Chief Complaint: Fatigue, Frequent urination, always hungry and weight loss of 20 pounds for the last 6 months.

History of Present Illness:

A 56 y/o female patient with long history of diabetes non-insulin dependent and hypertension. Patient logs blood sugar and blood pressure daily. Recently her blood sugar readings are above 200 mg/dl at bedtime and blood pressure ranges of 140/80-155/97. Patient is expressed concern of hyperglycemia, significant unintentional weight loss in the last 6 months despite polyphagia and medication compliance for diabetes. However, patient admitted missed daily walks of exercise due to increased fatigue and has been eating out more often. She also noticed polyuria more pronounced compared since last year. She also reports lower extremities numbness that waxes and wanes.

Family History: Mother – DM; other family members are unknown.

Social History: Married, 3 children who lives with them, smokes 1.5 pack/day for 30 years (60 pack years); occasional beer, denies illegal drugs.

Allergies: Bactrim

Current Medications:

Metformin 500 mg 1tablet po BID, Lisinopril 2.5 mg 1 tablet PO daily, Tramadol 50 mg oral tablet 1 tablet Q8H PRN Pain Max 3/day, Seroquel 25 mg 1 tablet po BID (non-compliant, often patient forgets to declare on medication reconciliation).

Review of systems:

Constitutional: No fever, no chills, weakness, **(+) weight loss (20 lbs. in 6 months), reports fatigue.**

HEENT: Denies changes in vision/hearing, pain, discharge, difficulty swallowing.

Cardiovascular: Denies CP, edema, syncope, and palpitations

Respiratory: Denies SOB, cough, or adventitious breath sounds

Gastrointestinal: Denies abdominal pain, nausea, vomiting, or change in bowel habits.

Genitourinary: Reports frequency of urination. Denies pain or hesitation with urination.

Endocrine: (+) polyuria and (+)polyphagia

Musculoskeletal: Denies joint pain or discomfort during times of activity. Negative for joint swelling or redness

Neurological: + paresthesia manifested by occasional numbness and pain of the legs and feet especially at night ,denies weakness, syncope, or dizziness

Heme/Lymph: Denies lymphadenopathy

Psych: Non-contributory

Physical Assessment:

Vital signs: BP: 180/105 Pulse: 87 RR: 18 Temp: 98.2 F, Ht: 5'4", Wt: 168lbs **BMI 28.8**

General Appearance: Healthy appearing adult, that is alert and oriented, answer questions appropriately, in no acute distress.

Skin: Dry; warm, intact, color even throughout, good skin turgor, no rashes/lesions/wounds

HEENT:

Head: Atraumatic/Normocephalic, no scalp lesions/bruises, hair evenly distributed throughout.

Eyes: Pupils equal, round, and reactive to light and accommodation, conjunctiva pink, sclera white, red light reflex present bilaterally. No eye discharge/redness/edema.

Ears: Equal in size bilaterally and aligned with outer canthus of eyes, auricle and tragus non-

tender to palpation and free of lesions, redness, and nodules. Right and left tympanic membranes are pearly gray with visible cone of light, no drainage noted. Nose: Pink, moist, septum midline. No lesions, nares patent and clear. Mouth/Throat: Moist mucous membranes, palate normal, tonsils pink and symmetric bilaterally and free of exudates/drainage. Neck: Supple, full ROM, trachea midline, negative thyromegaly.

Lymphatic: Negative lymphadenopathy

Cardiovascular: RRR, S1 and S2 present, negative S3, S4, and no murmurs/rubs/clicks. Normal rate and rhythm, no s3, no murmur, no gallop, bilateral radial and dorsalis pedis pulses 2+, capillary refill < 2 seconds, no edema

Respiratory: Lungs CTA throughout all lung fields, breathing regular and unlabored, regular rate and rhythm.

Gastrointestinal: Normoactive bowel sounds throughout all 4 quadrants, negative organomegaly, no masses felt, soft, non-tender.

Genitourinary: No costovertebral angle tenderness. No swelling, no lesions.

Extremities: Normal ROM in all extremities, no swelling, non-tender. No wounds or ulcers. No loss of protective sensation with the monofilament test performed on both feet.

Integumentary: Low back area maculopapular rash extending bilaterally

Musculoskeletal: Full ROM of neck, shoulder, elbows, hips, pelvis, knees, and ankles. No edema/redness. Strength 5/5 with upper/lower extremities

Neurological: Cranial nerves II-XII intact, good muscle tone, motor development and balance

Psych: Calm, cooperative, engaged throughout assessment, appropriate affect. Denies anxiety, depression. Denies suicide ideation.

