diabetes Care 2014;37:1751-1758



Early aggressive, continued, Rx Preserves β- α Cell Function by decreasing lipotoxicity, glucotoxicity and inflammation—Stunned β-α Cells

Rx with physicial activity and nutrition—Insulin, GLP-1 agonist and TZD's may preserve β and Alpha α cells

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Glucagon Secretion Upregulated in Diabetes

- Glucagon a counter regulatory hormone-stimulates hepatic glucose production to avert hypoglycemia.
- Bi-Hormonal cause of Diabetes---glucagon excess and insulin deficiency
- Mechanism not clear-alpha cell dysfunction vs Beta cell dysfunction—or both?
- Paradox –post meal increase in glucagon—not decreased--

Kulina GR, Rayfield EJ, Role of Glucagon in Pathophysiology and Management of Diabetes, Endocr Pract. 2016;22:612-621 Shahady E, Glucagon and the Alpha Cell: The Next Frontier in Diabetes Treatment, Consultant 2015;55(2):74-75

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Diabetes therapy with Glucagon Effects

Therapy	Effect on Alpha Cells and Glucagon
Metformin	Inhibits glucagon signaling in hepatocytes
Insulin	Suppresses glucagon secretion from alpha cells
GLP-1 R Agonist	Decrease glucagon secretion from alpha cells
DPP-4 Inhibitors	Decrease glucagon secretion from alpha cells
SGLT-2 Inhibitors	Increases glucagon secretion from alpha cells
Glucagon Modulating Rx	Several agents in development

Kulina GR, Rayfield EJ, Role of Glucagon in Pathophysiology and Management of Diabetes, Endocr Pract. 2016;22:612-621
Shahady E, Glucagon and the Alpha Cell: The Next Frontier in Diabetes Treatment, Consultant 2015;55(2):74-75

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Agenda

- Macrovascular complications (and associated co-morbidities-Hypertension and Hyperlipidemia

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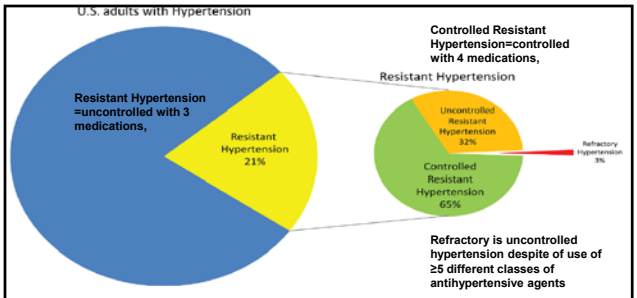

Dudenbostel T, et al Refractory Hypertension A Novel Phenotype of Antihypertensive Treatment Failure *Hypertension*. 2016;67.1085-1092

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Hypertension and Diabetes

- Hypertension is common in type 2 diabetes,
- Hypertension increases complications of diabetes
- B/P goals vary according to different guidelines
  - American Diabetes Association & JNC8 <140/90
  - American Association of Clinical Endocrinologists <130/80 –if can be done with 3 or fewer drugs
  - SPRINT study (no patients with Diabetes Included) <120/80

Williams B. Blood pressure and Diabetes: a fatal attraction. Eur Heart J. 2013;34(44):3395-3397.
Yeh JS, Bakris G, Tayler SJ, Blood Pressure Control NEJM 2015;373(22) 2180-2182, Shahady EJ. Goals and guidelines for HbA1c, LDL-C, and blood pressure in patients with diabetes: sorting out the confusion. Consultant. 2016;56(7):582-585.

