

LOCAL CASE

ASHP CLINICAL SKILLS COMPETITION 2014
PHARMACIST'S PATIENT DATA BASE FORM**Demographic and Administrative Information:**

Date: September 5th, 2014
Name: Michelle Gardiner
Date of Birth: 9/2/1942
Height: 61 inches
Weight: 165 lbs.
Race: Caucasian
Religion: Catholic

Patient ID: 081485427
Room/Bed No.: 301/01
Pharmacy: Wegmans
Physician: Crafton

Prescription Coverage:

Insurance: Aetna
Copay: \$5.00 for generic/ \$10.00 for brand
Annual Income: \$39,500

Chief Complaint: "I feel like I am having a heart attack."

History of Present Illness:

MG presents to the Emergency Department with chest pain upon inspiration that resolves when sitting forward and pain that radiates to her shoulders. The patient also reports a productive cough (white sputum), sneezing, a runny nose, headache, and a stuffy nose; patient is afebrile. Records indicate 6 weeks ago, MG reported similar symptoms and was diagnosed with acute idiopathic pericarditis at that time. You notice that she had been prescribed ibuprofen 600 mg PO TID PRN. MG claims that this has not helped her "inflammation around the heart," and is still in pain. The patient also reports that she has gained about 4 lbs in the last week and a half, and is unsure as to why. Blood and sputum cultures were obtained this visit.

Past Medical History:

Heart Failure with Reduced Ejection Fraction (HFrEF), diagnosed over a year ago
Diabetes Mellitus Type 2, diagnosed in 2007
Hypertension, diagnosed at age 58 years old
COPD, diagnosed in 2007
Dyslipidemia, diagnosed last year
Obesity
Upper GI Bleed 5 years ago
Chronic Stable Angina, diagnosed last year

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Allergies/Intolerances:

Strawberries (throat swells)
Lisinopril (cough)

Outpatient Drug Therapy:

<u>Drug Name/Dose/Strength/Route</u>	<u>Prescribed Schedule</u>	<u>Duration Start-Stop Dates</u>
Ibuprofen 600 mg PO	three times daily PRN	08/01/2014 – 09/01/2014
Pioglitazone 30 mg PO	once daily	6/7/2007 - Present
Pravastatin 10 mg PO	once daily HS	01/25/2013 - Present
Metformin 1000 mg PO	twice daily with meals	07/25/2008 - Present
Hydralazine 10 mg PO	twice daily	05/25/2014 - Present
Metoprolol tartrate 12.5 mg PO	twice daily	3/10/13 - Present
Fluticasone propionate/Salmeterol Xinafoate 250 mcg/ 50 mg diskus inhaler: 1 puff PO	twice daily	3/26/2008 - Present
Tiotropium 18 mcg inhaler: 1 puff PO	once daily	11/04/2007 - Present
Albuterol sulfate 90 mcg inhaler: 2 puffs PO	four times daily PRN	11/04/2007- Present
Ranolazine 500 mg PO	twice daily	01/25/2013- Present

Medication History:

MG admits to occasionally missing doses of her medications, but is adamant that she is 100% compliant with her hypertension medications because of her family history of heart disease. When she remembers to take her inhalers, she always rinses her mouth out with water after each puff. She states that her chest pain is very controlled since being started on her medication for angina and has no issues with her other medications.

Surgical History: None

Family History:

Mother died of a heart attack at the age of 50 years old
Father died of heart failure at the age of 75 years old

Immunization History:

Completed childhood series
Varicella, Zoster, Td/Tdap, and MMR up-to-date
Influenza vaccine 2 years ago

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Social History:

Current smoker; 15 pack year cigarette smoking history
Denies any illicit drug or alcohol use

Physical Exam:

General: obese, distressed, Caucasian female
Integumentary: warm and dry lower and upper extremities; no finding of rash, lesions, eczema, nodules, or neoplasms; exam unremarkable
HEENT: no visual changes or dysphagia; patient complains of rhinitis
Cardiovascular: pericardial friction rub; 2 + pitting edema in both lower extremities; JVD: 5 cm; EKG shows ST segment elevations and PR segment depressions consistent with pericarditis
Endocrine: no overt symptoms of hyperglycemia
Gastrointestinal: abdomen is soft and non-tender with audible bowel sounds; patient had 2 bowel movements today; stool formed and free of pus or blood; exam unremarkable
Genitourinary: no irritation or obstructive symptoms; menopause; exam unremarkable
Neurological: A&O X 3; no complaints of headaches, paresthesia, ataxia, or weakness; exam unremarkable
Musculoskeletal: patient complains of chest pain radiating to trapezius ridges; patient reports pain resolves upon sitting up-right
Renal: In -1250 mL / Out - 500 mL
Pulmonary: Pulse oximetry: 95% on room air; FEV₁/FVC=58%; unchanged from 8 months ago; CXR showed cardiomegaly suggestive of a "water-bottle heart"

Vital Signs Today:

Temp: 37.8 degrees Celsius
BP # 1: 162/94 mm Hg
BP # 2: 164/92 mm Hg
HR: 88 beats/minute
RR: 18 breaths/minute

Fasting Metabolic Panel	
Na (mEq/L)	138
K (mEq/L)	3.9
Cl (mEq/L)	102
Phosphorus (mg/dL)	3.9
Ca ²⁺ (mg/dL)	9.2
Mg ²⁺ (mEq/L)	2.0
Glucose (mg/dL)	302
Cr (mg/dL)	1.0
BUN (mg/dL)	22

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CO2 (mg/dL)	20
Albumin (mg/dL)	3.9
AST (IU/L)	28
ALT (IU/L)	43
ALP (IU/L)	75

Fasting Lipid Panel	
TC: mg/dL	254
TG: mg/dL	198
LDL: mg/dL	185
HDL: mg/dL	38

CBC	
WBC (million/mm ³)	8500
Neutrophils (%)	50
Lymphocytes (%)	55
Eosinophils (%)	1
Bands (%)	0
Hgb (g/dL)	13
HCT (%)	31
Plt (K/mm ³)	298
Other	
CPK (mcg/L)	24
hs-CRP (mg/dL)	7
aPTT (seconds)	22
INR	1.1
D-dimer (ng/mL)	16
Troponin I (mcg/L)	3
Lactate (mEq/L)	0.4
BNP (ng/mL)	264
HbA1c (%)	11.2

Blood Cultures: Gram stain showed no growth x 4 bottles

Sputum Culture: No growth

Imaging Studies:

Transthoracic Echocardiogram on 3/10/13:

- LVEF of 35-40% ; dilated ventricle
- Hypokinetic left ventricle

Transthoracic Echocardiogram Today:

- LVEF: 20-25%; dilated ventricle
- Trace mitral regurgitation

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Cardiac Magnetic Resonance (CMR) Today:

- Ruled out cardiac tamponade
- Small pericardial effusions present 8 mm

Patient Narrative:

MG is admitted to your general cardiology medicine unit and is diagnosed with recurrent idiopathic pericarditis.

ASHP Clinical Skills Competition - Pharmacist's Care Plan - 2014 Local Answer Key

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/at discharge or next follow up visit)

**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
Recurrent, acute idiopathic Pericarditis	1	Prevent recurrence Prevent cardiac tamponade Minimize adverse drug effects through drug – drug interactions	PPI (omeprazole 20 mg or pantoprazole 40 mg) PO AC Breakfast daily for GI protection (patient has risk factors for GI bleed and has history of GI bleed) Colchicine: Because of the drug-drug (through ranolazine inhibiting colchicine's metabolism through P-gp) interaction with ranolazine and colchicine, the following dosage guidelines should be utilized for full credit: Attack dose: Maximum dose: 0.6 mg daily (0.3 mg twice daily) Maintenance dosing: 0.3 mg once daily x 6 months Recommended ibuprofen be discontinued and initiate aspirin 800-1000 mg PO q. 6-8 hours, scheduled (NOT PRN) x 3-4 weeks BONUS POINTS (3 points): Taper aspirin over 3-4 weeks; Aspirin 800-1000	Aspirin therapy: Blood in stool Pain should resolve in 1 week; if not patient should contact provider Tinnitus Avoid heavy ethanol use Colchicine: Blood dyscrasias: Baseline CBC with differential in 1 month then every 3 months if normal Gastrointestinal symptoms: Myotoxicity (including rhabdomyolysis) Baseline CPK & re-draw CPK if patient presents with symptoms of myopathy Avoid grapefruit juice B ₁₂ deficiency symptoms such as neuropathy like pain

