Deep Vein Thrombosis in an Elderly Man after Hip Surgery

NURS 6035 Practicum I

Case Study #2

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December 1, 2011

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Deep Vein Thrombosis in an Elderly Man after Hip Surgery

Subjective

Case Selection

Choice of patient. I chose this patient because I wanted to learn the current evidence-based interventions for DVT prophylaxis and treatment in the patients undergoing major joint surgeries, such as total hip or knee surgeries.

Number of encounters. The DNP student had two encounters with this patient- September 26 and September 29.

Site. Brookhaven Nursing Center, Carrollton, Texas. Brookhaven Nursing Center is a skilled nursing facility.

Insurance. This patient is enrolled in the Medicare program.

Patient Profile

Identifying factors. N.J. is an 85-year-old Caucasian male, who was admitted to this facility on September 16, 2011 after having left hip open reduction and internal fixation (ORIF) on August 29, 2011.

Date of birth. February 2, 1926.

Date of first encounter. September 26, 2011.

Background Information

Chief complaint (CC). “My leg hurts very bad”.

History of Presenting Illness (HPI). N.J. had a fall in late August and fractured his left hip. He underwent left hip ORIF on August 29, 2011. He remained hospitalized till September 16, 2011 because of severe deconditioning after the surgery. He has not been doing well since
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he had the hip surgery. His main complaint is the pain in his left hip and left leg. His activity level is weight bearing as tolerated. He has been able to go to physical therapy as scheduled until about a week ago, he refused to move his left leg and left foot to physical because of the pain. He was put on Norco 5/325 four times a day about a week ago and also as needed for pain, but the pain medication does not seem to relieve his pain.

**Past Medical History (PMH)**

1. Hypertension (diagnosed over twenty years ago)
2. Pulmonary embolism (PE) (diagnosed in 2002)
3. History of fall in 2002
4. Dementia (diagnosed about six years ago)
5. History of Urinary tract infection
6. Anemia (diagnosed after surgery in August, 2011)

**Past Surgical History (PSH)**

1. Hernia repair over 20 years ago
2. Remote history of Cataract removal
3. history Left ankle surgery in 2000
4. Remote history of hemorrhoidectomy

**Allergy:** NKDA

**Current medications**

1. Tylenol 325 mg two tablets by mouth every four hours as needed
2. Dulcolax suppository 10 mg per rectum every day as needed
3. Norco 5/325 one tablet by mouth four times a day scheduled
4. Norco 5/325 one tablet by mouth every four to six hours as needed, not to exceed four grams in 24-hour period

5. Catapres 0.1 mg one tablet by mouth every four hours as needed

6. Milk of magnesium 30 ml by mouth every evening as needed

7. Norvasc 5 mg one tablet by mouth daily

8. Aricept 5 mg one tablet by mouth every evening

9. Ferocon one capsule by mouth daily

10. Lisinopril 40 mg one tablet by mouth daily

11. Protonix 40 mg one tablet by mouth daily

12. Trazadone 50 mg ½ tablet by mouth every bedtime

13. Coumadin 5 mg one tablet by mouth every evening at 5PM

14. Metoprolol 100 mg one tablet by mouth two times a day

**Diet:** Regular diet

**Activity level:** weight bearing as tolerated

**Health maintenance**

1. Flu vaccine November 2010

2. Pneumovax in 2011

3. Last eye exam October 2010

4. Last dental exam April 2011

5. Last physical exam July 2011


7. Last PSA in July 2011
Family history

N.J.’s father had HTN and stroke and died at the age of 89. Mother had history of HTN and died at the age of 87. He has two brothers and one sister. The oldest brother died from heart disease at the age of 91. Another brother had HTN and passed away at the age of 90. His sister is still alive and has HTN and heart disease. He has two daughters. One daughter has arthritis and HTN, and the other daughter has heart disease. He has five children and eight great grandchildren. They are all well. See the genogram below:
Social history

N.J. was a physical trainer. He retired about twenty years ago. He lived independently in his apartment in McKinney, Texas before the hospitalization. He is a widower. He has two daughters. One daughter lives about three miles away from him, and another daughter lives in Oklahoma. The daughter who lives close to him visits him almost every evening while he is in
this nursing facility. He denies cigarette smoking, alcohol drinking or illicit drug use. He ambulated independently before the fall in August, 2011.