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Hypertension Summary

- In T2D, blood pressure lowering has the greatest and most immediate effect on morbidity and mortality
- The recommended BP target for patients with diabetes is 140/90-130/80 mmHg
- Multiple agents are usually required to achieve target BP
- BP treatment must be continued for benefits to be maintained
- An ACE inhibitor or ARB should be included in the BP-control regimens of patients with diabetes

Handelsman YH, et al. AACE Guidelines *Endocr Pract.* 2015;21(suppl 1):1-87. Wu Z, Jin C, Vaida A, Jin W, Huang Z, Wu S, Gao X. Longitudinal patterns of blood pressure, incident cardiovascular events, and all-cause mortality in normotensive diabetic persons. Published online before print May 23, 2016,doi: 10.1161/HYPERTENSIONAHA.116.07381

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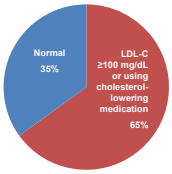
Prevalence of Hyperlipidemia in Type 2 Diabetes



CDC. National diabetes statistics report, 2014. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, 2014.

LDL Treatment Goal Diabetes

- Goal of <100 mg/dl if Glucose, HDL, Triglycerides and B/P normal
- Goal of<70-40 mg/dl if Glucose, HDL, Triglycerides and B/P abnormal
- LDL particles smaller and more of them when LDL accompanied by other abnormalities

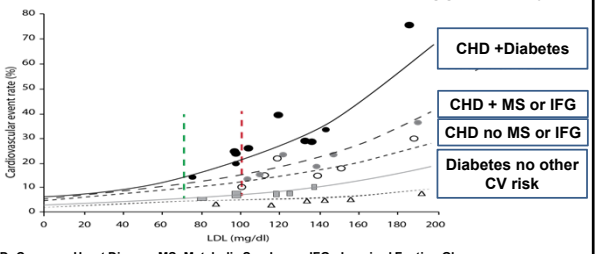
Jellinger PS, et al. Endocr Pract. 2012;18(suppl 1):1-78 Shahady EJ. Goals and guidelines for HbA1c, LDL-C, and blood pressure in patients with diabetes: sorting out the confusion. Consultant. 2016;56(7):582-585.

Statin use in Diabetic Patients Before First Myocardial Infarction

- The risk for first myocardial infarction (MI) in people with diabetes is high—risk reducing statin therapy is recommended for all patients with diabetes 40 years of age or older
- 1622 patients with diabetes and first MI---**majority (53 %) not treated with statins before MI.** These diabetic patients had at least one marker of very high cardiovascular risk, including hypertension (71 %), current smoking (37 %), and nephropathy (33 %).

Mortensen et al. Statin use and cardiovascular risk factors in diabetic patients developing a first myocardial infarction. Cardiovasc Diabetol 2016;15:(81)1-8

Rx Patients With the >> Risk the Most Aggressively



CHD=Coronary Heart Disease MS=Metabolic Syndrome, IFG =Impaired Fasting Glucose
Robinson JG, et al. *Am J Cardiol.* 2006;98:1405-1408. Jacobson TA, J Clin Lipidol. 2015;9(2):129-169.

Polling Question

According to National Studies how many patients with diabetes reach ADA goals for A1C, LDL and B/P at the same time?

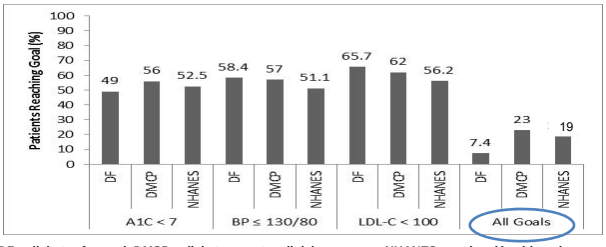
A. 53%
B. 75%
C. 19%
D. 12%

The Prevalence of Meeting A1C, Blood Pressure, and LDL Goals Among People With Diabetes

- 4,926 adults aged ≥20 years with self-reported diabetes who completed the interview and physical examination NHANES
  - 52.5% achieved A1C <7.0%,
  - 51.1% achieved BP <130/80, 70% if B/P goal <140/90,
  - 56.2% achieved LDL <100 mg/dL, and
  - 19% achieved all three goals simultaneously
- Pooled analysis from three large US prospective studies demonstrated 60% reduction in CVD risks when all three goals met simultaneously

