

Practical Management of Type II DM – a Multidisciplinary Approach

ELIZABETH A. KETNER, MD, MHS

STAFF PHYSICIAN, INTERNAL MEDICINE

GALLUP SERVICE UNIT, NAVAJO NATION

GALLUP, NM

A little about me...

- Board certified Internal Medicine physician
- Medical School at Johns Hopkins School of Medicine
- Internal Medicine/Primary Care Residency at the Hospital at the University of Pennsylvania
- Practicing 2 years with Indian Health Service at the Gallup Indian Medical Center – both inpatient and outpatient care (hospitalist and ambulatory Primary Care Physician)
- No formal training in endocrinology or DM care
- ~48% of my outpatient panel has type II DM diagnosis

William Osler

William Osler



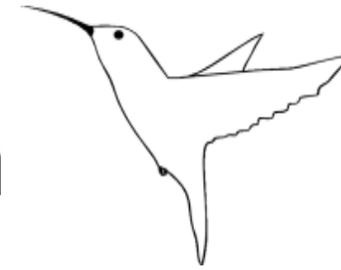
Observe, record, tabulate, communicate. Use your five senses. Learn to see, learn to hear, learn to feel, learn to smell, and know that by practice alone you can become expert.

AZ QUOTES

Objectives

- Assess and modify, if necessary, a medication regimen to control hyper- or hypoglycemia in an adult with type 2 diabetes.
- Describe the importance of setting realistic treatment goals that aim to reduce or address health disparities and barriers to patient care.
- Implement a team approach to improve diabetes care and education in your facility/community.
- Demonstrate the power of a multidisciplinary team in treating Type II diabetes.

GSU DM Program



- Diabetes Self-Management Education and Training
 - Individual – Ongoing daily
 - Group Classes – Overview three times weekly
 - Case Management
 - Post Hospitalization follow-up
 - Nutrition education referrals
- Microsystem Projects
 - SDPI Best Practice and activities linked to DM Audit
 - Inpatient diabetes education
 - Outpatient rapid access scheduling
 - Gestational Diabetes education/Sweet Success
 - Clinical Pearls –DM In-service Series [IMC, FMC, PHN, Pharm, Women’s Health, Dental)
 - Accu-Chek AVIVA 360 program
- Community Projects
 - Be A STAR Wellness Camp for children completed past two years (2015, 2016)
 - Childhood obesity and diabetes prevention
 - Exercise programs – TSH & 100 mile club
 - Community Wellness: Obesity Sub Committee – Dr. Suk
 - Community garden
- Collaborative Projects
 - PHN, COPE, Navajo Nation SDPI and HPDP projects
- Diabetes Education Updates and CMEs, Comprehensive Course
- Program Expansion to “Wellness”

Other Support for DM care

- Inpatient consultation from certified DM educator to facilitate inpatient to outpatient transitions
- Public health nursing
- Native medicine
- Community Health Workers
- Robust Podiatry department
- Clinical Pharmacy Diabetes Clinic
- Outside of GIMC (but local to Gallup): Community Outreach and Patient Empowerment (COPE) Program

Case #1: Ms. D

- 32 year old woman with a history of metabolic syndrome and pre-DM (A1C 6.2) who presents to PCP with concerns regarding fertility.
- She is diagnosed with PCOS (by Rotterdam criteria) and started on metformin to improve insulin resistance.
- Falls out of care until June 2017.

Ms. D and her glucose tolerance test

- At 28 weeks glucose tolerance tests are administered to determine presence or absence of gestational DM.
- Ms. D refused several times to complete the test – sent back to PCP at 32 weeks for assistance.
- Where to start with this patient?
 - Motivational interviewing
 - Emotional barriers to taking the test
 - Concerns related to the results
 - Normalizing the process
 - Reassuring her of outcomes
 - Offering other sources of support
 - Referral to the DM and pregnancy program
 - Referral to dietary

Ms. D and her Post-Partum Progress

- Patient was ultimately diagnosed with gestational DM from her glucose tolerance test but was well controlled on metformin alone.
- Induced at 38 weeks and delivered a healthy 7.5 lbs baby boy.
- How do we manage this patient going forward?
- What resources can we utilize?