**Review of Systems (ROS)**

This patient has dementia. He is not a good historian, but he is able to answer some simple questions and follow some commands appropriately.

**General.** States that he has very bad pain in left leg. Unable to label on 1-10 pain scale. Denies headache, nausea, vomiting, or diarrhea. Denies shortness of breath or chest pain.

**Skin/hair/nail.** Denies new skin break down, skin lesions, excess sweating, dryness, hair loss, or nail changes.

**HEENT.** Had left eye surgery. Denies problems with swallowing. No thyroid dysfunctions. Denies recent vision change, double or blurred vision. Denies earaches, sore throat, nasal congestions, or mouth pain.

**Chest/Lungs.** Denies cough, difficulty in breathing or shortness of breath. He has history of PE according to his medical record.

**Cardiovascular.** No chest pain or edema.

**Gastrointestinal.** Denies abdominal pain or discomfort. Denies nausea, vomiting, or diarrhea. Denies indigestion or heart burn. Denies constipation.

**Genitourinary.** Incontinent urine. Wears adult brief. Denies burning or bloody urine.

**Endocrine.** Denies heat or cold intolerance.
**Musculoskeletal.** No chronic lower back pain. No joint swelling. Denies numbness or tingling in both legs. States that he has very bad pain in left leg, from left thigh to left lower leg even when he is resting. States that he does not want to move his leg because of the pain.

**Neurological.** Denies dizziness, numbness or tingling in his feet. Denies headache.

**Psychological.** Denies excessive sleeping or feeling nervous.

**Discussion of Pathophysiology**

N.J. is an 85-year old gentleman. He has a history of pulmonary embolism (PE), which was diagnosed in 2002. During the conversation with his daughter on the phone, I learned that N.J. fell in December, 2002 and developed shortness of breath several days later and was sent to the local hospital. He was found to have PE then and was put on Coumadin therapy. His daughter stated that he did not have any fractures during that fall, and no one told her that N.J. had DVT at that time. He had been on Coumadin treatment for about a year and half, and Coumadin was discontinued because he developed skin bruises easily. His daughter could not remember if anything was done to confirm the absence of the PE after Coumadin was discontinued. After his left hip surgery, N.J. has not been feeling well. The director in the Rehabilitation department told me that about a week ago, N.J. started to complain a lot of pain in his thigh and left lower leg even though he is resting. I suspected that he has deep vein thrombosis (DVT) in his left leg.

* DVT is one of the most common and fatal complications in older adults who undergo major joint surgeries, such as hip and knee surgeries (Fisher, 2011; Kapoor et al., 2010; Turnbull, 2007). Cochrane systematic reviews have indicated that without thromboprophylaxis, venous thromboembolism consisting of DVT and PE, can occur in up to 90 percent of patients
who undergo total hip or knee replacement (Salazar, Malaga, & Malasquez, 2010). However, although the patients undergoing total hip surgery have received the thromboprophylaxis, they still have significantly high risk to develop proximal DVT (Lieberman & Lieberman, 2002). As a result, the rehabilitation time prolongs, and mortality rates increase when the blood clots dislodge from the veins and travel to the lungs, causing PE (Nakase et al., 2009).

The three most common causes of a DVT are venous stasis, coagulation, and damage to the vessel wall (American Academy of Orthopedic Surgeon [AAOS], 2009; Patel, 2011). During the total hip or total knee surgeries, extensive injuries to the soft tissues and bone can happen. Trauma to the vascular wall leads to the elevated levels of tissue factor, which can activate the coagulation. As a result, excessive amounts of thrombin are generated, leading to thrombus formation and platelet activation (Fisher, 2011; Patel, 2011). In addition, “mechanical destruction of the bone marrow during these surgeries can also cause release of marrow cells and cell fragments into the circulation” (Fisher, 2011, p. 345). Further, during the total hip and knee replacement, a decrease in blood flow may occur during manipulation of the leg. Decreased blood flow in the blood vessel causes the distension of the vessel wall, leading to “further endothelial damage and the subsequent activation of coagulation” (Fisher, 2011, p. 345). Moreover, postoperative immobilization and swelling of the leg after the surgical procedure also reduce venous return and thus increase the risk for the development of DVT (Fisher, 2011; Patel, 2011).