Casagrande S. S. et alThe Prevalence of Meeting A1C, Blood Pressure, and LDL Goals Among People With Diabetes, 1988–2010. Diabetes Care 2013;36:2271-2279 Wong ND et al, Pooled project of Atherosclerosis risk in Communities study, Multi-Ethnic Study of Atherosclerosis and Jackson Heart Study. Diabetes Care 2016;39:668-676

Patients Reaching All Three Goals for Diabetes at the Same Time



DF = diabetes forward; DMCP = diabetes master clinician program NHANES = national health and nutrition examination survey.
Shahady E, et al. ADA Annual Meeting. Poster Session. June 2014.

Polling Question

Which of the following drugs is associated with a decrease in CV events

A. Glipizide (Glucotrol)
B. Liraglutide (Victoza)
C. Empagliflozin (Jardiance)
D. B and C
E. Sitagliptin (Januvia)
F. B and E

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Liraglutide reduces Cardiovascular Events

- Liraglutide (Victoza) reduces the risk of cardiovascular (CV) death by 22%, cuts the risk of death from any cause by 15%, and reduces major CV events by 13%,
- Mechanism of action--Liraglutide reduces triglyceride, LDL, B/P and body weight in addition to glucose lowering
- May be true for other GLP-1 RA

Marso SP, Daniels GH, Brown-Frandsen K, et al. Liraglutide and cardiovascular outcomes in type 2 diabetes [published online June 13, 2016]. N Engl J Med. 2016; doi: 10.1056/NEJMoa603827 -

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SGLT 2 Inhibitor Reduces CV Events

- The cardiovascular safety trial EMPA-REG found that Empagliflozin (Jardiance), a sodium glucose co-transporter 2 (SGLT-2) inhibitor reduced risk of
  - **cardiovascular mortality 38%**
  - **heart failure hospitalization 35%**
  - **death from any cause 32%**
- Mechanism of action-- increased urinary loss of Na and Glucose--leads to decrease in B/P and weight—also produces hyperketonemia that may improve heart work efficiency
- May be true for other SGLT 2 I

Sattar N et al, SGLT2 Inhibition and Cardiovascular Events: Why Did EMPA-REG Outcomes Surprise and What Were the Likely Mechanisms? Diabetologia 2016 Apr 25;[EPub Ahead of Print],

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SGLT 2 I and Ketoacidosis (euglycemic)

- Rare problem but reported more common in Type 1 and LADA (Latent Autoimmune Diabetes in Adults)-
- In Type 2 associated with Metabolic Stress—prolonged starvation (surgery), extensive exercise, sepsis, alcohol
- Prevent--withhold 24 hrs before surgery-stop with other metabolic stress—Don't use in T 1 and LADA
- Think LADA (next slide)

Handelsman Y et al AACE ACE Position Statement on Association of SGLT-2 Inhibitors and Diabetic Ketoacidosis Endocr Pract. 2016;22(6):753-762

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Latent Autoimmune Diabetes in Adults

Table. Primary Features of Type 1 Diabetes, Type 2 Diabetes, and LADA in Adults

	Type 1 Diabetes	Type 2 Diabetes	LADA
Age at diagnosis	Most commonly in childhood	Most commonly in adults	Usually age ≥ 30
Presence of insulin resistance	No	Yes	Maybe
Time to requiring insulin	At onset	Many years	Greater than 6 months, less than 6 years
Presence of auto-antibodies	Yes	No	Yes
Insulin level at diagnosis	Undetectable or extremely low	Very high	Low **C-Peptide Levels**

Kilpatrick R, Carmichael K , Accessed on line at http://www.consultant360.com/articles/how-latent-autoimmune-diabetes-adults-best-diagnosed-and-treated July 2015

