ASHP CLINICAL SKILLS COMPETITION

PHARMACIST'S PATIENT DATA BASE FORM

Demographic and Administrative Information

Name: SM
Address: 4929 Main St
Kansas City, MO 64112
Date of Birth: 11-8-40
Height: 5′10″ **Weight:** 113 kg
Gender: Male

Patient ID: 416-34-0893
Room & Bed: 612B
Physician: K. Sheehan
Pharmacy: Target (9th and Main Street)
Race: Caucasian
Religion: Methodist

History of Present Illness

SM is brought into the ER this morning (10/18/02) by his son because his right foot is tender and painful and appears to be swollen. SM first noticed some redness a couple of days ago and it continued to progressively worsen. He noticed a small ulceration on the bottom of his right foot several weeks ago and the only thing he can attribute it to is his worn out shoes. He did not see a physician for the ulcer because he thought it would heal on its own. He noticed the redness a few days ago when examining his feet. He has also been feeling very fatigued (especially in the morning) and has complained of frequent urination and thirst. SM was given a tetanus shot in the ER and was admitted to the floor through the ER.

Past Medical History

Type 2 Diabetes Mellitus x 6 years
Hyperlipidemia x 5 years
Hypertension x 6 years
Peripheral Neuropathy x 3 years
Depression x 2 years
Erectile Dysfunction x 6 years
Obesity

Family History

Father: ↓ age 63 secondary MI
Mother: ↓ age 67 secondary MI, also had Type 2 DM and HTN
Sister: ↑ age 63 with hyperlipidemia and HTN
Brother: ↑ age 67 with history colon cancer, Type 2 DM, and GERD
Brother: ↑ age 58 with Type 2 DM, HTN, hyperlipidemia
2 children in good health
(↓ = deceased, ↑ = alive)

Social History

Tobacco: 1 ppd x 45 years
ETOH: Denies use
Illicit Drugs – Denies use
Caffeine: 2 cups decaffeinated coffee qam

Vitals	05-13-02	10-18-02 (Date of Admission)
BP	146/84	154/92
Pulse	82	78
Temp	37.2°C	37.8°C
Resp	16	18

Chemistries	05-13-02	10-18-02
Na	139	140
K	4.5	5.2
Cl	100	102
CO_2	22	26
BUN	28	34
SCr	1.4	1.7
FBG	176	280
HbA_{1c}	8.2%	10.2%
Calcium	9.6	9.2
Albumin	4.2	4.2
AST	32	34
ALT	22	26

Hematology	05-13-02	10-18-02
WBC	9.9	14.2
Hgb	13.8	13.2
Hct	42	40
Plts	387	360
PMNs		74%
Bands		8%
Lymphs		13%
Monos		6%

Fasting Lipids	05-13-02	10-18-02
TC	230	
TG	280	
HDL-C	35	
LDL-C	136	

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Lifestyle

Occupation: Retired electrician

Status: Divorced x 20 years; lives alone but has a girlfriend of 10 years.

Children: 1 daughter & 1 son. Both reside locally. Daughter is a nurse and son is an accountant.

Physical Activity: No regular exercise routine. Cannot walk great distances because of the burning sensation in his feet and fatigue. He was bowling twice a week but lately he is finding little pleasure in his bowling league and does not feel like socializing.

Diet: Eats a lot of frozen meals and canned soups because he lives alone and is not fond of cooking. Does not pay attention to food labels, fat or carbohydrate content. The only time he received nutritional counseling was upon diagnosis of diabetes when he attended a three-day diabetes education course.

Urinalysis	05-13-02	10-18-02
Glucose	(-)	(+)
Ketones	(-)	(-)
SG		
PH		
Bacteria		
WBC		
RBC		
Protein	1+	1+
Leuk Est		
Nitrite		

Ancillary Labs	05-13-02	10-18-02
TSH	3.8	
PSA	1.3	

Procedures

Culture and sensitivity from deep culture pending (R foot).