In addition, other secondary factors leading to a DVT can include older age, malignancy, history of a DVT or PE, coagulation abnormality, prolonged immobility, major trauma, acute spinal cord injury, stroke, recent major joint surgeries, such as total hip and total knee surgeries, chronic obstructive pulmonary disease (COPD), heart failure, severe sepsis,
hyperlipidemia, hypertension, autoimmune disease, smoking, estrogen therapy, obesity, and vein disease (AAOS, 2009; Skinner & Moran, 2008). N.J. is an 85-year old male. He has a history of PE, and he underwent left hip ORIF about a month ago. His age, previous history of PE, and left hip surgery increase the risks for him to develop DVT.

The common signs and symptoms of DVT may include pain in the affected extremity that may increase with exercise but not relieved with rest, sudden edema of one extremity, redness or discoloration of the skin, warmth of the affected area, and distended veins (AAOS, 2009; Skinner & Moran, 2008). Other signs that are not very common but may present include low-grade fever and tachycardia (Skinner & Moran, 2008). However, the American Academy of Orthopedic Surgeons (AAOS) (2009) states that only less than thirty percent of the patients with DVT present the classic signs of leg pain or discomfort, edema, distended veins, or leg warmth.

DVT can cause fatal consequences in the patients with major joints surgeries (Skinner & Moran, 2008). PE is a life-threatening situation. It occurs when venous thrombi dislodge from their original location and travel through the right heart and into the pulmonary artery, causing the blockage of a major pulmonary vessel, leading to circulatory failure and death (Patel 2011; Skinner & Moran, 2008).

In addition, DVT can cause long-term complications such as recurrent DVT and post-thrombotic syndrome (PTS) (Davies, Richardson, & Cohen, 2000; Skinner & Moran, 2008). The recurrent DVT may contribute to the development of PE and cause additional damage to venous valves, resulting in chronic venous insufficiency (Skinner & Moran, 2008). Studies have indicated that the incidence of PTS can be as high as 70 percent in those patients with lower extremity DVT (Fitzgerald, McAndrew, Kraay, & Goldberg, 2011). PTS is a chronic condition
in the lower extremity. It usually develops after DVT and generally presents the signs and symptoms such as “edema, skin induration, hyperpigmentation, venous ectasia, redness, pain with calf compression, and venous ulceration” (Fitzgerald et al., 2011, p. 530). PTS may further cause venous hypertension, leading to the damage of the integrity of the vascular system within the lower extremities (Skinner & Moran, 2008).

Clinical findings, such as positive Homan’s sign (calf pain caused by the dorsiflexion of the foot) and positive Pratt’s sign (pain induced by squeezing the calf) are sometimes helpful for the clinicians to suspect DVT in the patients with a complain of leg pain after hip or knee surgeries. However, these tests alone are not reliable because they may not be able to detect the large thrombi (Skinner & Moran, 2008). The commonly used diagnostic tests for DVT include venography, duplex or Doppler ultrasonography, and magnetic resonance imaging (MRI) (AAOS, 2009). Venography is very accurate and can detect blockage in both the thigh and the calf; however, it is an invasive procedure because it uses a radiographic material injected into a vein on the top of the foot, and it is very costly and cannot be repeated often. In addition, the injected material may contribute to the creation of thrombi (AAOS, 2009; Skinner & Moran, 2008)). Duplex or Doppler ultrasonography is very accurate to identify the blood clots, and it is noninvasive and painless. It can be repeated regularly and less costly than venography. However, ultrasonography is less sensitive in detecting thrombi in the calf and in the deep vein of the pelvis (AAOS, 2009; Ebert, 2003). MRI is very effective in diagnosing DVT in the pelvis and in the thigh. However, MRI procedure is costly and cannot be used if the patients have certain implants such as a pacemaker or a defibrillator. In addition, patients who have close phobia may not tolerate this procedure (AAOS, 2009).
Objective Data/Exam

