Current Medications

Taking

- Lisinopril 40 MG Tablet 1 tablet Orally Once a day, Notes: undefined
- Hydrochlorothiazide 25 MG Tablet 1 tablet in the morning Orally Once a day, Notes: undefined
- Carvedilol 25 MG Tablet 1 tab Orally , Notes: undefined
- Cardura 4 MG Tablet 1 tablet Orally Once a day, Notes: undefined
- Pravastatin Sodium 80 MG Tablet 1 tablet Orally Once a day, Notes: undefined
- GlipiZIDE 10 MG Tablet 1 tablet Orally 2x daily, Notes: undefined
- Medication List reviewed and reconciled with the patient

Medical History

HYPERTENSION.
DIABETES.

Chief Complaints

1. Diabetes/hypertension

Assessments

1. Type 2 diabetes mellitus without complications - E11.9 (Primary)
2. Essential hypertension - I10
3. Hyperlipidemia, unspecified hyperlipidemia type - E78.5
4. Chronic kidney disease, unspecified CKD stage - N18.9, followed by Nephrology
5. BMI 36.0-36.9,adult - Z68.36
6. Encounter for immunization - Z23
7. Elevated hemoglobin A1c - R73.09
8. Erectile dysfunction, unspecified erectile dysfunction type - N52.9

*Also taking Jardiance 10 mg daily

Labs

Lab: Hemoglobin A1c 9.6			
Hemoglobin A1c	9.6		
Lab: Comp. Metabolic Panel (14)			
eGFR If NonAfricn Am	**42**	**L**	**>59 - mL/min/1.73**
eGFR If Africn Am	**48**	**L**	**>59 - mL/min/1.73**
Glucose, Serum	**205**	**H**	**65-99 - mg/dL**
BUN	26		8-27 - mg/dL
Creatinine, Serum	**1.68**	**H**	**0.76-1.27 - mg/dL**
BUN/Creatinine Ratio	15		10-24 -
Sodium, Serum	141		134-144 - mmol/L
Potassium, Serum	**5.3**	**H**	**3.5-5.2 - mmol/L**
Chloride, Serum	102		96-106 - mmol/L
Carbon Dioxide, Total	23		20-29 - mmol/L
Calcium, Serum	**10.6**	**H**	**8.6-10.2 - mg/dL**
Protein, Total, Serum	7.6		6.0-8.5 - g/dL
Albumin, Serum	4.7		3.6-4.8 - g/dL
Globulin, Total	2.9		1.5-4.5 - g/dL
A/G Ratio	1.6		1.2-2.2 -
Bilirubin, Total	0.6		0.0-1.2 - mg/dL
Alkaline Phosphatase, S	46		39-117 - IU/L
AST (SGOT)	16		0-40 - IU/L
ALT (SGPT)	12		0-44 - IU/L

*LDL – 117; Triglycerides -155

Diabetes

Metformin – Considered first-line DM2 therapy unless specific contraindication. A 2018 article published in Diabetes Care (Lalau JD, et al) demonstrated metformin safety in patients with stage 3A, 3B, and 4 CKD. The patient's current eGFR is 48 mL/min/1.73. No dose adjustment is necessary. To be completely safe, start at 500 mg once daily.

Glipizide should only be used in patients without funding or after all first and second line options have been exhausted. D/C glipizide.

Trulicity – Evidence-based GLP-1s and SGLT2 inhibitors are recommended for patients with ASCVD risk that need a second agent. The patient doesn't seem to want an injectable but maybe he would agree with a once weekly non-insulin option. Trulicity would be the best fit for

this patient due to his needle phobia and is covered by his United Healthcare Medicare plan (according to the Formulary app). Trulicity has the same A1c lowering as Victoza (AWARD trial) and has data demonstrating that it lowers the risk of a CV event (REWIND trial). Ozempic would offer more A1c lowering (SUSTAIN-7 trial) but is not covered by the patient's insurance.

Jardiance - the patient is already taking Jardiance 10 mg. If he is not having adverse effects and his potassium is in a normal range, the dose should be increased to 25 mg daily. Jardiance also has data showing that it lowers the risk of CV events and worsening nephropathy (EMPA-REG OUTCOMES trial).

The patient should be referred to diabetes education to review lifestyle modifications.

Hypertension

Lisinopril - should be continued for both antihypertensive and nephroprotective properties (microHOPE trial/ALLHAT trial).

Hydrochlorothiazide – using an evidence-based thiazide-like diuretic is probably more appropriate in this patient. Indapamide has been shown to decrease mortality as well as stroke risk in both elderly patients as well as patients with a history of a CV event. (HYVET trial/ PROGRESS trial). Chlorthalidone has been shown to be as effective as lisinopril or amlodipine at lowering the risk of mortality, MI, and stroke (ALLHAT trial). It also has positive outcome data in elderly patients (SHEP trial). A 2015 meta-analysis published in Hypertension showed that using indapamide instead of HCTZ lowered the SBP up to an extra 8.7 mmHg and up to an extra 7.3 mmHg with chlorthalidone instead of HCTZ.

Amlodipine – The second-line agent for this patient should have probably been amlodipine. The ACCOMPLISH trial compared benazepril + HCTZ vs benazepril + amlodipine. Almost two-thirds of the patients included in the trial had DM2. At the conclusion, the amlodipine group had a significantly lower risk for primary composite (CV death + nonfatal stroke + nonfatal MI) with a NNT of 45.

If the patient was taking lisinopril 40 mg daily, amlodipine 10 mg daily, and indapamide 2.5 – 5 mg daily, his BP would most likely be controlled. The get the best outcomes, he should take the lisinopril at night, and he should take the amlodipine and indapamide in the morning. The MAPEC trial showed that patients taking 3 antihypertensives can lower their risk of CV events if they take one of the medications at night. This schedule accounts for the unusual BP increase at night in patients that are considered "non-dippers." The microHOPE trial also dosed Ramipril at night. The RAAS system is more active at night, so taking the ACE inhibitor in the evening makes sense from a physiological standpoint as well.

Fourth-line agent – Doxazosin should not be used unless all other options have been exhausted. The ALLHAT trial included a doxazosin study arm, but it was stopped early when the researchers saw it was causing a significant increase in occurrence in HF. The PATHWAY-2 trial compared

spironolactone vs doxazosin vs bisoprolol for resistance hypertension. Spironolactone was more effective at reducing BP compared to the other agents. Spironolactone should not be started if the potassium is over 5 mmol/L. If the potassium is still above 5 mmol/L, either carvedilol or diltiazem would probably be the next best option.

Hyperlipidemia

The patient is currently taking pravastatin 80 mg which is a moderate-intensity statin. According to the 2018 AHA/ACC lipid guidelines, this patient should be on a high-intensity statin. Atorvastatin 80 mg would be the most studied option. At his next follow-up, if his LDL is still above 100 and his triglycerides are still above 150, he would be a candidate for Vascepa (icosapent ethyl) based on the REDUCE-IT trial that was published in Nov, 2018 in NEJM.

Immunizations/Screening

The patient is a candidate for:
Shingrix (2 dose series)
Either Prevnar 13/Pneumovax 23 depending on which vaccine he received in 2015
Tdap if he has never received it (or it's been 10 years and needs Td)
HepB vaccine series
Hep C screening based on age (USPSTF)