Blood cultures and sensitivity pending.

X-ray of bone to rule out osteomyelitis pending.

Physical Exam (10-18-02)

Gen: WDWN obese, Caucasian male in NAD

VS: BP 154/92 (Used large adult cuff), P 78, RR 18, T 37.8°C, Ht 5′10″, Wt 113 kg

HEENT: PERRLA, EOMI, R & L fundus exam without retinopathy, sclera without icterus, mucus membranes moist, no oral lesions, poor dentition.

Skin: dry skin, no rashes

Neck: No JVD appreciated, no carotid bruits, no thyromegaly

Heart: RRR, no S_3, S_4. 2/6 systolic murmur heard at left sternal border without radiation

Lungs: CTA

Abdomen: soft, obese, symmetrical, nontender, nondistended, + BS, liver and spleen not palpable

GU: deferred

Extremities: Trace edema bilaterally in lower extremities. Dorsal area of right foot is erythematous, edematous, tender, warm to touch, an ulcer is noted with poorly demarcated borders (approximately 3 x 4 cm). Marked diminished sensation in both feet. Dry, scaly skin present on feet bilaterally. Normal range of motion. Tinea pedis between toes bilaterally.

Plan: Admit SM to medicine unit for treatment of cellulitis.

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Allergies/Intolerances

Codeine – itching

Prescription Coverage

Insurance: BCBS HMO
Copay: $10 generic/$25 brand
Cost per month: $150
Annual Income: $29,000

Current Drug Therapy

Drug Name/Dose/Strength/Route	*Prescribed Schedule*	*Duration Start–Stop Dates*	*Compliance/Dosing Issue*
1. Metformin 500 mg ii po	qam and qpm	02-23-1999 -	
2. Glipizide 10mg po	bid	01-21-1998 -	
3. Lovastatin 20 mg po	qhs	07-12-1997 -	
4. Lisinopril 10 mg po	qam	04-29-1996 -	
5. Amitriptyline 25 mg po	qhs	02-05-2000 -	
6. Sertraline 50 mg po	qd	11-03-2000 -	
7. Triamterene/Hydrochlorothiazide 75/50 mg po	qam	05-13-2002 -	
8. St. John's Wort 300 mg po	tid	09-05-2000 -	
9. Yohimbine 5.4mg po	tid	01-11-2001 -	
10. Triamterene/Hydrochlorothiazide 37.5/25 mg po	qam	06-08-2001 - 05-13-2002	
11. Glipizide 10mg po	qam	02-03-1997 - 01-21-1998	
12.			
13.			
14.			
15.			
16.			

Medication History

Tetanus shot 12 years ago, pneumovax in 2001.
Medication list confirmed with patient and community pharmacy records.
SM states he is adherent to his medication regimen but he is not sure he understood the role of each medication.
Denies any adverse effects except occasional GI upset.

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Clinical Significance	Health Care Need*	Pharmacotherapeutic Goals	Recommendations for Therapy	Monitoring Parameter(s)	Desired Endpoint(s)	Monitoring Frequency