Vital signs

Temp: 97.7 (oral) Pulse: 60 Resp: 20 BP: 128/76 O2 Sats: 97% on room air Weight: 227.6 lbs Height: 72” BMI: 31.2

Physical Examination

General: N.J. is an 85-year-old obese Caucasian male sitting in the wheelchair. He is well developed, well nourished, and his appearance is consistent with his stated age. He is dressed appropriately for the weather and is well groomed. However, he looks uncomfortable. He does not want to stretch his left leg or move his left foot because of the pain.

Skin/Hair/Nail: His skin is warm, pink and dry with no excessive dryness or skin breakdown. Left hip surgical incision site clean, dry and intact without redness or edema. Incision heals well. There is an egg-sized nodule is noted in his left lateral calf area. The nodule is skin color, soft to touch and movable without any tenderness. Patient does not remember how long
that nodule has been there, or if it is growing bigger. He states that he does not know that he has a nodule in his leg. Hair has normal texture. No nail clubbing or deformities noted.


**Neck:** Supple neck, midline trachea, no palpable thyroid.

**Lungs:** Effort normal. No respiratory distress. Normal diaphragmatic position and motion. No use of accessory muscles. Bilateral breath sounds clear to auscultation. No wheezing or rhonchi heard.

**Heart:** Regular rate and rhythm, normal S1 and S2 without extra sounds or murmurs. Pulses normal throughout without bruits, neck vein distension, or dependent edema.

**Musculoskeletal:** Joints symmetrical, without swelling, redness or tenderness. Limited range of motion in left hip, left knee and left ankle. Abduction of left hip is about 25 degrees with adduction of about 15 degrees. No tenderness or edema of left hip and left thigh with pressure. Unable to lift or move his left foot off the wheelchair foot-rest without assistance. Unable to stretch his left leg. Upper extremities strength 3/5. Right lower extremity strength 3/5. Unable to assess the left lower extremity muscle strength due to patient’s refusal to move his leg. Bilateral pedal pulses, popliteal pulses palpable. Unable to check his femoral pulses while he was sitting in the wheelchair. Positive Pratt’s sign. Unable to perform Homan’s sign secondary to patient’s unwillingness to move his left leg.
Neurological: Alert and oriented to name. Able to answer some simple questions and follow some simple commands. Unable to assess cranial nerves due to patient’s mental status. Both long term and short term memory are deficient.

Psychosocial: Calm and cooperative. Moderately distressed due to left leg pain.

Laboratory Review (VQ scan and Doppler venogram completed on 12/31/2002 obtained from the patient’s medical record)

VQ Scan on 12/31/2002: positive PE

Venous Doppler of bilateral lower extremities on 12/31/2002: unremarkable bilateral lower extremities Doppler venogram

CBC (completed on 9/25/2011)
- WBC: 6.5 (4.5-11.0)
- HGB: 12.1 (13.5- 18.0)
- HCT: 37.2 (40.0- 52.0)
- Platelet: 242 (140-440)
- Neutrophils: 59 (45-75)
- Lymphocytes: 21 (20-45)
- Monocytes: 16 (8.5- 12.0)
- Basophils: 0 (0-2)

CMP (completed on 9/25/2011)
- Na: 137 (134- 145)
- K: 4.2 (3.6-5.2)
- Cl: 105 (98-107)
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- CO2: 29 (22-34)
- BUN: 14 (7-17)
- Creatinine: 0.7 (0.5-1.0)
- Calcium: 8.5 (8.4-10.2)
- Mg: 2.0 (1.7-2.2)

**TSH** (completed on 9/16/2011): 2.010 (0.360-3.740)

**Prothrombin Time (PT)** (completed on 9/25/2011): 20.0 (9.8-17.0)

**International Normalized Ratio (INR)** (completed on 9/25/2011): 1.64 (2.0-4.0).

**Venous Doppler study of left leg** (ordered and completed on 9/26/2011): Partial acute DVT in the proximal superficial vein, popliteal vein, and peroneal vein. Also positive occlusive DVT in the mid to distal superficial femoral vein is noted.