Agenda

- Post Prandial Blood Sugar and CV complications

Post Prandial Glucose Predicts CV Events

- Several studies—DECODE, Framingham Offspring and San Luigi Gonzaga Diabetes Study demonstrated that elevated 2 hour PP glucose better predictor of CV events
- Basal Insulin improves Fasting Blood Sugar
- When PP glucose increased adding a GLP-1 receptor Agonists may be a better choice than bolus insulin— less hypoglycemia, no weight gain, less complex regimen so better adherence by patients-future combo of basal insulin/GLP1 in same pen

Arch Intern Med 2001; 161:397–405, Diabetes Care 2002;25: 1845–1850, Diabetes Care 2011;34:2237–2243, Clinical Diabetes 2015;33:73-75, Diabetes Care 2016;39:S52-S59

Polling Question

Complementary-similar actions of Basal Insulin and GLP1 RA include which of the following?

A. Hypoglycemia
B. Increased Body Weight
C. Decreased Hepatic Glucose Production
D. Decreased Gastric Emptying

GLP 1 RA Basal Insulin Complementary Features

	Basal Insulin	GLP-1 Receptor Agonists
Primary Effects	↓ Fasting Glucose	↓ Post Prandial glucose excursions and fasting glucose
Mechanisms	↓ Hepatic Glucose Production	↓ Hepatic Glucose Production
	↓ Glucagon Secretion	↓ Glucagon Secretion
	↑ Non Glucose dependent Insulin-↑ **Hypoglycemia**	↑ Glucose dependent Insulin ↓ **Hypoglycemia**
		↓ Gastric Emptying
		↑ Satiety and ↓ Food Intake
Effect on Weight	↑ **Body Weight**	↓ **Body Weight**

Balena R et al, Diabetes Obes Metab-2013;15:485-502

Agenda

- Microvascular complications-Neuropathy-Retinopathy-Nephropathy

Screening Questions for Peripheral Neuropathy

Are your feet numb • Burning pain • Feet sensitive to the touch • Able to sense feet when walking • Can you tell hot from cold water •

Symptoms worse at night • Do legs hurt when you walk • Prickling feeling • Muscle cramp • Bed covers hurt your skin • Does skin crack open •

Accessed on line May 24 2016
www.diabeticmctoday.com/HtmlPages/DMC1004/PDF%20FILES/dmc1004_Neuro%20Lavery.pdf

Loss of Protective Sensation in Feet

- Loss of protective sensation (LOPS) renders patients unable to sense pain and or damage to their feet.
- Estimated that 50 % of patients with Diabetes have LOPS
- Data suggest that diabetic foot adequately evaluated only 20% of the time in primary care
- Reasons for not doing the exam include time, and monofilaments not available

Rayman G et al. The Ipswich Touch Test: a simple and novel method to identify inpatients with diabetes at risk of foot ulceration. Diabetes Care. 2011;34:1517-1518. Miller JD et al How to do a 3-minute diabetic foot exam J of Family Practice 2014;63:646-656

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Ipswich touch test

MA or clinician Instructs patient to close eyes while lightly resting finger on each of the patient's first, third, and fifth toes for 1 to 2 seconds. Asks if patient if they felt something.

Head to head trial was as good as monofilament and vibratory tests

Rayman G et al. The Ipswich Touch Test: a simple and novel method to identify inpatients with diabetes at risk of foot ulceration. Diabetes Care. 2011;34:1517-1518. Miller JD et al How to do a 3-minute diabetic foot exam J of Family Practice 2014;63:646-656

Association of blood glucose control and lipids with Retinopathy

- Fundus photographs at baseline and 5 years later
- In the intensively treated group odds of progression of retinopathy **reduced by 40%** if LDL ↓ 40mg/dl, Trig ↓ 60mg/dl and HDL ↑ 3-5 MG/DL
- When glucose is lowered the LDL particle size is increased and particle numbers are decreased—so fewer atherogenic particles
- Retinopathy decreased with lower glucose and lipids

Azad N et al Association of Blood glucose control and Lipids with Diabetic Retinopathy in the Veterans Affairs Trial (VADT) Diabetes Care. 2016;39:816-822 .