Primary Diagnosis:

Diabetes Mellitus Type 2 Uncontrolled.

The patient's presenting symptoms of blood sugar above 200 despite taking prescribed Metformin daily, weight gain in the past 6 months, her symptoms of polyuria and increase appetite is highly indicative of Diabetes Mellitus Type 2 uncontrolled. Her current medication and regimen is not sufficient in maintaining her blood sugar levels. Uncontrolled Diabetes is blood sugar levels are above recommended target ranges despite prescribed medication regimen. According to the National Diabetic Education Initiative and the USPSTF Criteria for Diabetes Diagnosis are as follows; FPG ≥126 mg/dL (7.0 mmol/L) * Fasting is defined as no caloric intake for ≥8 hours. 2-hr PG ≥200 mg/dL (11.1 mmol/L) during OGTT (75-g) * Using a glucose load containing the equivalent of 75g anhydrous glucose dissolved in water. A1C ≥6.5% (48 mmol/mmol) *. Performed in a lab using NGSP-certified method and standardized to DCCT assay. Random PG ≥200 mg/dL (11.1 mmol/L) In individuals with symptoms of hyperglycemia or hyperglycemic crisis, there is no clear clinical diagnosis. Immediately repeat the same test using a new blood sample. Same test with same or similar results. Diagnosis confirmed. Uncontrolled Diabetes can lead to major complications such as heart attack, stroke, eye disease, kidney disease, nerve disease and infection if left untreated. Hence, adjusted to medications and lifestyle medication is strictly recommended for this patient to prevent detrimental complications.

Differential Diagnosis:

Diabetes Type 1:

Once known as juvenile diabetes or insulin-dependent diabetes, is a chronic condition in which the pancreas produces little or no insulin. Insulin is a hormone needed to allow sugar

(glucose) to enter cells to produce energy. Although type 1 diabetes can appear at any age, the onset for Type 1 diabetes is during younger ages. it appears at two noticeable peaks. The first peak occurs in children between 4 and 7 years old, and the second is in children between 10 and 14 years old. Genetics play a role with the presence of certain genes indicates an increased risk of developing type 1 diabetes. This is not the case of this patient, his diabetes is adult onset and obesity related with positive weight gain. Weight gain and obesity is not a usual characteristic of DM Type 1.

Diabetes Insipidus:

Diabetes insipidus is an uncommon disorder that causes an imbalance of water in the body. This imbalance leads to intense thirst even after drinking fluids (polydipsia), and excretion of large amounts of urine (polyuria). These symptoms mimics that of Diabetes Type 1 and 2. However, with Diabetes Insipidus, depending on the severity of the condition, urine output is significantly elevated which can be as much as 16 quarts (about 15 liters) a day. Diabetes insipidus and diabetes mellitus—which includes both type 1 and type 2 diabetes—are unrelated, although both conditions cause frequent urination and constant thirst. Diabetes mellitus causes high blood glucose, or blood sugar, resulting from the body's inability to use blood glucose for energy. People with diabetes insipidus have normal blood glucose levels; however, their kidneys cannot balance fluid in the body.

Hypothyroidism:

Signs and symptoms of hypothyroidism may mimic that of DM2's fatigue and weight gain. However, is a clinical state resulting from under production of the thyroid hormones. The thyroid gland is considered the master gland that controls many of the body's metabolic functions. A decrease in thyroid hormones T3 and T4 which is the case in hypothyroidism will

result to symptoms of fatigue, weight gain and depression. Oftentimes with symptoms involving the endocrine, weight gain, fatigue and depression, TSH, T3 and T4 is usually checked to rule out it's involvement. Unlike Hypothyroidism, DM2 weight gain is usually related to uncontrolled sugar levels related to insulin resistance.

The 2 differential diagnosis were ruled out after a comprehensive history and laboratory results were interpreted.

PLAN:

Diagnostic:

CBC, CMP, Lipid panel, UA, Hgb A1C, Microalbumin, TSH level.

UA, CBC and CMP serves as a good baseline and comparison from the previous labs for follow-up visit patients to monitor patient's hgb, hct, WBC and electrolytes, presence of infection, progress and response to medications and regimen prescribed. Lipid panel is a good standard for cholesterol work up especially for diabetic and hypertensive patients. This patient experienced weight gain along with his medical diagnosis should have his lipid panel checked. The USPSTF recommends screening for lipid disorders in men aged 35 years or older and women aged 45 years or older who are at increased risk for coronary Screening for Abnormal Blood Glucose and Type 2 Diabetes Mellitus.