*Rationale*: *Venous Doppler ultrasonography is a commonly used and very accurate diagnostic test to identify the thrombi in the veins. The test is noninvasive, painless, and much less expensive than venography. It can be regularly repeated and can reveal other causes for symptoms. It is very sensitive in proximate thrombi, although may have limited ability to view the thrombi in the deep vein of the pelvis (AAOS, 2009). It is a commonly ordered test in the long-term care facilities when DVT in extremities is suspected.*

**Assessment/Impression**

**Presenting problem**

N.J. has been complaining of pain in his left leg and does not want to move his left leg and left foot. He is able to perform lower degrees of adduction and abduction of his left hip
without exacerbating his left hip pain. His left hip area has no tenderness or edema noted. His venous Doppler study has shown that he has left leg DVT.

**Acute Diagnoses**

- **DVT of leg, distal (calf) (453.42).** *Venous Doppler study shows that this patient has positive occlusive DVT in the mid to distal superficial femoral vein.* Although *Duplex/Doppler ultrasonography is less sensitive in distal thrombi, in this case, it has detected the DVT in the mid to distal superficial femoral vein (AAOS, 2009; Ebert, 2003)*

- **DVT of leg, proximal (thigh) (453.41).** *Venous Doppler study shows that acute DVT in the proximal superficial vein, popliteal vein, and peroneal vein is identified.* *Venous Doppler ultrasonography can be very accurately in identifying clogged veins, especially the proximal thrombi (AAOS, 2009).*

- **Pain, limb (729.5).** *One of the classic symptoms of DVT is the pain in the affected limb (Ramos, Perrotta, Badariotti, & Berenstein, 2008).* This symptom occurs when the thrombus blocks the veins, which carry the blood from the lower extremities to the heart, leading to a back up of blood in the affected limb. In some patients, the blockage can also cause the edema of the affected limb (Skinner & Moran, 2008). This patient has been complaining of pain in his left leg for a while; however, he does not present edema in his left leg or foot.

**Chronic Diagnoses**

- Hypertension, Benign (401.1) (long history)
- History of PE (415.19) (diagnosed in December 2002)
- history of falls (E888.9) (in December 2002 and in August 2011)
- Dementia (294.8) (diagnosed about five years ago)
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- Anemia (285.1) (due to blood loss in surgery)

**Differential Diagnoses of DVT**

- Baker’s cyst
- Cellulitis
- Lymphedema
- Chronic venous insufficiency
- Superficial thrombophlebitis
- Popliteal venous or arterial aneurysm
- Enlarged lymph nodes compressing the veins
- Heterotopic ossification
- Hematoma
- Muscle tear (DiVittorio, Bluth, & Sullivan, 2002)

**Psychosocial Issues**

*DVT and its complications can cause many psychosocial issues in the patients as well in their families. Patients with confirmed diagnosis of DVT or PE many end up with delaying in rehabilitation, declining in activities of daily living, and even death (Nakase et al., 2009). Since many patients with DVT do not present the classic symptoms such as pain, edema of the affected extremities, redness, and warmth, DVT is usually under-diagnosed and under-treated. When DVT symptoms are untreated, there is a significant impact on morbidity and mortality rates due to increased risk of PTS and fatal PE (Hudgens, Cella, Caprini, & Caprini, 2003). In addition, patients with DVT and its complications such as PTS often suffer from pain, cramps, and swelling in the affected extremities. These symptoms usually become worse when*
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standing and ambulating. Therefore, their daily activities and quality of life are adversely affected (Ashrani & Heit, 2009; Hudgens et al., 2003). Further, although a diagnosis of DVT or PE is generally an acute issue, the complications of DVT including the recurrence of DVT and PTS can be chronic and may require long-term pharmacological and nonpharmacological therapy. This long-term therapy can post many burdens on the patients and their families (Skinner & Moran, 2008). For instance, when patients are on Coumadin therapy, their INR levels need to be monitored very closely to prevent excessive bleeding. The patients may need transportation to their primary care providers’ office if they are unable to drive. It can cause a lot of emotional and physical distress for their family members because they might have to take off from their work, leave their own family aside, and spend a lot of time in the doctors’ office for the appointment.