Most Clinically Significant Problem	Cellulitis of the right foot	· Rapid resolution of cellulitis.
		· Preservation of normal limb function.
		· Avoid complications such as osteomyelitis, bacteremia, local abscess, superinfection with gram negative organisms, gangrene, thrombophlebitis, etc.
		· Heal ulcer.
		· Prevent amputation.
		· Prevent worsening/ recurrence of cellulitis.
			· Restrict activity to bed rest for leg elevation and immobilization.
			· All necrotic tissue should be completely debrided.
			· Nonpharmacologic treatment such as cool sterile saline dressings possibly followed by moist heat to aid in localization.
			· Antibiotic treatment – empiric treatment (until cultures and sensitivity results return) with agents such as (depending on institutional cost and formulary restrictions):
			  · Cefoxitin 1-2 gm IV q8h
			  · Cefotetan 2 gm IV q12h
			  · Ampicillin/sulbactam 1.5-3.0 gm IV q6-8h
			  · Ticarcillin/clavulanic acid 2 gm IV q6-8h (decrease dose from 3.1g b/c of renal function)
			  · Piperacillin/tazobactam 3.375 g IV q6h
			  · Gentamicin or tobramycin, 2mg/kg loading dose + clindamycin 600-900mg IV q8h or metronidazole 500mg q8h
			· May want to avoid aminoglycoside due to increased risk of renal failure in diabetics.
				· Clinical signs and symptoms of infection (decrease in swelling, erythema, etc).
				· Temperature
				· WBC and left shift
				· Vitals, Chem 7, LFTs
				· Formation of new scar tissue.
				· Tolerance to antibiotic.
					· Resolve cellulitis.
					· Heal ulcer.
					· Prevent amputation.
						· Vitals q8h
						· WBC with differential q48h until within normal limits, then weekly until course of antibiotics completed.
						· Chem 7 and LFT's weekly.
						· Physical exam daily.
						· Ask about presence of adverse effects daily.

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			· Once C&S obtained, target treatment towards involved organism. · Can consider change to oral therapy when signs/symptoms of infection are absent, wound is healing well with formation of new scar tissue, and the infection is not limb threatening.			
Major Clinical Significance	Poorly controlled diabetes	· Improve diabetes control to avoid microvascular and macrovascular complications. · Reverse or delay progressive renal injury before development of symptomatic renal insufficiency or ESRD. · Attain glycemic control to ensure optimal wound healing.	· D/C metformin due to creatinine level. · In hospital, administer insulin to regulate glucose levels. · Prior to making adjustment to oupatient antidiabetic medications, evaluate glucose level once cellulitis controlled. · Consider adding starting dose of thiazolidedione to sulfonylurea as next step (rosiglitazone 2-4 mg po qd or pioglitazone 15-30mg po qd) if glucose remains above goal once cellulitis controlled. · Could consider increasing dose of glipizide to 20mg po bid but the majority of patients achieve no benefit above 10mg po bid. · Could also consider daytime sulfonylurea and bedtime insulin but most patients prefer oral agents.	· Fasting glucose · Hb_{A1c} · LFTs · Monitor for adverse effects such as weight gain, upper respiratory tract infection, edema, headache, etc. with thiazolidedione. · Monitor for hypoglycemia as well as hyperglycemia with any change in regimen. · BP · Monitor urinalysis for proteinuria.	· Hb_{A1c} < 7% · Fasting BG 80-120 mg/dL and 2 hour postprandial glucose level < 180 mg/dL · Absence of sx of hypoglycemia or hyperglycemia. · Absence of adverse effects to thiazolidedione. · BP < 125/75 · Decrease BMI and lose weight.	· In hospital, monitor blood glucose daily. · BP q8h · Upon discharge, Hb_{A1c} quarterly and once at goal, semiannually. · Fasting glucose q visit to clinic and home glucose monitoring of preprandial and postprandial glucose daily. · LFTs q2 months for first year then periodically if started on rosiglitazone or pioglitazone.

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Clinical Significance	Health Care Need*	Pharmacotherapeutic Goals	Recommendations for Therapy	Monitoring Parameter(s)	Desired Endpoint(s)	Monitoring Frequency
			· Increase dose of lisinopril to 20mg due to proteinuria when K+ normalizes. · Routine diabetes education including medical nutrition therapy, physical activity, annual eye exam, podiatry exam q3-6 months, dental exam q6 months, etc. · Reinforce importance of daily foot inspection by patient. · Review symptoms of hypoglycemia and how to resolve. · Review symptoms of hyperglycemia. · Provide glucometer and instruct how to use. If patient already has a glucometer at home, review importance of home monitoring.			· Monitor for adverse effects to antidiabetic agents at each visit. · Urinalysis periodically.
Major Clinical Significance	Hypertension	· Improve blood pressure control. · Decrease morbidity/ mortality due to uncontrolled HTN (e.g., retinal damage, stroke, renal dysfunction, etc). · Identify underlying cause of hyperkalemia. · Return potassium levels back to normal.	· Eliminate high sodium diet. · Weight loss. · Increase in physical activity. · D/C tobacco. · D/C yohimbine as can contribute to hypertension. · D/C triamterene/HCTZ as K+ high and not a good combination with ACE-I. Consider 25mg of HCTZ.	· Blood pressure · K+ and BUN/Cr · Serum electrolytes · WBC · Tolerance and adherence to medications.	· BP < 125/75 because of 1+ proteinuria · Serum K+ level between 3.5-5 mEq/L · Absence of adverse effects such as cough, rash, or taste disturbance with ACE-I.	· Vitals q8h while inpatient. · K+ few days after d/c of triamterene /HCTZ then periodically. · Upon discharge, home BP monitoring or visit to

