

LOCAL CASE

**ASHP CLINICAL SKILLS COMPETITION 2016
PHARMACIST'S PATIENT DATA BASE FORM**

Demographic and Administrative Information

Name: Kristin Thomas	Patient ID: 600043586
	Room & Bed: 6W 18
Date of Birth: 03/21/1962	Physician: Huang
Height: 68 in. / Weight: 76 kg / Race: African American	Pharmacy: CVS Pharmacy
Prescription Coverage	Religion: Agnostic
Insurance: Blue Cross/Blue Shield	Date and Time of Arrival: 10/7/16 at 21:00
Copay: \$4 generic; \$30 brand	
Cost per month: \$72	
Family's Annual Income: \$59,000	

Chief Complaint: "My heart is beating very fast, I can't breathe, and I have been tired and dizzy the past two days."

History of Present Illness: KT presented to the emergency room complaining of palpitations, shortness of breath, dizziness, and fatigue for the past two days. She endorses prior episodes that lasted a few days in the past but never sought further evaluation because she attributed dialysis to be the cause of her symptoms. KT reports her last dialysis session was October 6th and states she is 100% adherent to her dialysis schedule.

Past Medical History

1. Systolic Heart Failure
2. Hypertension
3. Type 2 Diabetes
4. End Stage Renal Disease (ESRD) on hemodialysis Tues/Thurs/Sat since 2012
 - a. Most recent SCr (10/6/16) was 8 mg/dL; patient is anuric

Allergies/Intolerances

Penicillin – Rash

Outpatient Drug Therapy			
Drug Name/Dose/Strength/Route	Prescribed Schedule	Duration Start–Stop Dates	Prescriber
1. Metoprolol succinate 75 mg PO	Daily AM	4/1/2013 – Present	Dr. John
2. Lisinopril 2.5 mg PO	Daily AM	4/1/2013 – Present	Dr. John
3. Insulin Glargine 10 units subcutaneous	Daily HS	02/16/2008 – Present	Dr. John
4. Insulin Aspart 4 units subcutaneous	Before meals	02/16/2008 – Present	Dr. John
5. Sevelamer 1600 mg PO	TID	06/23/2012 – Present	Dr. Gullivan
Medication History KT's medications are prescribed by her primary care physician and nephrologist.			

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Adherence/Dosing Issue

KT reports 100% adherence to all medications, except metoprolol succinate, which she skips 2-3 doses of per week due to side effect of fatigue. She reports the last dose of metoprolol she took was either October 4th or 5th. She uses a pillbox to help her remember to take her medications. KT also keeps a self-monitoring blood glucose log and checks her blood glucose intermittently at least 2-3x per day.

Surgical History

Fistula placement in 2012

Family History

Mother died from myocardial infarction at age 75 years

Father still alive with history of hypertension and hyperlipidemia

No siblings

Social History

Alcohol Intake: Drinks cocktails occasionally (1-2 times a month)

Tobacco: Denies

Illicit drugs: Denies

Employment: Works as a receptionist for a college of pharmacy

Married for 24 years

Vaccination history

Up to date on childhood vaccines. Received Tdap in 1973, Td booster in 2008, pneumococcal polysaccharide (PPSV23) in October 2012, pneumococcal 13-valent conjugate (PCV13) in October 2013, and influenza vaccine in October 2014.

Never received hepatitis B and human papillomavirus (HPV).

ROS

Positive for palpitations, fatigue, dizziness, and shortness of breath

Physical Exam (10/7/16)

General: Pleasant overweight woman in mild distress

HEENT: PERRLA, EOMI, MMM

Cardiovascular: irregular rate and rhythm, no murmurs/rubs/gallops

Lungs: no wheezes/crackles/rhonchi bilaterally

Abdomen: Soft, non-tender, nondistended

Genitourinary: no vaginal bleeding, no discharge

Extremities: no edema, no ulcers or rashes, fistula in right upper extremity

Neuro: alert and oriented, no focal deficits, moving all extremities

Vital signs

HR: 118 bpm

RR: 22 breaths per minute

BP: 150/82 mmHg

Temp: 98° F

Pain Score: 0/10

Labs

	10/7/16 22:00
Metabolic Panel	
Na (mEq/L)	137
K (mEq/L)	4.8

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Cl (mEq/L)	98
CO ₂ (mEq/L)	28
BUN (mg/dL)	29
SCr (mg/dL)	8.14
Glucose (mg/dL)	210
Calcium (mg/dL)	8.5
Phosphorus (mg/dL)	3.6
Magnesium (mEq/L)	2.0
Albumin (g/dL)	3.1
AST (IU/L)	20
ALT (IU/L)	18
Total bili (mg/dL)	0.7
CBC	
WBC (million/mm ³)	6.8
Hgb (g/dL)	9.8
Hct (%)	30
Plt (K/mm ³)	212
Other	
PT (seconds)	11.4
INR	1
aPTT (seconds)	33
A1c (%)	8.6
Total Cholesterol (mg/dL)	181
LDL (mg/dL)	102
HDL (mg/dL)	40
Triglycerides (mg/dL)	146