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Reduction of CKD with Intensive control

- For new onset Diabetes studies EDIC (T1) and UKPDS (T2) reduced risk of developing renal impairment by 50% after a median follow-up of 22 years-Legacy effect and Metabolic Memory
- For later onset diabetes ADVANCE ON Study—demonstrated similar reduction in progression to CKD
- Common Theme—treat early in disease process-when disease stage is 1 or 2—legacy effect

Wong MG et al, Long-term Benefits of Intensive Glucose Control for Preventing End-Stage Kidney Disease: ADVANCE-ON Diabetes Care 2016;39:694–700

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Agenda

- Achieving quality goals through planned visits (DSME), registries, and empowered teams

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Planned Visit

- Develop a Diabetes plan (list) with your team and seek patient agreement—allow patient to change goals to what they think they can achieve
- Goals for A1C, LDL, B/P and all other quality indicators
- Place all goals in writing and give patient a copy—tell them all future visits will be to review goals—achievement and changes
- Medical Assistant/Nurse first one to see them and review the goals at each visit—protocol developed for MA to initiate some of the plans for goal achievement

Shahady E, Disease Registries and Teamwork-Keys to a patient centered medical home for diabetes Practical Diabetology 2010;29:20-25

	Goal	Sep 2016	Feb 2016	Nov 2015	Mar 2015	Oct 2014
Weight	Less than 140/80	190	188	188	185	198
BP		138/90	140/68	140/80	139/85	123/77
Tests						
HbA1c (Sugar for 3 months)	Less than 7	7.5	7.1	8.3	6.6	7.1
LDL (Lousy or bad cholesterol)	Less than 100 Best if 70	125	123	145	110	133
HDL (Happy or good cholesterol)	Greater than 40	43	45	38	46	39
Triglycerides (another bad fatty substance)	Less than 150	166	278	144	139	133
Medication						
Aspirin or Anti-coagulant (to prevent heart attacks)	Take daily	Yes	Yes	Yes	Yes	Yes

Important Yearly Activities	Goal	Status	Next Test Due	Most Recent Test
Eye Check (to prevent blindness)	1 time a year	OVERDUE	3/29/2016	3/30/2015
Foot Check (to check for numbness and sores)	1 time a year	Completed	9/21/2017	9/21/2016
Urine Micro Albumin (to check for kidney failure)	1 time a year	Completed	9/21/2017	9/21/2016
Flu Shot (to prevent flu)	1 time a year	Completed	2/24/2017	2/25/2016

Special Vaccine	Goal	Status
Pneumovax (to prevent a special pneumonia: given once in a lifetime - twice if first was given before age 65)	2nd	1st Shot Completed 2nd Shot Completed

Shahady E. Practical Diabetology. 2010;29:20-25.

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Shahady E. Practical Diabetology. 2010;29:20-25.

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Shahady E. Practical Diabetology. 2010;29:20-25.

Planned Visit FMX

Diabetes Related Activities Empowered Teams

- Delegate tasks that do not require a Physician
- Certain tasks should belong to the Nurse or Medical Assistant---Immunizations, Urine albumin to creatinine ratio—Empower them to be more than a medical waitress
- Empower patients with key words and useful patient handouts—planned visit sheets and patient portals

Shahady E. http://www.jopm.org/evidence/case-studies/2011/04/04/creating-a-participatory-office-practice-for-diabetes-care/. Accessed , 2/10/2015.

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Diabetes Population Based Activities Empowered Teams

- Review as a team-- data from the registry that identifies High Risk Patients—(those not at evidence based goals for A1C, LDL, BP)
- Develop Team solutions for gaps identified in the Population Reports-
- Clinician facilitates the team and assures that All team members provide suggestions-anticipate that staff have more valuable solutions than the clinicians.