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			• Increase lisinopril when K+ normalizes due to 1+ proteinuria. • Supply home BP monitoring device or suggest patient visit pharmacy or fire station for evaluation.		• Monitor electrolytes and BUN/Cr with increase in ACE-I and addition of HCTZ instead of triamterene/HCTZ. • Monitor for worsening edema due to d/c of triamterene/HCTZ (edema can also be due to cellulitis).	pharmacy/fire station on routine basis to assess BP control daily or every few days. • WBC annually. • Renal function and electrolytes need to be monitored for increase in ACE-I or addition of HCTZ in 1-2 weeks, then periodically.
Major Clinical Significance	Hyperlipidemia	• Obtain lipid goals for secondary prevention due to diagnosis of diabetes. • Prevent an event such as an MI, sudden cardiac death, or stroke.	• Re-draw fasting lipid levels to assess patient's current status and need for medication adjustment/change. • Counsel on: 1. Reduce dietary fat and cholesterol. 2. Weight reduction. 3. Increase physical activity. 4. Smoking cessation.	• Fasting lipid profile. • Compliance with current lipid therapy. • Presence of adverse effects such as myalgia, GI complaints, etc.	• LDL < 100 mg/dL • TC < 200 mg/dL • TG < 150 mg/dL • HDL > 40 mg/dL • Prevention of CVD/CHD event. • Slow progression of atherosclerosis.	• Fasting lipid profile prior to discharge.
Major Clinical Significance	Depression	• Reduce symptoms of depression. • Facilitate patient's return to premorbid level of functioning. • Optimize drug therapy for depression.	• Obtain psychiatry consult to assess patient's depression. • Discontinue St. John's Wort due to potential interaction with sertraline and amitriptyline – optimize prescription.	• Monitor for symptoms of depression (e.g., loss of interest, isolation, etc.).	• Return to premorbid level of functioning. • Avoidance of drug interactions.	• Frequently initially early in treatment and once stabilized, at regular intervals.

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		• Avoid serotonin syndrome (HTN, hyperthermia, myoclonus, mental status changes, etc.).	antidepressant based on psychiatry's recommendations.			
Major Clinical Significance	Neuropathy	• Prevent future infections, trauma, ulcerations. • Improve/maintain patient's level of functioning. • Decrease rate of physical deterioration. • Improve patient's sense of well-being. • Improve patient's social relationships.	• Daily self inspection. • Quarterly exam by podiatrist. • Non-pharmacologic interventions: - Inspect feet daily for blisters, cuts, scratches. - Wash feet daily and dry carefully esp. between toes. - Avoid extremes of temperature. - Do not use chemical agents to remove corns and calluses. - Apply lubricating oil/cream to dry feet but avoid between toes. - Wear properly fitted shoes with socks. - Cut nails straight across. - Avoid crossing legs. • Attain glycemic goals. • Can consider switching amitriptyline to low dose desipramine (25mg) to try and alleviate morning grogginess. • Can consider changing TCA to an anticonvulsant such as gabapentin 300mg qhs initially	• Monitor glucose levels. • Monitor for adverse effects to chosen course of therapy (e.g., with desipramine, monitor for anticholinergic side effects, dizziness, drowsiness, etc.; with gabapentin, monitor for somnolence, dizziness, etc.; with carbamazepine, monitor for sedation, confusion, dizziness, etc.).	• Improve/alleviate any pain associated with neuropathy. • Prevent further insult/injury to lower extremities secondary to neuropathy. • Euglycemia.	• Daily monitoring of feet by patient. • Quarterly monitoring by podiatrist. • Monitor at each follow up visit with provider. • With carbamazepine, monitor at baseline and periodically LFTs, eye exam, urinalysis, BUN; obtain CBC monthly x 2 months and then yearly; monitor weight gain. • With desipramine, monitor baseline and periodic leukocyte and differential counts and LFTs; monitor weight gain