Self-Monitoring Blood Glucose Log (mg/dL)

Date	After waking up	2 hours after breakfast	2 hours after lunch	2 hours after dinner
9/4/16	152	165		164
9/6/16	162		176	
9/10/16	161	154	157	178
9/14/16	187	143	164	
9/18/16		169		163
9/26/16			171	157

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10/4/16	180	169	167	178
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Tests

Chest x-ray: Clear bilaterally, no opacities or other irregularities noted

ECG: Atrial fibrillation with rapid ventricular response with aberrantly conducted complexes

TTE: Hyperdynamic left ventricular function with ejection fraction visually estimated to be 35%

Current Drug Therapy

Drug name/dose/strength/route	Prescribed schedule	Start date	Indication
Metoprolol tartrate 5 mg IV	STAT x 1 dose	Administer in the ER	Atrial fibrillation/Heart Failure/Hypertension
Lisinopril 2.5 mg PO	Every 24 hours	Since admission	Heart Failure/Hypertension
Insulin Glargine 10 units subcutaneous	Every 24 hours	Since admission	Type 2 Diabetes
Insulin Aspart Sliding Scale subcutaneous	Before meals and at bedtime as needed	Since admission	Type 2 Diabetes
Sevelamer 1600 mg PO	TID with meals	Since admission	ESRD

Patient Narrative

In the emergency room, KT is diagnosed with atrial fibrillation and the medical team decides to pursue rate control. After receiving three doses of IV metoprolol tartrate at 22:00, 22:15, and 22:40, the patient reports improvement in her symptoms, denying further episodes of dizziness, palpitations, and shortness of breath. Repeat ECG demonstrates irregularly irregular rhythm and telemetry shows that KT's heart rate is currently 80 bpm and blood pressure is 142/80 mm Hg.

KT is admitted to the general medicine floor at midnight for further monitoring. Her HR remains controlled at 76 to 80 bpm and her blood pressure is stable at 142/80 mm Hg. Given resolution of symptoms, the medicine team decides to continue rate control therapy and transition KT back to oral metoprolol succinate. The physician is unsure what dose of metoprolol succinate to order and if anticoagulation is warranted or not, thus he consults you for rate control and anticoagulation recommendations. The physician would also appreciate other suggestions you have regarding this patient's care.

ASHP Clinical Skills Competition - Pharmacist's Care Plan – 2016 Local Case

Problem Identification and Prioritization with Pharmacist's Care Plan

- A. List all health care problems that need to be addressed in this patient using the table below.
- B. Prioritize the problems by indicating the appropriate number in the "Priority" column below:
 - 1 = Most urgent problem (Note: There can only be one most urgent problem)
 - 2 = Other problems that must be addressed immediately or during this clinical encounter; **OR**
 - 3 = Problems that can be addressed later (e.g. a week or more later)

**Please note, there should be only a "1", "2", or "3" listed in the priority column, and the number "1" should only be used once.*

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
Atrial Fibrillation (Rate Control & Anticoagulation)	1	- Relieve symptoms by controlling ventricular rate with proper rate control therapy [HR <80 beats per minute] - Reduce risk of stroke with therapeutic anticoagulation—see below	- Patient prescribed beta-blocker (BB) therapy, which is appropriate treatment considering patient also has heart failure (LVEF $\leq$ 40%) - Primary team wants to transition to oral metoprolol succinate. Conversion from IV to PO is 1:2.5; thus patient requires at least 37.5 mg but could tolerate a dose increase given higher end of HR and BP. The appropriate metoprolol succinate dose to recommend is 37.5 mg or 50 mg. Is it inappropriate to resume patient's home dose of 75 mg given non-adherence due to side effect of fatigue -Fatigue may be due to atrial fibrillation, heart failure, dialysis, or BB -Consider scheduling patient for outpatient follow-up to titrate metoprolol succinate (for further management if atrial fibrillation still uncontrolled and HF treatment) after patient is adherent to 37.5 or 50 mg daily. -Can consider switching to different BB (e.g., carvedilol 6.25 mg PO BID or bisoprolol 1.25 mg PO daily) although fatigue is a general side effect of BB or recommend taking metoprolol succinate at night -Counsel on importance of medication adherence	Efficacy: - Signs/symptoms of atrial fibrillation (e.g., palpitations, shortness of breath, fatigue, dizziness, chest pain) - Aim for goal resting heart rate of < 80 beats/min with BB therapy - Daily ECG Safety: - Daily vitals (HR, BP) - Monitor for adverse effects including fatigue
		- Prevent stroke - Reduce the risk of morbidity and mortality associated with stroke	- Patient with CHA₂DS₂-VASc score of 4 warranting anticoagulation therapy - Initiate oral anticoagulation: - Warfarin 5 to 10 mg PO daily with INR monitoring (dosed to goal of 2-3) with heparin drip (per institution-specific protocol dosing) as bridge to therapeutic anticoagulation - LMWH is not appropriate due to patient's renal	Efficacy: Monitor for signs/symptoms of stroke (e.g., facial droop, loss of motor coordination, blurred vision, slurring of speech)