A diabetic patient's kidney functions could be better monitored with urine microalbumin.

HgbA1C is an excellent test for monitoring diabetic patient especially with this patient who has uncontrolled blood sugar despite daily metformin. An adjustment to medication maybe indicated.

Pharmacologic Treatment:

Early intervention with medication adjustments after the first prescribed medication and lifestyle medication are unsuccessful is an essential management in DM2 to regain and achieve good

glycemic control. Metformin has been used successfully since the 1950s as first line medication to treat people with type 2 diabetes. It is a biguanide that decreases blood glucose concentration. When this is not sufficient, another anti-diabetic agent maybe added, and the dose maybe increased with Metformin. Re-evaluation with blood work is necessary with clinic follow-up to monitor response to medication or adjustments as needed.

The patient's medication regimen was adjusted and added as follows;

Metformin was increased to 1000mg PO BID.

Glipizide 5mg po daily.

(Glipizide/Metformin combination tablet is available and maybe started at 2.5/250mg Po daily; However, this is more expensive than the 2 medications combined. A patient with no insurance prefers the more medication.)

Lisinopril 10 mg oral tablet daily, d/c lisinopril 2.5 mg oral tablet daily, Tramadol50 mg oral tablet 1 tablet Q8H PRN Pain Max 3/day for his neuropathic pain.

Non- pharmacologic treatment and Patient Education:

Lifestyle Modification with emphasis on weight management with diet, exercise and activity. Eating a consistent number of calories every day can help to control blood glucose levels and maintain body weight. In people who are overweight or obese, losing weight by eating fewer calories or increasing activity levels can improve blood sugar control and lower blood pressure and cholesterol levels.

Weight loss — Many people with type 2 diabetes are overweight. Losing even a small amount of weight (5 to 10 percent of total body weight) can help the body to produce and use insulin more efficiently. In fact, eating fewer calories can reduce blood sugar levels even before the first pound is lost. There are several strategies that can aid in weight loss, including eating fewer

calories, exercise, weight loss medications, and weight loss surgery. These treatments are discussed in detail in separately. (See "Patient education: Weight loss treatments (Beyond the Basics)".) Recommended calorie intake — The number of calories needed to maintain weight depends upon your age, sex, height, weight, and activity level. In general:

- Men, active women - 15 cal/lb
- Most women, sedentary men, and adults over 55 years - 13 cal/lb
- Sedentary women, obese adults - 10 cal/lb.
- Pregnant, lactating women - 15 to 17 cal/lb.

To lose 1 to 2 pounds per week (a safe rate of weight loss), subtract 500 to 1000 calories from the total number of calories needed to maintain weight.

Avoiding weight gain — Weight gain is a potential side effect of intensive insulin therapy in type 2 diabetes. Weight gain is also a side effect of some oral medications used for people with type 2 diabetes. To avoid weight gain, the following tips are recommended.

Blood Sugar Checks - People who take insulin or oral medications that lower blood sugar levels should check their blood glucose level before and after exercising. If exercise is vigorous and prolonged (more than 30 minutes), check the blood glucose every 15 minutes (if the exercise regimen is new and will be used again). Frequent monitoring can help to get a sense of what

Avoid Alcohol – Alcohol are liquid beverage loaded with calories. On holiday and occasions, choose low calorie drinks or limit the amount to 1-2 glass.

Smoking cessation – smoking affects blood flow and perfusion and should be avoided with hypertensive and diabetic patients who are high risk for many peripheral perfusion diseases, blood clots and obstruction of flow like diabetic neuropathy.

Referral and Follow-Up:

Refer patient to an endocrinologist for further endocrinological work-up. Refer to an Ophthalmologist for eye exam. Additionally, patient will benefit from a weight and fitness management referral for lifestyle modification with diet and weight loss. The patient was diagnosed with schizophrenia in the past and was prescribed with Seroquel which the patient has not been taking, a refer back to her old psychiatrist was done as well. Since the patient is uninsured, she was referred to the community social worker to assist her with community health services she can avail. Follow-up with clinic for re-evaluation and repeat lab work in a month. If symptoms persist, please call clinic for a sooner appointment with your doctor. If symptoms worsen, SOB, high fever please go to the nearest ER or call 911 if unable to do so.

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