			mg PO q 6-8 hours x 1 week then 3-4 week taper; student should always keep the frequency and decrease the dose Example: 1000 mg q 6- 8 hours x 1 week 750 mg q 6- 8 hours x 1 week 500 mg q 6-8 hours x 1 week 250 mg q 6 – 8 hours x 1 week The student should not recommend corticosteroid therapy	Monitor renal and hepatic function
HFrEF	2	Initiate appropriate morbidity and mortality lowering therapy	Initiate loop diuretic therapy • Furosemide: 20-40 mg PO IV daily; 40-80 mg PO daily or divided into twice daily dosing (2:1 PO:IV) • Bumetanide: 1-2 mg PO or IV Daily (~100% Bioavailability) • Torsemide: 10-20 mg PO OR IV Daily (~100% Bioavailability) • Ethacrynic Acid (no need to use this drug as patient does NOT have a sulfa allergy; very expensive and benefit does not outweigh cost) Switch metoprolol tartrate to succinate 25-50 mg PO once daily Initiate ARB therapy with one of 3 mortality lowering ARBs (valsartan 80 mg PO twice daily [goal 160 mg twice daily]), candesartan 4-8 mg once daily[goal at least 24 mg, max 32 mg], or losartan 25-50 mg once daily [goal 100 mg daily])	Loop Diuretic Goal urine output of 1 mL/kg/hour Complete metabolic panel at baseline Monitor at one month then at least every 3-6 months Metoprolol succinate Blood pressure and heart rate at baseline then monitor blood pressure at least twice daily (morning and prior to bedtime), keeping a log for a month Call provider if blood pressure becomes <90/60 mmHg and/or heart rate is < 55 bpm ARB therapy Blood pressure at baseline

				then monitor blood pressure at least twice daily (morning and prior to bedtime), keeping a log of blood pressures for a month Complete metabolic panel at baseline SCr and Potassium within 1 week of initiation Monitor at least every 3-6 months Counsel on signs/symptoms of angioedema
Stage 2 HTN	2	Lower blood pressure to goal of < 140/80 mm Hg to slow progression of cardiovascular disease and prevent or minimize other target organ damage	Optimize ARB <u>and</u> beta blocker doses then • can add either dihydropyridine calcium channel blocker (amlodipine 5-10 mg once daily; nifedipine <u>extended release</u> 30-60 mg once daily; felodipine 5-7.5 mg once daily) <u>or</u> • thiazide/ thiazide-like diuretic (chlorthalidone 12.5 mg once daily; HCTZ 12.5-25 mg once daily) Discontinue hydralazine due to adverse effect of pericarditis	Long-acting dihydropyridine calcium channel blocker: nausea, abdominal pain, palpitations , flushing, fatigue dizziness , hypotension/syncope, peripheral edema Thiazide or thiazide-like diuretic: Blood pressure at baseline then monitor blood pressure at least twice daily (morning and prior to bedtime), keeping a log of blood pressures for a month Call provider if blood pressure becomes <90/60 mmHg