Multi-Disciplinary Approach: Post-Partum DM

- Delayed post-partum glucose testing 6-12 weeks after delivery
 - Done by OB or PCP depending on who patient follows with, typically treatment deferred to PCP
- Nutrition for mom and baby
 - Dietary consults as well as breast feeding consultation assist with how to ensure baby is gaining weight and feeding appropriately, while ensuring mom also gets the correct nutrition
- Home support
 - PHN and CHR support to check in on mom and baby at home
- Long term monitoring of mom and baby for development of DM
 - Women with GDM have a 35-65% chance of developing type II DM within 10-20 years after their GDM pregnancy

William Osler again...



Listen to your patient, he is
telling you the diagnosis,

~ William Osler

AZ QUOTES

Case #2: Ms. Y

- 67 year old Navajo-speaking only woman with a history of long standing insulin dependent DM which has been difficult to control. A1c has been between 10.5 to 11.5 for the last 9 months despite uptitration of insulin. Presents for a PCP follow up.
- Current medications: Metformin ER 1g PO BID, Insulin 70/30 55U in the morning, 65U in the evening (vials only, no pens,) Atorvastatin 80mg daily, Losartan 100mg daily, gabapentin 300mg TID.
- She lives alone with several involved daughters who live close and work full time (so cannot come to appointments.)
- She does not drive and relies on other family members who are coming to town to bring her to her appointments.

Identifying Barriers

- Ms. Y has several barriers to care
 - Language: speaks Navajo only
 - Home support: daughters cannot administer meds because they do not live with her
 - Access to clinic: transportation limits her ability to come to appointments
- Overcoming barriers
 - Interpreters – in clinic, in pharmacy, and on the phone
 - Home support – does she need home health aid to assist with her medications, can CHRs or PHNs provide support to family
 - Access – mail delivery of medications, resources for getting to and from her appointments

The HPI of DM

- How are you doing with your diabetes?
- Do you have any questions or concerns about the medications you take now for your diabetes?
- How often do you check your blood sugars?
 - When you check your blood sugars, what numbers do you get?
- Are these number before or after you have eaten?
- Which diabetes medications are you taking?
- When are you taking your medications?
- How much insulin do you take?
- How many times per week do you miss your morning dose of insulin? Your evening dose?
- Do you draw up your own insulin? Do you inject your insulin yourself?
- How many times per week do you get low blood sugars?

Ms. Y's DM HPI

- Not really sure how her diabetes is, she thinks its OK
- Checks her sugars “once in a great while” when she feels her sugars are low
 - And when she checks the FBGs are in the 150 range
- Not sure which pills for diabetes she is taking
- Insists that she never misses her insulin, takes her shot twice per day everyday before she eats dinner
- *States that nobody draws up her insulin, she uses the pre-filled syringes given to her from the clinic*

“Life is a long lesson in humility”
– J.M. Barrie

Resources for Medication Reconciliation

- “Pill bottle” med rec
 - Pharmacy
 - PCP
- Home med rec
 - Public Health Nursing
 - Community Health Representative

Ms. Y Request

Asked the patient to return the following day with all her medications and diabetes supplies.



Starting from Scratch: Insulin Teaching

- DM Clinic
 - Both group and individual teaching on how to draw up insulin and administer
 - Hands on with syringes and vials
 - “Teach back” methods
- Pharmacy
 - Reinforces insulin dosing and injection techniques
 - If pens are used, pharmacy can do the teaching with these as well

Ms. Y Conclusion

- Regular visits from PHNs and CHRs to check in with her insulin usage
- Still struggles to make it to visits because of transportation issues
- Challenges with food access continue to make A1c difficult to control, but improved with ability to administer her insulin

Pyramid Rock in Gallup, NM



Source: <http://www.gallupnm.gov/gallery.aspx?PID=49>, Accessed 11/15/17

Case #3: Ms. T

- 52 year old Navajo woman with longstanding history of insulin dependent DM, traumatic brain injury resulting in cognitive disability, and vitiligo presents to DM clinic. Found to have a BG range from 47 to 429 on her meter.
- Patient states that she checks her sugar regularly and when it is low she drinks sugar water (although she doesn't know how much sugar she mixes with water) but cannot feel that her sugar is low.
- Looking at her meter she has fasting BGs in the 40's and post-meal BGs in the 600's.

