# A Sweet Refreshment: Diabetes

The sun rises over the San Joaquin Valley, California, and today is March, 23, 2020. We are excited to announce our new group of residents [drum roll] Daniela A., Daniela V., Valerie, Namdeep, Anabel, Ariana, Yosbel, and Ikenna. Welcome to the club, doctors! This is the beginning of the most exciting chapter in your medical career. We are so thrilled to have you!

COVID 19 has changed the way we train as residents, the way we live, socialize and interact with each other. On Thursday March 19, 2020, the Governor of California, Gavin Newsome, issued a statewide “stay at home” order to protect the health and wellbeing of our great people and to halt the spread of this devastating disease.

The World Health Organization warned us about the acceleration of COVID 19. It took 67 days from the first reported case to reach the first 100,000 cases, it then took 11 days for the second 100,000 cases, and just 4 days for the third 100,000 cases(1).

These days our clinics are more quiet than usual with most visits as phone encounters, we get a glimpse of what telemedicine is all about. Our didactics are canceled, and instead we are on self-quarantine and becoming master home test-takers. Our inpatient team is working hard to care for our patients and help prevent the spread of disease.

Some of us have found a new love for all indoor cooking, yoga, dancing and being quarantined.

Welcome to Rio Bravo qWeek, the podcast of the Rio Bravo Family Medicine Residency Program, recorded weekly from Bakersfield, California, the land where growing is happening everywhere.

The Rio Bravo Family Medicine Residency Program trains residents and students to prevent illnesses and bring health and hope to our community. Our mission: To Seek, Teach and Serve.

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"I know that I know nothing" (Socrates)

Today our guest is Greg Fernandez. He is on his last months of residency training. He is on his third year! He is famous for his grilling skills. Welcome, Greg!

As you know we have 5 questions in our podcast. Let’s start with question number one.

1. Who are you?

Hello my name is Dr. Gregory Fernandez, I was born and raised in Santa Fe, New Mexico, did my undergrad University of New Mexico in Biochemistry. Then, attended Medical School at the Medical School in Guadalajara, Mexico. Now I’m a 3rd year resident in Bakersfield.

1. What did you learn this week?

What I learned this week and would like to share with you, is the recommendations for diabetic management.

The topics Including:

1.  New recommendations for A1c screening.

2.  New recommendations for lipid management and screening.

3.  New guidelines for microalbumin screening

4.  New recommendations for protein intake in patients with CKD

5.  Recommendations of ACE and ARB's for primary prevention of diabetic kidney disease.

6.  New exercise guidelines

**Pathophysiology of diabetes**

Pathophysiology of type 2 diabetes: Diabetes is multisystemic. The key management of type 2 diabetes is to restore and sustain beta cell function. The more irreversible the beta cell function becomes, the more resistant the patient becomes to treatment and the more likely patient will require insulin. Our role as physicians, is early intervention to preserve beta cell function. Once damage has been done to the beta cell, this damage can become irreversible and is the reason early intervention is key. If we think of the beta cell function in terms of an ejection fraction and the ability of the beta cell to secrete insulin. As the ejection fraction of the cell decreases to about 25%, our patients can become more insulin resistant.

For example: If our patients HbgA1c continues to not be at goal despite optimizing diabetic medications.  We often blame our patients for diet and noncompliance.  However, this patient might be insulin resistant secondary to irreversible destruction of beta cell function. Obtaining C-peptide and HOMA score, might be the next step along with consideration of starting insulin

**A1C screening recommendations**

A1c has now been approved for diagnosis of diabetes.   However, hemoglobin A1c does have his limitations, including: Hemoglobinopathy such as, pregnancy, sickle cell anemia, hemodialysis, hemolysis, and transfusions- which can all alter hemoglobin A1c levels.

Hemoglobin A1c is part of the hemoglobin family and things that can alter hemoglobin levels can also alter hemoglobin A1c levels. It is acceptable to measure A1c bi- annually (every 6 months), if patient is meeting treatment goals or glycemic control is stable. Another words, I would follow-up with this patient for 6 months. However, if patient is not meeting treatment goals or if I change medications during this visit, I should follow-up with patient in 3 months.  It would then be appropriate to reorder hemoglobin A1c during that visit. Once the patient is diagnosed with diabetes it would never be appropriate to follow-up with patient in 1 year. I would either follow-up with patient in 6 months if at goal and/or no change in medication regiment or 3 months:  If diabetes is not controlled and/or change in medication regimen, or follow-up would also be appropriate earlier if concerns.

**Lipid management in Diabetes**

Always order lipid panel at time of diagnosis of diabetes. If no previous diagnosis, can order lipid panel every 3 to 5 years. Otherwise healthy individuals with normal BMI's: Would be screened according to gender. Men screened at age 35 and women at age 45. However, if previous diagnosis can order lipid panel yearly. If initiating treatment and/or changing statin therapy, it is appropriate to order lipid panel every 3 months.

When determining moderate versus high intensity statins, this in part, can be determined by the atherosclerotic cardiovascular disease score (ACC/AHA ASCVD Risk score):  If the 10-year risk of atherosclerotic cardiovascular disease risk is greater  than 7.5% and age between 40 and 75, this patient would warrant a high dose statin. For example: Atorvastatin of 40mg or 80mg is considered to be a high dose statin.

People between 40-75 years were chosen to measure the need of high-dose statin based on ASCVD score because this was the mean age of the study population. This does not mean that patients younger than 40 or older than 75 years of age do not benefit from statins. However, despite age, it is appropriate to dose statins based on tolerability. Usually, patients over age 75 do not tolerate high-dose statins secondary to myalgia. In these cases moderate dose statins are acceptable.  For that matter, it is always important to dose statins as maximally tolerated, when required.

