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Diabetes Medicines

Introduction on Chronic Kidney Disease

- Certain common health conditions can damage the kidneys permanently. For example, high blood pressure, diabetes, and related conditions can damage the kidneys.¹
- Some people call damaged kidneys “weak kidneys.” Doctors call damaged kidneys *chronic kidney disease*.
- Chronic kidney disease can be hard to recognize because there are no clear signs or symptoms in the early stages.
- Chronic kidney disease can range from mild to severe.
- We can prevent mild chronic kidney disease from getting worse by protecting the kidneys from further damage.
- Certain medicines can help protect people with chronic kidney disease and their kidneys.
- Chronic kidney disease increases a person’s chance of having a heart attack or stroke.²
- Chronic kidney disease increases a person’s chance of needing dialysis or a kidney transplant.²

Diabetes and Chronic Kidney Disease

- Diabetes is one of the leading causes of chronic kidney disease and kidney failure in the United States.
- Poor control of diabetes increases the sugar level in the blood and the chance that chronic kidney disease will get worse.
- Diabetes can damage the kidneys when high blood sugars hurt the kidneys’ blood vessels and other cells.
- Controlling your diabetes is a very important step you can take to protect your kidneys.
- The A1C test is a test that shows the average blood sugar level over the last 3 months. Lowering your A1C can help you to stay healthy.

Diabetes Medicines^{4,5}

- Some people with type 2 diabetes can manage their disease by making healthy food choices and being more physically active.



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- Many people with type 2 diabetes also need diabetes medicines. These medicines may include diabetes pills or medicines you inject under your skin, such as insulin.
- You may need more than one diabetes medicine to control your blood glucose.
- Even if you do not take insulin, you may need it at special times, such as during pregnancy or if you are in the hospital.

Names of Common Diabetes Medicines^{4,5}

There are different kinds of diabetes medicines your doctor may prescribe to control your blood sugar:

Oral Medicines

Biguanides

- Metformin (Glucophage[®], Fortamet[®], Glumetza[®])

Sulfonylureas

- Chlorpropamide (Diabinese[®])
- Glimepiride (Amaryl[®])
- Glipizide (Glucotrol[®])
- Glyburide (Glynase[®], DiaBeta[®], Glycron[®])
- Tolazamide (Tolinase[®])
- Tolbutamide (Orinase[®])

Thiazolidinediones

- Pioglitazone (Actos[®])
- Rosiglitazone (Avandia[®])

DPP-4 Inhibitors (Gliptins)

- Alogliptin (Nesina[®])
- Linagliptin (Tradjenta[®])
- Saxagliptin (Onglyza[®])
- Sitagliptin (Januvia[®])

SGLT-2 Inhibitors (Giflozins)



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- Dapagliflozin (Farxiga®)
- Canagliflozin (Invokana®)
- Empagliflozin (Jardiance®)

Glinides

- Repaglinide (Prandin®)
- Nateglinide (Starlix®)

Alpha Glucosidase Inhibitors

- Acarbose
- Miglitol

Injectable Medicines

Types of Insulin

1. Rapid Acting

- Lispro (Humalog® or Lispro-PFC®)
- Aspart (NovoLOG® or NovoLOG FlexPen® or NovoLOG PenFill®)
- Glulisine (Apidra®)

2. Short Acting

- Regular (NovoLIN R®, HumuLIN R®, HumuLIN R U-100®)

3. Intermediate Acting

- NPH (NovoLIN N®, HumuLIN N®)

4. Long Acting

- Glargine (Lantus®, Lantus SoloStar®, Toujeo®, Basaglar®)
- Degludec (Tresiba®)
- Detemir (Levemir®, Levemir FlexPen®, Levemir FlexTouch®)

5. Premixed

- 70% insulin degludec/30% insulin aspart (Ryzodeg 70/30®)



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- 75% lispro protamine suspension/25% lispro solution (Humalog Mix 75/25®)
- 50% lispro protamine suspension/50% lispro solution (Humalog Mix 50/50®)
- 70% aspart protamine suspension/30% aspart solution (NovoLOG Mix 70/30®, NovoLOG Mix 70/30 FlexPen®)
- 70% NPH/30% regular (NovoLIN 70/30®, HumuLIN 70/30®)

GLP agonists

- Albiglutide (Tanzeum®)
- Dulaglutide (Trulicity®)
- Exenatide (Byetta®)
- Liraglutide (Victoza®)
- Lixisenatide (Adlyxin®)

Potential Side Effects of Diabetes Medicines

- Side effects can be different for different kinds of diabetes medicines.
- Most people do not experience side effects when they take medicines for diabetes.
- Doctors can describe potential side effects of diabetes medicines to their patients.

Medical References That Your Doctor Might Want to Read

1. Centers for Disease Control and Prevention (CDC). Prevalence of chronic kidney disease and associated risk factors--United States, 1999-2004. MMWR Morb Mortal Wkly Rep. 2007 Mar 2;56(8):161-5.2.
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3. Insulin, Medicines & Other Diabetes Treatments. [<https://www.niddk.nih.gov/health-information/diabetes/overview/insulin-medicines-treatments>]
4. Nathan DM, Buse JB, Davidson MB, Ferrannini E, Holman RR, Sherwin R, et al. Medical Management of Hyperglycemia in Type 2 Diabetes: A Consensus Algorithm for the Initiation and Adjustment of Therapy. A consensus statement of the American Diabetes



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Information Provided as Part of a UCSF Study:

Care For Your Kidneys

<http://ckdstudy.ucsf.edu/diabetes-medicines>

Principal Investigator:

Veronica Yank, MD

veronica.yank@ucsf.edu

(415)476-9654