				Complete metabolic panel at baseline Monitor within 1 week of initiation Monitor at least every 3-6 months
Uncontrolled DM	2	Prevent microvascular and macrovascular complications, and prevent morbidity and mortality Maintain: HgA1c <7-8% FPG 70-130 mg/dL PPG < 180 mg/dL	Thiazolidinediones(relative contraindication in setting of heart failure) and metformin should be discontinued due to risk with heart failure Initiate insulin glargine at 10- 15 (0.2 units/kg/day) units HS; patient weighs 75 kg which would be 15 units SQ HS	Insulin glargine: Monitor FPG for 1 week and if PPG and/or FPG are not at goal can initiate rapid acting insulin (aspart or lispro) Provide patient education to monitor for signs/symptoms of hyper and hypo-glycemia
Dyslipidemia	3	Initiate high intensity statin therapy	Higher potency statin (patient has history of DM), such as atorvastatin 80 mg or rosuvastatin 20 mg daily should be recommended BONUS POINTS (3 points) If student initially initiates either statin at lower doses (5-10 mg if using rosuvastatin or 20-40 mg if using atorvastatin) because of the increased risk of myopathy with combination of colchicine and statins	Upon initiation or titration, lipid panel should be analyzed within 2-4 weeks, then every 3-6 months then at least annually Baseline CPK Re-draw CPK if patient presents with symptoms of myopathy
Immunization Updates	3	Prevent infectious complications	- Annual Influenza vaccine - Pneumococcal (PPSV23) x 1 dose; student	Monitor patient for sign/symptoms of

		that propagate disease burden	should not recommend re-vaccinating as patient is > 64 years old when they received first dose	anaphylaxis and Gullain-Barre' syndrome
Chronic Stable Angina	3	Optimize regimen to ensure improved quality of life, and prevent morbidity, and mortality	Initiate Aspirin 81 mg therapy for chronic stable angina and DM (after completion of high dose aspirin therapy) Provide SL Nitroglycerin 0.4 mg tablets PRN Provide RAAS blockade, in form of one of the three mortality lowering ARBs for HFrEF (losartan, valsartan, candesartan)	Nitroglycerin PRN SL therapy: Do not chew, crush, or swallow sublingual tablet. Place under tongue and allow to dissolve. Alternately, may be placed in the buccal pouch. Monitor for bradycardia, flushing, hypotension, orthostatic hypotension, peripheral edema, syncope, tachycardia, headache, dizziness, lightheadedness, nausea, and GERD Contraindicated in patients with severe hypotension (SBP <90 mm Hg or $\geq$30 mm Hg below baseline), extreme bradycardia (<50 bpm) Can repeat dose every 5 minutes up to 3 times; if chest pain does not resolve after 3 doses, call EMS Store in original amber bottle and be stored for up to 6-12 months