Shahady E. http://www.jopm.org/evidence/case-studies/2011/04/04/creating-a-participatory-office-practice-for-diabetes-care/. Accessed , 2/10/2015.

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Guidelines Standards?
What is recommended

Registry?
What we actually do

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Impact of Team Care, 8-Month Period in 140 Patients

EyeCheck	Once a yr	2 %	59 %
FootCheck	Once a yr	10 %	82 %
HbA1c<		7.8	7.4
Total Chol		189	184
LDL		112	106
HDL	(M: >40 F: >50)	43	45
Non-HDL	<100	146	139
Triglycerides	<150	175	166
U Micro Alb	Once a yr	6 %	63 %
Pneumovax	Once	32 %	76 %
FluShot	Once a yr	1 %	66 %
Daily ASA	100%	45 %	65 %

1. Sat down as a team and discussed gap reports; created Team decisions
2. Emails, phone calls (4 a day)
3. Improved use of patient report cards
4. Protocols developed for MA to use for foot exam, microalbumin and Immunizations

Shahady E, Personal Experience Diabetes Master Clinician Program

Practice Recommendations

- Be aware of Incidence of Diabetes Complications and Co-Morbidities especially in Youth onset T2 Diabetes
- Understand T2 diabetes natural progression
- Prevent Macrovascular complications
- Know which diabetes drugs reduce CV events
- Prevent Microvascular complications
- Use diabetes registries, planned visits, and empowered teams to reach quality goals

FMX

Post-Polling Question

Which of the following statements is true?

A. Cases of Type 2 diabetes are very unusual before 40 years of age
B. Diabetes Complications are rare in youth onset Type 2 diabetes
C. Both A and B are true
D. Both A and B are false

FMX

Post-Polling Question

Natural Progression of T2 diabetes is associated with which of the following?

A. Increased Glucagon
B. Decreased Glucagon
C. Decreased Insulin Levels
D. B & C
E. A & C

FMX

Post-Polling Question

According to National Studies how many patients with diabetes reach ADA goals for A1C, LDL and B/P at the same time?

A. 53%
B. 75%
C. 19%
D. 12%

FMX

Post-Polling Question

Which of the following drugs is associated with a decrease in CV events

A. Glipizide (Glucotrol)
B. Liraglutide (Victoza)
C. Empagliflozin (Jardiance)
D. B and C
E. Sitagliptin (Januvia)
F. B and E

FMX

Post-Polling Question

Complementary-similar actions of Basal Insulin and GLP1 RA include which of the following?

A. Hypoglycemia
B. Increased Body Weight
C. Decreased Hepatic Glucose Production
D. Decreased Gastric Emptying

Questions

Contact information

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Web Sites
www.diabetesmasterclinician.org
www.diabetesuniversitydmcp.com
www.familymedicineteams.org

Billing & Coding

When services performed in conjunction with:

Office Visit 992xx *
Nutritional Therapy 97802-97804
*Time-based selection documentation criteria:
- Face-to-face time
- greater than 50% spent counseling/coordinating care

G0108-G0109 Diabetes Self Management Training (DSMT) (Medicare-based)

Billing & Coding (Continued)

Additional tests to confirm or monitor:

99490	**Chronic Care Management-20 minutes monthly**
81003	Urinalysis (dipstick)
83036	Hemoglobin; glycosylated (A1C)
82948	Glucose, blood, reagent strip
82951	Glucose, tolerance test (GTT), 3 specimens
80061	Lipids panel
	82465 Cholesterol
	83718 HDL
	84478 Triglycerides

Associated Session

- Diabetes Complications Assessment, Recognition, Prevention and Treatment: Workshop

Interested in More CME on this topic?
aafp.org/fmx-endocrine

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