Patient Safety in Rural Settings

4 Cases: A Brief Presentation

Deep Vein Thrombosis/Pulmonary Embolism Case Studies

CASE #1: Mrs. Olson schedules a visit with her physician because she has pain and swelling in her upper right thigh. She is afebrile, has no change in vital signs, and is not short of breath. Her physician, Dr. Hanson orders a duplex examination to rule out a deep vein thrombosis and promises to call Mrs. Olson with the results. Later that day, Dr. Hanson receives the results from the duplex scan reporting that Mrs. Hanson does have a clot in her superficial femoral vein. Dr. Hanson calls Mrs. Olson and explains, “You do have a clot but it is in a superficial vein so there is no need to treat. We don’t treat superficial veins. Call me if you develop other symptoms but for now we don’t need to do anything else. The clot will dissolve itself in a few days to weeks.”

Three days later, Mrs. Olson develops acute shortness of breath while in the shower. She collapses and her husband calls 911. Upon arrival at the hospital, Mrs. Hanson is determined to have a pulmonary embolism. She is started on intravenous heparin and has a long, difficult hospital course. She can eventually be discharged home with oxygen at 3 liters/minute.

CASE #2: Joseph Nonnenmacher, 42 years old, has a 5-year history of chronic obstructive lung disease, secondary to long-standing asthma and tobacco use. He was admitted to the hospital 10 days prior with an exacerbation secondary to viral pneumonia that later developed into bacterial pneumonia. Currently he is receiving antibiotics, pulmonary therapy, oxygen, and IV fluids for dehydration. His physician, Dr. Moore, plans to discharge him tomorrow. Joseph will continue to use oral antibiotics and bronchodilators tomorrow.

Yesterday, Joseph began experiencing calf pain and tenderness, which has worsened somewhat today. His physician ordered testing to rule out a deep vein thrombosis. The lab results indicate Joseph has multiple calf vein thrombi. Dr. Moore has opted to not begin anticoagulation therapy because the thrombi are in calf veins.

CASE #3: Mrs. Batey, 62-year-old woman, was diagnosed with a deep vein thrombosis in her lower left leg at her physician’s office. She developed symptoms two days prior, due to unknown causes. Her physician decided that out-patient therapy using low molecular weight heparin was appropriate since a) Mrs. Batey’s daughter-in-law was willing to be trained in how to give the subcutaneous (SQ) injections, b) Mrs. Batey has no symptoms of a pulmonary embolism, and c) there are no other contraindications such as recent surgery or a peptic ulcer. Mrs. Batey’s insurance will pay for outpatient anticoagulation therapy. Mrs. Batey is nearly 6 feet tall and weighs 255 pounds.

Dr. Greene sent Mrs. Batey to the hospital to have a duplex screen done to confirm the diagnosis and then to receive instructions in administering the SQ injections. The test confirmed the diagnosis of DVT and Dr. Greene was contacted for specific orders. She requested that Mrs. Batey be given 1mg/kg enoxaparin SQ twice daily for five days (rounding the dose to the nearest 10 mg). The nurse assisting with Mrs. Batey’s care is a neighbor of the Batey family. She suspects that Mrs. Batey may be sensitive about her
size and feels uncomfortable asking Mrs. Batey to be weighed or to report her weight. (The nurse is 5’2” tall and weighs 102 lbs.) The nurse estimates Mrs. Batey's weight at 180 pounds. The pharmacist calculates the dosage of LMWH as 80mg (i.e., 180 lbs = 81 kg = 80 mg). The dosage based on her real weight would be 120 mg (i.e., 255 lbs = 116 kg = 120 mg).

CASE #4: Ms. Zimmer had elective surgery on her foot to correct an orthopedic problem at a large hospital about 450 miles from her small hometown. She was able to return home the next day as a friend had accompanied her to be able to drive her home. The third day after surgery, Ms. Zimmer noticed that she had an area of redness behind her knee that was tender to the touch. She notified her local primary doctor who immediately suspected a deep vein thrombosis given her history of recent foot surgery. Ms. Zimmer was examined and diagnosed with a thrombosis. She and her physician agreed that outpatient anti-coagulation therapy would be appropriate with low molecular weight heparin (LMWH) or enoxaparin.

She received instructions on how to administer the medication from the physician at the local hospital where she picked up the medication. Based on her weight of 164 lbs (74.5 kgs), her prescription was enoxaparin 75 mg sq every 12 hours X 5 days. Since this medication comes in pre-filled syringes, Ms. Zimmer was told to discard 5 mg from each of the 80mg syringes to make 75 mg.

The usage of LMWH is irregular at the local hospital. Since LMWH is very expensive, Mrs. Jones, the hospital pharmacist, keeps only a very few pre-filled syringes of the 100mg/ml, 80mg/0.8ml and 60mg/0.6ml strengths in stock. Pharmacist Jones did not have enough 80 mg syringes to fill Ms. Zimmer’s entire prescription, so included four 60mg syringes as well, placing handwritten instructions in the bag with the syringes directing the patient to use 1¼ of two 60mg syringes to complete her course of therapy. When Ms. Zimmer arrived at the pharmacy, a Pharmacy Technician waited on her, and asked if Ms. Zimmer had any questions for the pharmacist. Ms. Zimmer responded no, adding that her physician had already told her how to use the syringes.

Ms. Zimmer returned home, removed the syringes from the bag and placed the syringes into an opaque plastic box she had in her bedroom. She discarded the paper sack from the hospital, not noticing the pharmacist’s handwritten note inside. Ms. Zimmer also failed to notice the different strengths printed on the syringes. She administered the medication, each time wasting 5 mg. from each syringe. Hence, for four doses she receives only 55 mg instead of the intended 75 mg. At the end of the treatment, Ms. Zimmer’s symptoms are only partially resolved. She returns to her physician, who decides to admit Ms. Zimmer to the hospital to receive conventional heparin intravenous therapy under close medical supervision.

QUESTIONS:
- Please identify the basic topic of this case.
- What are the issues in this case?
- What are the key learning points?
- What clinical guides or care processes could be suggested?
- Where is there room for improvement?
- If you encountered this case, what would you do?