

Location: Emergency room

Vitals:

BP: 120/70, HR: 70/min, regular, RR: 28 min, Temperature: afebrile

C.C:

Shortness of breath

HPI:

A 64 yr old Caucasian male with a history of orthopnea and PND presented to the ER at 7 PM with a complaint of 2 months of progressively increasing shortness of breath. His condition has acutely become worse over the past 2 days such that he now has shortness of breath at rest. The SOB is slightly relieved when he sits upright. He denies any chest or abdominal pain. He complains of mild cough with deep inspirations that are associated with occasional pink frothy sputum. He has a 20-pound weight gain since the symptoms began. He is also complaining of easy fatigability, swollen legs, and decreased appetite. He denies any fever, chills, nausea, vomiting or headache. Bowel movements are regular and he denies urinary problems. PMH: He is a known hypertensive and diabetic of 19 yrs. He had a Q wave MI 6 yrs ago that was treated with thrombolytic therapy. He also has a history of hypercholesterolemia. Medications: He is on metoprolol, lisinopril, glyburide, simvastatin, aspirin, and isosorbide dinitrate. Allergic history: NKDA. SH: The patient has smoked 1 PPD for the past 40 years. Occasionally drinks alcohol on the weekends. He is retired and lives at home with his wife. FH: Father died of a heart attack at the age of 70. Mother died at the age of 68 from breast cancer metastasis.

How would you approach this patient?

Elevate head of bed

Pulse oximetry, stat and continuous

Oxygen, inhalation

IV access, stat

Cardiac monitor

12 lead EKG, stat

Results:

Pulse oximetry shows oxygen saturation of 89% on 3 liters oxygen.

EKG shows an old Q wave in inferior leads with no significant changes from the old EKG.

Now do the physical examination:

General

Heart

Lungs

Abdomen

Extremities

Here are the results of the Examination:

Moderate JVD+, Mucosa is moist. Lungs: Bilateral decreased breath sounds with bibasilar crackles. Heart: Rate and rhythm is regular. S1 and S2 heard. S3 gallop present. Abdomen: Soft, Right upper quadrant tenderness is present. Liver is 1 cm below the right costal margin. Bowel sounds are present. No free fluid clinically. Extremities: 3 + bilateral pitting edema, no calf tenderness, no cyanosis

So how would you approach this case?

So basically the issue here is the differential diagnosis of progressive shortness of breath. Again in the CCS all cases are really straightforward.

As we said this is a straightforward case of congestive heart failure, but you should consider 2 other things in this pt. One is renal failure due to diabetes and hypertension and liver failure due to some other reason (for example; alcoholism, hepatitis etc) even though they

are unlikely. So, always start with a relevant broad differential diagnosis and then work from there because the ECFMG (CCS) expect this from you. You should be considering why he is having CHF recently even though he had an MI 6 yrs ago. One possibility is another MI, which may be silent because he is a diabetic patient (autonomic neuropathy). The other possibilities are worsening hypertension leading to diastolic dysfunction or noncompliance with medication and diet resulting in decompensation of systolic dysfunction.

Order the following.

Furosemide (Lasix), IV, stat and continuous
Chest - X ray PA and lateral views, stat
CBC with differential, stat
BMP, stat
CK-MB, stat, and every 8 hours x 2
Troponin I, stat and every 8 hours x 2

Results:

Chest - X ray is consistent with bilateral pulmonary edema. CK-MB and Troponin-I are normal. CBC and differential is normal. BMP shows Na 134 (Dilutional hyponatremia), K - 4.0, Chloride, CO2 and Ca are WNL. Blood glucose is 380.

Order:

Admit to ward
Telemetry
Ambulate at will
Low salt diet
Low cholesterol diet
Diabetic diet
Fluid restriction
Urine output
Daily weights (type - weight, every day)
DVT prophylaxis (type - Pneumatic compression stockings)
Continue all his home medications
EKG, repeat in the morning
BMP, next day (to check K and other electrolyte abnormalities with Lasix)
HbA1C, routine
Lipid profile, routine
Accucheck, every 6 hours
KCL, oral, continuous (as long as you give Lasix)
Digoxin, oral, continuous
Echocardiogram, routine (to assess the left ventricular function)

Make sure the patient is on following medications for heart failure:

Aspirin
Digoxin
Beta blocker (metoprolol)
ACE inhibitor (Enalapril or lisinopril)
Diuretic

Ok now we know that this most likely due to CHF. So what do you do for this pt?

Determine the LV function by obtaining a 2D echocardiogram.
Continue IV furosemide along with oral potassium because furosemide will cause hypokalemia. Order daily BMP.
Continue lisinopril (ACE inhibitors should be added if the pt is not on ACEIs)
Beta blockers have clearly shown benefit in heart failure; so, they should be continued unless the patient is in acute pulmonary edema or has hypotension.
Digoxin is optional. It is particularly indicated if the patient is having atrial fibrillation or severely symptomatic.
Start insulin- order NPH and regular insulin
Continue aspirin
Continue simvastatin

You have admitted the patient. The next day is the day two. What is the plan?

Examine the patient

Consider converting IV to oral diuretics

Determine if the patient stable for discharge?

Assess the need for oxygen therapy. The goal saturation is 92 to 96%. Wean the oxygen if his pulse oxygen shows saturations of >92.

At the time of discharge consider the following:

Patient education

Cardiac rehabilitation program

Smoking cessation program

Alcohol cessation program

Regular exercise

Medication compliance

Seat belt use

*Follow up in 2 weeks

Primary diagnosis:

Exacerbation of CHF

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