Ms. T (1 of 3)

- Medications:
 - Insulin 70/30 15U SQ in the AM, 5U SQ in the evening (relatively stable dose for the last 2 years)
 - Cyanocobalamin 1000mcg daily
 - Phenytoin 200mg PO daily
 - Meloxicam 7.5mg PO daily as needed
- Social history: Lives with her elderly mother on a family compound with many other relatives who assist with transportation. Electricity and running water in the home. Dependent on \$25 food stamps per month, often goes without meals. Patient has a caregiver who comes for about 1 hour a few times per week to help with food prep and cleaning. There is no cell phone reception at the patient's home.

Ms. T (2 of 3)

- Ms. T is visited several times by PHNs and continues to have low blood sugars in the morning despite lowering of her insulin.
- She is ultimately admitted to Gallup Indian Medical Center for hypoglycemia.
- BGs continue to be labile but does not have hypoglycemia to the degree she did at home – concern for incorrect administration of her insulin at home in addition to food insecurity.
- Social work assisted with placement at a group home where her medication could be supervised and regular meals provided.

Ms. T (3 of 3)

- Seven days after her discharge, Ms. T returns to the emergency room with abdominal pain, found to have diabetic ketoacidosis and is admitted to the ICU.
- Patient had left the group home due to interpersonal issues
- Once DKA resolved, called in the troops...

Inpatient Resources

- Inpatient DM consult:
 - DM educator who works with patients initially for about 2 hours and then daily to review diet and insulin administration.
 - Will also follow up as an outpatient for continuity.
- Pharmacy
 - After challenges with labile BGs in the hospital, she was switched to insulin analogues and determined that insulin pens would be best.
 - Pharmacy spent several days with insulin pen teaching.
- Nursing
 - While in house patient administered all her own insulin under supervision of nursing (for safety reasons could not draw up.)

Ms. T... Returns

- Admitted again for diabetic ketoacidosis.
- Concern for improper 'priming' of insulin pens before injection and the pen not being left in the skin long enough to deliver all insulin
- Called a family meeting regarding home resources for insulin administration

Finding a place for Ms. T

- Public health nurses made repeated visits to the home to help find family members who could assist with medications and meals.
 - Family resources limited, those members who thought they might help could not always be present at the time of insulin administration
- Case managers explored other options for home care but she did not qualify for home nursing who could help with medication administration.
- Social workers explored other options for placement – nursing homes were the only place she could have full oversight of medication administration.
- Physicians concerned about a safe discharge – after several admissions was it safe to send the patient back home?

Ms. T (conclusion)

- Ultimately stayed in the hospital for 3 weeks
 - DM educator: diet, checking blood sugars, insulin teaching
 - Medical optimization of insulin regimen
 - Nursing assistance with administration of insulin
 - Social work assistance with placement as well as counselling
 - Patient became apathetic about the recurrent admissions and required counselling
 - PHNs continued to visit family in the community to keep updated (no cell service)
- Discharged to nursing facility to help with medication administration and meals, thus far doing well there

Barriers

- Disease complexity
- Intellectual disability
- Insufficient home support
- Lack of access to care (phone service, transportation)
- Food insecurity

Bridges

- Use of UNM PALs line to discuss managing complex endocrine issues
- Use of alternative teaching methods by DM educator
- Use of community outreach workers (PHNs and CHRs to contact and monitor patient)
- Community resources for food access – social work and case managers act as connectors

Take Home Lessons?

- Ask questions and don't forget to listen to the answers.
- Assume nothing.
- Medicine is not a food chain, it is an eco-system.
- Diabetes is a treatable disease – always look for social, economic or systemic factors when patients are struggling to gain control over their condition.

Thank you!

- Special thanks to Maria Torres, PhD for assistance with information on the GIMC DM program.
- Thanks to my husband Duncan White, MD for feedback on this presentation.
- Thanks to all the team members who helped to care for these complex patients.

Please feel free to contact me with any questions, comments or thoughts!

Elizabeth Ketner

Elizabeth.Ketner@ihs.gov

505-722-1341