Plan with Rationale

1. Lung scan

Rationale: PE is a fatal complication of DVT, and it is asymptomatic in about 75 percent of the patients with confirmed acute DVT (Patel, 2011). This patient has a history of PE, diagnosed in December, 2002, and the venous Doppler study on September 26, 2011 shows that he has partial acute DVT in left thigh and left lower leg. Therefore, it is appropriate to obtain a lung scan today to determine if he has PE.

2. Pharmacological intervention

- Increase Coumadin to 5.5 mg by mouth daily
- Repeat PT/INR twice a week on Mondays and Thursdays
Rationale: Coumadin (also called Warfarin) is a most commonly used anticoagulant for the patients undergo hip and knee replacement to prevent DVT (AAOS, 2009). Thrombi sometimes cause the blockages in the veins after the major joint surgeries, such as hip and knee replacement, and they can be fatal when they travel to the lungs, causing PE (Heijden, Hutten, Buller, & Prins, 2001). Coumadin inhibits the cascade of coagulation process by interfering with vitamin K metabolism in the liver to prevent formation of certain clotting factors and thin the blood (Turnbull, 2007). Typically, patients undergoing hip and knee surgery are put on Coumadin 5 mg every day starting the day before the surgery or on the first postoperative day. The dose of Coumadin needs to be adjusted to reach the International Normalized Ratio (INR) between 2 and 3 with a target of 2.5 (Rao & Cherukuri, 2006). In addition, since Coumadin can increase the risk of bleeding, thrombin activity needs to be monitored frequently (Turnbull, 2007). Although this patient has been on Coumadin since he had his left hip surgery, his recent INR was 1.64 (on September 25, 2011), which is not in the therapeutic range, and the Venous Doppler study shows that he has DVT in left leg. It is reasonable to titrate his Coumadin dose and monitor his INR closely until the INR result is stable and within the normal range.

- **Discontinue Norco 5/325 one tablet four times a day scheduled.** Decrease Norco 5/325 mg to one tablet three times a day and one tablet every four to six hours as needed for pain, not to exceed four grams of Tylenol in 24-hour period.

- **Celebrex 200 mg one capsule two times a day**

Rationale: One of the classic signs of DVT is pain in the affected extremity (Ramos et al., 2008). Adequate pain control is very important to achieve the effective rehabilitation and muscle strengthening in patients undergoing major joint surgeries. Multimodal pain
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management, consisting of Acetaminophen, Celecoxib, and Pregabalin, has shown to provide many benefits to patients undergoing total joint surgeries. It helps reduce the uses of opioid drugs, thus decreasing the side effects associated with opioid and improve pain control both at rest and with ambulation, as well as increasing the patients’ satisfaction (Gandhi & Viscusi, 2009).

3. **Non-pharmacological intervention**

- Apply knee high elastic compression stockings

Rationale: Cochrane systematic reviews have confirmed that wearing elastic compression stockings can significantly prevent DVT in patients undergo hip and knee surgeries and to reduce the chance of developing PTS in the patients with DVT (Kolback, Sandbrink, Hamulyak, Prins, & Neumann, 2003; Sachdeva, Dalton, Amaragiri, & Lees, 2010). Elastic compression stockings are a simple, non-invasive form of prophylaxis for DVT and PTS and help “reduce the diameter of vessels, increase blood velocity and promotes venous return” (Turnbull, 2007, p. 613). Randomized trials have indicated that patients with DVT could walk better with strong compression of their legs, and leg circumference and pain level were significantly lower in the compression groups compared with the bed-rest group (Partsch, 2005). In addition, studies have recommended that knee-high elastic compression stockings are better than the thigh-high stockings because the knee-high compression stockings eliminate the “detrimental effect of a potential tourniquet on the femoral vein” (Turnbull, 2007, p. 613).