Smoking Cessation	3	Decrease progression of cardiovascular disease	Address 5 A's of smoking cessation with patient - Ask about tobacco use - Advise to quit - Assess willingness to quit - Assist with quitting - Set a quit plan - Provide counseling for barriers Recommend pharmacologic therapy with one of the three types of medications: Nicotine Replacement Therapy (NRT): Lozenge: Patients who smoke their first cigarette within 30 minutes of waking should use the 4-mg strength; otherwise the 2-mg strength is recommended. Use according to the following 12-week dosing schedule: Weeks 1-6: One lozenge every 1-2 hours Weeks 7-9: One lozenge every 2-4 hours Weeks 10-12: One lozenge every 4-8 hours Use at least 9 lozenges/day during first 6 weeks to improve chances of quitting; do not use more than one lozenge at a time (maximum: 5 lozenges every 6 hours, 20 lozenges/day) Gum: Chew 1 piece of gum when urge to smoke, up to 24 pieces/day. Patients who smoke <25 cigarettes/day should start with 2-mg strength; patients smoking $\geq$25 cigarettes/day should start with the 4-mg strength. Use	Monitor patient's willingness and progress in smoking cessation Gum: Should be chewed slowly to avoid jaw ache and to maximize benefit. Chew slowly until it tingles, then park gum between cheek and gum until tingle is gone; repeat process until most of tingle is gone (~30 minutes). Lozenge: Should not be chewed or swallowed; allow to dissolve slowly (~20-30 minutes) Patch: Apply new patch to non-hairy, clean, dry skin on the upper body or upper outer arm; each patch should be applied to a different site. Apply immediately after removing backing from patch; press onto skin for ~10 seconds. Patch may be worn for 16 or 24 hours. If cigarette cravings occur upon
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			according to the following 12-week dosing schedule: Weeks 1-6: Chew 1 piece of gum every 1-2 hours; to increase chances of quitting, chew at least 9 pieces/day during the first 6 weeks Weeks 7-9: Chew 1 piece of gum every 2-4 hours Weeks 10-12: Chew 1 piece of gum every 4-8 hours Patch: Patients smoking >10 cigarettes/day: Begin with step 1 (21 mg/day) for 6 weeks, followed by step 2 (14 mg/day) for 2 weeks; finish with step 3 (7 mg/day) for 2 weeks . Patients smoking ≤10 cigarettes/day: Begin with step 2 (14 mg/day) for 6 weeks, followed by step 3 (7 mg/day) for 2 weeks Varenicline: Initial: Start 1 week before target quit date. Days 1-3: 0.5 mg once daily Days 4-7: 0.5 mg twice daily Maintenance (≥ Day 8): 1 mg twice daily for 11 weeks *If patient successfully quits smoking at the end of the 12 weeks, may continue for another 12 weeks to help maintain success. If not successful in first 12 weeks, then stop medication and reassess factors contributing to failure. Bupropion:	awakening, wear for 24 hours; if vivid dreams or other sleep disturbances occur, remove the patch at bedtime and apply a new patch in the morning. Do not cut patch; causes rapid evaporation, rendering the patch useless. Do not wear more than 1 patch at a time; do not leave patch on for more than 24 hours. Wash hands after applying or removing patch; may cause rash to application site Monitor for adverse affects such as: Central nervous system: depression, dizziness, headache, insomnia, nervousness, pain For oral preparations, monitor for: gastrointestinal effects such as stomatitis, dyspepsia, , gingival bleeding, glossitis, hiccups, jaw pain, nausea, increased salivation, stomatitis, taste perversion, tooth abrasions, ulcerative stomatitis, and
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			should begin at least 1 week before target quit date; 150 mg once daily for 3 days; increase to 150 mg twice daily with at least 8 hours between doses; treatment should continue for 7-12 weeks; efficacy has been demonstrated for up to 6 months	xerostomia Varenicline: Monitor for : CNS depression: may impair physical or mental abilities; patients must be cautioned about performing tasks which require mental alertness (operating machinery or driving) Dose- dependent nausea may occur; may lower dose for intolerable nausea Monitor all patients for behavioral changes and psychiatric symptoms (ex: agitation, depression, suicidal behavior, suicidal ideation); inform patients to discontinue treatment and contact their healthcare provider immediately if they experience any behavioral and/or mood changes. Hypersensitivity reactions: including angioedema and rare cases of serious skin reactions (including Stevens-Johnson syndrome) Bupropion :
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				if significant progress has not been made by the 7th week of therapy, treatment discontinuation should be considered Hypertension: May elevate blood pressure and cause hypertension. Events have been observed in patients with or without evidence of preexisting hypertension. Assess blood pressure before treatment and monitor periodically CNS stimulation: restlessness, anxiety, insomnia, or anorexia • Seizures: dose-related risk of seizures May cause weight loss Closely monitor patients for clinical worsening, suicidality, or unusual changes in behavior, particularly during the initial 1-2 months of therapy or during periods of dosage adjustments Cardiovascular disease: Use with caution in patients with cardiovascular disease, history of hypertension, or coronary artery disease;
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				treatment-emergent hypertension (including some severe cases) has been reported, both with bupropion alone and in combination with nicotine transdermal systems
Cardiovascular lifestyle modification	3	Improve lifestyle to decrease progression of cardiovascular disease	• DASH diet • Exercise recommendations: perform at least 150 min/week of moderate-intensity aerobic physical activity (50–70% of maximum heart rate), spread over at least 3 days/week with no more than 2 consecutive days without exercise; in the absence of contraindications, adults with type 2 diabetes should be encouraged to perform resistance training at least twice per week • BONUS POINTS (3 points): Patients that have pericarditis should be instructed to not perform heavy physical activity for at least 6 months after diagnosis	Monitor with log of DASH diet, exercise regimens used and amount of days and time of exercise regimen Can monitor BMI, weight, and blood pressure for progress