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			function -- OR -- • Apixaban (Eliquis) 5 mg PO BID -- OR -- • Rivaroxaban (Xarelto) 15 mg PO daily • It is not appropriate to recommend other direct oral target anticoagulants (i.e., dabigatran, edoxaban) because use is contraindicated in patients with ESRD • Counsel the patient to monitor for signs/symptoms of stroke and bleeding (i.e., bruising, sx of GI/GU bleeding, nosebleeds, gum bleeding) • Counsel the patient on importance of adherence to anticoagulation therapy (i.e., taking medication daily, complying with monitoring parameters) • Counsel the patient to minimize alcohol use • Counsel the patient to inform her primary doctor or pharmacists if medications are initiated or discontinued and if she is to start taking any over the counter (OTC) products For warfarin therapy only: • Counsel the patient about diet (e.g., maintaining consistent vitamin K intake)	<i>Warfarin:</i> • Daily INRs while in-house or every 3-4 days in outpatient setting until maintenance dose achieved (goal INR 2-3), then weekly or biweekly INR monitoring until on stable warfarin dose, then can monitor INR monthly <i>Heparin</i> • aPTT 6 hours after initiation or rate change of infusion; may decrease to daily aPTT once two consecutive aPTTs are within therapeutic range <i>Safety:</i> • SCr/Chem-7 daily to monitor renal function • CBC daily to monitor for bleeding • Monitor daily for signs/symptoms of bleeding

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
Hypertension	2	- Prevent cardiovascular related complications and mortality - Prevent or delay further organ damage - BP < 140/90 mmHg	- Per JNC-8, patient has CKD and diabetes, thus goal BP is < 140/90 and first-line treatment is ACEi or ARB alone or in combination with another class - Patient is currently taking lisinopril 2.5 mg daily, which is appropriate. She is noted to have elevated BP upon presentation, but admits non-adherence to metoprolol. Upon administration of IV metoprolol, the patient's BP decreased to 142/80, which is slightly above goal. However, she has transitioned to oral metoprolol succinate in-house (recommended dose should be 37.5 mg or 50 mg), thus continue current therapy and re-evaluate BP measurements at every outpatient visit to ensure that BP is within goal and that the patient does not experience s/s of hypotension such as dizziness/lightheadedness/syncope	Efficacy: - BP readings at each outpatient visit; can also recommend home BP monitoring Safety: - Vital signs (BP, HR) ACEi - Electrolytes (K+), BUN, creatinine
Type 2 Diabetes	2	- Maintain: - Hg A1c < 7% - Pre-prandial glucose 80-130 mg/dL - 2-hour post-prandial glucose < 180 mg/dL - Prevent microvascular and macrovascular complications - Decrease morbidity and mortality risk	- Patient's current A1c is above goal (> 7%) and per her blood glucose (BG) logs, AM readings are above goal (> 130mg/dL) - Based on fasting readings, the patient's BG is not at goal. Increase Lantus to 11 or 12 units QHS (adjustment of 1 or 2 units) and continue monitoring of glucose while patient is hospitalized. Upon discharge, instruct patient to continue monitoring blood glucose 4x/day if possible. Further adjust dose if blood glucose readings still above goal despite dose increase - Based on 2-hour post-prandial readings, the patient's rapid-acting insulin is appropriate. Continue sliding scale of insulin aspart while patient is inpatient. Upon discharge, can resume insulin aspart 4 units subcutaneously before meals. - Initiate statin therapy (i.e., atorvastatin 40 mg or 80 mg PO daily or rosuvastatin 5 or 10 mg PO daily [dialysis dosing]) as patient is between 40-75 years and has additional atherosclerotic CV disease risk factors. May consider obtaining lipid panel after statin initiation - Initiate aspirin 81 mg PO daily for primary prevention as patient is over 40 years of age, has additional risk factors, and type 2 diabetes with increased cardiovascular risk - Counsel patient on signs/symptoms of hypoglycemia (i.e., shakiness, sweats, irritability, confusion, dizziness, headache, etc) and treatment protocol if patient has symptoms (check blood glucose if possible, consume 15-20	Efficacy: - Monitor BG at least 4x/day. With change in Lantus dose, need to make sure patient is checking BG upon waking and consider obtaining pre-prandial readings to ensure BG is not below goal - A1c in 3 months - Assist patient with staying up to date on managing other aspects of diabetes (e.g., feet, eye, teeth, skin, etc.) Safety: - Signs/symptoms of hyperglycemia and hypoglycemia - Statin - Signs/symptoms of