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			and titrate upwards, carbamazepine 100mg bid and titrate upwards, etc. · Can try using capsaicin cream – apply to area tid-qid.			
Less Clinical Significance	Drug Costs	· Provide formulary items for patient that are economical, safe and effective.	· Consider changing any name brand medications to generic if available. · Discuss patient's financial situation with him. · Determine whether patient has adequate insurance coverage.	· Medication refill history.	· Patient is able to acquire medications without serious financial consequences.	· At each follow up visit and each time patient receives medication refills.
Less Clinical Significance	Tinea pedis	· Resolve Tinea pedis.	· Treatment with 1% tolnaftate, 1% butenafine, or undecylenic acid. · Treat shoes with an anti-fungal powder. · Wear shoes in public bathrooms/showers. · Wear a different pair of shoes every other day so shoes dry out. · Wear absorbent cotton socks.	· Absence of Tinea pedis	· Resolution of infection with topical treatments. Otherwise may need to consider oral treatment with fluconazole 150mg qweek x 1-4 weeks.	· Infection should resolve in 2-4 weeks with topical treatment.
Less Clinical Significance	Tobacco Use	· Smoking cessation. · Reduce cancer risk. · Improve cardiovascular and pulmonary health.	· Encourage patient to enroll in smoking cessation program. · Do brief intervention with patient at each visit (5A's – ask, advise, assess, assist, arrange). · Discuss some of the therapeutic alternatives such as bupropion,	· Assess patient's willingness to quit. · Number of cigarettes smoked. · Patient adherence to smoking cessation program.	· Complete cessation of smoking	· Every 1-2 weeks initially and then less frequently. · Discuss success of smoking cessation

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			nicotine products, clonidine and nortriptyline (may favor bupropion initially due to history of depression, but would have to review other antidepressants SM was taking at the present time).	· Side effects to smoking cessation products utilized.		at each visit with provider. · If patient quits, implement strategies to prevent relapse (address problems such as lack of support, negative mood/depression, withdrawal symptoms, weight gain, decreased motivation).
Less Clinical Significance	No documented influenzae vaccination	· Prevent influenzae and complications.	· Administer annual influenzae vaccination in Oct/Nov.	· Monitor for adverse reactions such as tenderness, redness, induration, fever, etc.	· Avoidance of influenzae	· Monitor for short period (e.g., 24 hrs) after receiving vaccination.
Less Clinical Significance	Lack of knowledge concerning drug therapy, disease states, life style modifications, and adherence to therapy	· Patient understanding of disease states and roles of medications. · Implementation of lifestyle modifications. · Adherence to therapy (including what to do if miss medication).	· Make appointment to pharmacy clinic to review medications including purpose, regimen, potential adverse effects, compliance, etc. · Assess current knowledge of disease states/medications and provide necessary information.	· Question patient at each visit about change in disease state status and about the presence of drug therapy problems. · Check medication refill history.	· Adequate knowledge of drug therapy and disease states. · Compliance with refills and daily administration of medications.	· Patient should have discharge counseling upon leaving the hospital and then can be scheduled for pharmacy visit in primary care clinic. · Discuss with patient at each follow up visit. · Assess refill history with each refill.

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