Other instances when high dose statin therapy is required: When LDL levels greater than 190 mg/dL at any age, and history of stroke or heart attack. However, if diabetic without a 10-year risk of atherosclerotic cardiovascular disease < 7.5% and between the age of 40 and 75: It would be appropriate to use a moderate intensity statin. With all statin therapy, lifestyle modifications are also important.

**ACE or ARB's for primary prevention of diabetic kidney disease**

It is not recommended to start an ACE/ARB inhibitor, if patient is diabetic with normal blood pressure or without microalbuminuria. It is appropriate to start a diabetic patient with either elevated blood pressure or microalbuminuria or the combination of the two. ACE or ARB inhibitors are the medication of choice in these situations.

**Exercise guidelines**

Current exercise guidelines recommend a minimum of 150-300 minutes/week or 30 minutes/ 5 days/week of moderate exercise activity. Healthy weight loss is to lose 7% of current weight within 6 months or at a pace of 1 to 2 pounds per week. This translates into decreasing calorie intake by about 500 -1,000 kcal/day.  Which is estimated to be about 1 portion of food per meal.

Did you know that sitting is now the new smoking? We spend about 75 to 90% of our day sitting either at a computer, at a desk, while driving, eating, charting, or watching TV.  It is important for us as Providers to titrate exercise- to not induce harm to our patients. If we take a patient who lives a sedentary life style and start exercise, we can actually induce harm to them causing a stroke or heart attack.

The rule of thumb for titrating exercise. There are 3 basic types of exercise intensity: *Low, moderate, and high.*

If your in low intensity exercise: You should still be able to talk and sing.

If you are in moderate intensity exercise: You would most likely be able to talk but not sing.

If you are in high intensity exercise: You would most likely not be able to talk or sing.

The good part of exercise is its addictive! Exercise releases neurotroponins, including, norepinephrine, dopamine, and serotonin. Serotonin increases motivation and helps with depression, Norepinephrine increases memory and attention, and Dopamine well that just makes people crazy.

It is important for providers to put on her coaching hats instead of our dictator hats when discussing exercise. We often request patients to walk or to run, but what if our patients enjoy hula hooping or walking their dog. We often think of exercise as an individualized and self-centered activity. What if we could incorporate family time? Grandmothers playing with her grandchildren, or married couples bounding with their children. Encouraging healthy families.

 Does it really matter what activities we're doing? Or is it more important the act of activity? Studies have shown if you encourage patients to do exercise they enjoy, this increases compliance.

1. Why is this knowledge important for you and your patients?

The reason this knowledge is important is to better manage our patients with Type 2 diabetes. Diabetes is very prevalent in our community.

1. **How did you get this knowledge?**

The information that shared with you was obtained by The Diabetic Update 2019 Conference, in which, I attended at Harvard University, in Boston Massachusetts.

1. **Where did this knowledge come from?**

Summary of slide shows and notes from multiple speakers at the Diabetes Update 2019, May 20-22, 2019, Harvard Medical School, Boston, Massachusetts, United States.

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**Speaking Medical**by Lisa Manzanares

*Transient lingual papillitis*

The medical word of the day is *transient lingual papillitis*.  *Transient lingual papillitis* is a common, short-term, painful inflammatory condition affecting one or several fungiform papillae on the tongue.  The condition became known as “lie bumps” after the myth that they were caused by telling a lie.

They are actually caused by local injury or aggravation to the tongue.  This can be in the form of hot or cold foods, spicy foods, acidic foods, too much sugar, inflammation ad stress, burning/biting injuries, GERD, even viruses.

The word “transient” suggests that the condition only appears for a short period of time, hours to days, and resolves by itself without any treatment.  While it’s common, this condition often goes undiagnosed.  There are no treatments that have been proven effective.  By the time you are in so much discomfort you want to do something about it, the *transient lingual papillitis* has probably already gone away.

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**Espanish Por Favor** (Spanish Word of the Day)
by Manuel Tu

The Spanish word for today is *SOPLO*. *Soplo* means “murmur.” Sometimes patients will come to the clinic that previous provider like a doctor or a nurse told them they have a heart murmur during a routine exam. Pt will say something like this, “Doctor, yo tengo un soplo.”

A *soplo* is an extra sound that doctors or nurses hear when they listen to the heart with a stethoscope. *Soplo* is the direct result of blood flow turbulence and consequently the intensity of a cardiac murmur depend on the size of the orifice or vessel thru which the blood flows; the pressure difference across the narrowing; and the blood flow or volume across the site. Murmurs are generally the loudest near the point of origin.

Evaluation of heart murmur begins by answering this question, is it an innocent or an abnormal heart murmur? If your heart murmur is an innocent murmur you will not need any tests. Innocent heart murmurs are harmless. They can be common during infancy and childhood and often disappear by adulthood. They're sometimes known as "functional" or "physiologic" murmurs.

If you think the heart murmur might be abnormal or if you are not sure, you can order a 2D Echocardiogram to confirm the presence or absence of the murmur. 2D Echo will also show the size of the heart chambers, how well the heart is pumping, and how well the heart valves are working.

Now you know the Spanish word of the day, *soplo*, now go and assess your patient’s *soplos*.

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**For your Sanity** (Medical joke of the day)
by Gina Cha and Monica Kumar

---Knock, knock
---Who’s there?
---HIPPA
---HIPPA who?
---Sorry, I can’t tell you that...

---Why are skeletons so calm?
---I don’t know, because they can’t move?
---Because nothing gets under their skin

---Why did the MA need a red pen at work?
---To write important notes?
---In case she needed to draw blood

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3. Diabetes Update 2019, May 20-22, 2019, Harvard Medical School, Boston, Massachusetts, United States.