- Encourage the rehabilitation staff and the nursing staff to ambulate with this patient as he tolerates.
Rationale: Immobilization and bed rest promote venous stasis, which can increase the risks of thrombus formation and fatal PE, especially in the older adults (Partsch, 2005). Several studies have indicated that PE rate in the patients with acute DVT who started ambulation within two days of diagnosis was much lower than those patients were kept bed rest for more than 5 days after the diagnosis of DVT (Partsch, 2005). The American College of Chest Physician (ACCP) guidelines also recommend ambulation as tolerated for patients with a confirmed diagnosis of DVT (Greets et al., 2008).

- Nursing staff and family education- monitor for bleeding, dehydration, and signs and symptoms of PE

Rationale: One of the major side effects of Coumadin therapy is excessive bleeding (Mayo Clinic staff, 2011). Therefore, nursing staff should be educated to monitor patients on Coumadin therapy for any new bruises, skin tears, cuts, bloody stools, nose bleeding, or falls. In addition, the nursing staff and the patient’s family members should also be educated on providing adequate hydration to this patient. Dehydration thickens the blood and thus increasing the risk of blood clot formation (Skinner & Moran, 2008). This patient has dementia and may not remember to drink plenty of fluids. It is the nursing staff and the family members’ responsibility to remind him to drink plenty of water and juice. Further, any activity or behavior that prevents the free flow of blood within the lower extremities, such as wearing tight-fitting clothing, should be avoided (Skinner & Moran, 2008).

PE is a life-threatening situation because the formation of an embolism may block a major pulmonary vessel, thus causing cardiogenic shock, leading to circulatory failure and death (Skinner & Moran, 2008). Symptoms of PE may include shortness, hypoxia,
tachycardia, fatigue, lethargy, pleuritic chest pain, and hypotension (Skinner & Moran, 2008). Nursing staff needs to be educated on monitoring this patient closely.

CPT code: 99309

Rationale: CPT code 99309 is usually used when the patient has developed a significant complication or significant new problem(s) in the long-term care setting. This code requires “at least two of the following three components: 1. detailed interval history, 2. detailed exam, 3. medical decision making of moderate complexity. Counseling and/or coordination of care with other providers or agencies are provides consistent with the nature of the problem and the patient’s and/or family needs” (American Academy of Family Physicians [AAFP], 2008, p. 1).

Follow Up Visit: Encounter #2

Subjective Data

On September 29, 2011, N.J. was seen again. He was resting in bed comfortably. His daughter was with him. He was more alert and oriented. He stated that he felt better and his left leg was not hurting while resting in bed. He said that when he walked with the physical therapist, he still had some pain in his left lower leg. He labeled his pain 4 out of 10 on the pain scale, but he was able to stand up and walk a few steps with a walker. He denied any discomfort or having any problems with breathing.

Objective Data

Vital Signs: Temp 98.3, Pulse 62, RR 18, BP 123/71, O2 Sats 98% on room air, Wt: 227.6lbs, Ht: 72”, BMI: 31.2

General: More alert and oriented. Resting in bed comfortably, smiling. Daughter at
Skin/Hair/Nail: Skin warm, pink and dry with no excessive dryness or skin break down. Left hip surgical incision site clean, dry and intact without redness or edema. Incision heals well. Left lateral calf area nodule is about a quarter-size. The nodule is skin color, soft to touch and movable without any tenderness. Hair has normal texture. No nail clubbing or deformities noted.


Neck: Supple neck, midline trachea, nonpalpable thyroid. No bruit or JVD.


Heart: Regular rhythm, normal S1 and S2, and no extra sounds or murmurs. Pulses normal throughout without bruits, neck vein distension, or dependent edema.

Musculoskeletal: Joints symmetrical, without swelling, redness or tenderness. Able to lift and bend left leg about 45 degrees while in bed without pain. Bilateral pedal pulses, popliteal pulses and femoral pulses palpable.