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
			grams of glucose/simple carbohydrates, recheck blood glucose after 15 minutes). Inform patient that hypoglycemia symptoms may be masked by BB use, thus emphasize the importance of monitoring blood glucose with glucometer • Counsel patient to avoid eating before bedtime/midnight snacks and review diet-related lifestyle changes (such as restriction of sodium consumption to < 2,300 mg/day and carbohydrate counting) • Counsel patient on diabetes-related complications and recommend annual follow-up with ophthalmologist, podiatrist, and dentist • Encourage patient to lose weight and perform at least 150 min/week of moderate-intensity aerobic physical activity • Counsel patient to continue avoiding tobacco products and to minimize alcohol intake	rhabdomyolysis (e.g., muscle pain in shoulders/thighs, muscle weakness, nausea/vomiting, dark red or brown urine, etc.) • ASA— signs/symptoms of bleeding
Heart Failure (LVEF of 35%)	3	• Implementation of goal-directed medical therapy to slow HF progression, reduce morbidity and mortality, and improve symptoms • Prevent or minimize hospitalizations for exacerbations of HF	• Patient is currently taking lisinopril 2.5 mg daily and metoprolol succinate 37.5 or 50 mg daily. Patient is on appropriate cornerstone therapy of ACEi and BB, however, dosages are not at maximum recommended doses (lisinopril is 20 mg daily and metoprolol XL is 200 mg daily). Continue current therapy • Consider outpatient follow-up for dose titration based on patient's vital sign and tolerability of dose increase. If patient starts to experience side effect of hypotension, bradycardia, hyperkalemia, may need to document that patient is on maximum tolerated doses for HF therapy • Could also consider further staging of HF (class II or III) to determine if transition to Entresto would be appropriate	Efficacy: • Monitor signs/symptoms of HF (orthopnea, how many blocks can patient walk, any signs of fluid overload such as edema or jugular vein distension, etc.) • Can obtain echocardiogram once patient's HF medication regimen is optimized to evaluate LVEF Safety: • Vital signs (BP, HR) ACEi • Electrolytes (K+), BUN, creatinine

Health Care Problem	Priority	Therapeutic Goals	Recommendations for Therapy	Monitoring Parameters and Endpoints
ESRD	3	- Prevent or reduce complications (i.e., hyperkalemia, metabolic acidosis, anemia, CKD-related bone disorder) - Reduce morbidity and mortality risk	- Patient is currently taking sevelamer 1600 mg PO TID. Current phosphate level is 3.6 mg/dL and calcium is 8.5 mg/dL; calcium-phosphorus product $< 55 \text{ mg}^2/\text{dL}^2$. Consider obtaining vitamin D and parathyroid (PTH) levels - Patient's Hgb only 9.8 g/dL and should be evaluated for anemia. Order serum iron level, total iron-binding capacity (to calculate TSAT) and serum ferritin levels - Continue patient on hemodialysis (Tues/Thurs/Sat) - Continue lisinopril 2.5 mg daily - Counsel the patient to maintain adequate dietary intake of iron, folate, and B₁₂ - Counsel patient to exercise and to continue avoid use of tobacco products - Commend patient for adhering to hemodialysis schedule and reinforce the importance of it. Can also discuss dietary modifications such as monitoring of potassium, phosphorous, sodium, and fluids	Efficacy: - Monitor serum calcium and phosphorous levels - Monitor hemoglobin and hematocrit Safety - Adverse effects of sevelamer such as vomiting, nausea, diarrhea, dyspepsia ACEi - Electrolytes (K+), BUN, creatinine
Immunizations	3	Reduce the incidence of vaccine-preventable diseases	- Administer inactivated influenza vaccine during hospitalization while providing Vaccine Information Sheet (VIS) and ensuring proper documentation is met - Per CDC guidelines, patient should receive 3 dose series of hepatitis B vaccine. First dose should be administered during hospitalization. Second dose should be administered at least 1 month after the first dose and the third dose should be administered at least 2 months after the second dose (and at least 4 months after the first dose)	- Monitor for injection site reactions (e.g. pain, swelling, erythema, malaise, arthralgia) - Ensure outpatient follow-up to receive remaining Hepatitis B vaccines