Neurological: Alert and oriented to name and place. Able to recall some of his past medical histories such as PE. Able to answer some questions and follow commands appropriately. Cranial nerves II to XII grossly intact. Both long term and short term memory are deficient.
Psychological: Pleasant, cooperative and calm.

Lab review

- **PT/INR:** 19.8/2.2 (completed on 9/29/2011)
- **Lung scan:** negative for PE (completed on 9/26/2011)

Assessment

Diagnoses remain the same:

- **DVT of leg, distal (calf) (453.42)**
- **DVT of leg, proximal (thigh) (453.41)**
- **Pain, limb (729.5)- improving**

Plan with Rationale

1. **Continue Coumadin 5.5 mg daily and repeat PT/INR twice a week on Mondays and Thursdays**

   *Rationale: The ACCP guidelines recommend that Coumadin therapy needs to be titrated to an INR that is stable and is between 2 and 3, with the target of 2.5 (Greets et al., 2008).*

   Although this patient has an INR of 2.2 today, it is not stable yet and needs to be monitored closely. There are no standard guidelines from ACCP on how often PT/INR needs to be monitored. My experience is that if INR is around 2.5 for three consecutive results, PT/INR monitoring can be changed to once a week.

2. **Continue Celebrex and Norco as ordered for now and will be re-assessed during next visit.**

   *Rationale: N. J. states that his left leg pain is controlled while resting. However, he still complains pain with ambulation. He labeled his pain four out of ten on the pain scale with*
standing and ambulation. It is appropriate to continue the current pain management.
However, his pain level will be reassessed frequently during each visit.

3. **Provide education and information on DVT, its complications, Coumadin therapy, and prevention of the recurrence of DVT and PTS to the patient and his family**

*Rationale:* Majority of the patients need to continue anticoagulant therapy after they are discharged from the hospital or the rehabilitation facilities, it is important to make sure he and his family have the education and information they need about DVT, its complications, and anticoagulant therapy so that they can succeed in the community (Skinner & Moran, 2008). N.J. is more alert and oriented during this visit. He needs to be instructed to ambulate as much as he can with the physical therapist and with the nursing staff, not to cross his legs, wear his elastic compression stockings, and drink plenty of fluids. N.J.’s daughter states that her plan is to take N.J. home once he is able to ambulate with his walker. She is a school teacher and is very ready to learn more about DVT, its consequences and other important information about Coumadin therapy. I printed some valuable information from the reliable sources, such as CDC, Mayo Clinic, and Medline Plus on DVT, PE, PTS, and Coumadin therapy and gave them to this patient’s daughter.

**CPT code:** 99308.

*Rationale:* CPT code 99308 is applied when seeing a patient in a nursing facility setting. This code requires problem-focused interval history, and he provider should spend 15 minutes with the patient and/or family (AAFP, 2008).
Long term follow up

1. **Venous Doppler study of left lower extremity and lung scan within next three months**

   *Rationale:* AAOS (2009) suggests that if the thrombus is located in the femoropopliteal vein of the thigh, Coumadin treatment is recommended for three months. However, some patients may continue to receive Coumadin therapy for about six months (Skinner & Moran, 2008). Since this patient has a history of PE and has acute DVT in both left thigh and left calf, he may need at least three months Coumadin therapy. It is reasonable to obtain a venous Doppler study of his left leg and a lung scan before the Coumadin therapy discontinues after three months.

2. **Discuss other DVT treatment, options to prevent PE and provide emotional support to the family and answer any questions that his family may have**

   *Rationale:* N.J. may need to continue his Coumadin therapy even after he goes home with his daughter. His family may have questions and concerns about the disease process, patient’s progress and prognosis while this patient is still in this facility. Therefore, regular care plan meetings with multidisciplinary team should be conducted to discuss the progress of this patient’s condition and patient care quality. Primary care providers, nursing staff, social worker, and rehabilitation director should be ready to answer any questions rising during the patient care, as well as provide emotional support to both the patient and the family. *In addition, other treatment options such as surgical removal of the thrombus and placement of an inferior vena cava filter to prevent the migration of any thrombus should be discussed with this patient and his family (Skinner & Moran, 2008).*
References


