

# [Acute care adult: assessment part a. the case of ms. diana doyle](https://assignbuster.com/acute-care-adult-assessment-part-a-the-case-of-ms-diana-doyle/)

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Acute Care Adult: Assessment

Part A. The Case of Ms. Diana Doyle

Ms. Diana Doyle, 19 years old, is status post exploratory laparotomy with appendectomy having just returned to the ward at 1: 00 PM. Her appendix had ruptured. Patient assessment is imperative to determine what interventions would be required during the shift. Assessing pain is necessary because it is a common outcome following surgery. Evaluating for nausea, bowel and bladder functions as well as respiratory status are also important to determine lingering side-effects of anaesthesia.

Surgical wounds should also be assessed for signs of infection and dehiscence. Fluid intake, the amount and color of wound drains and urine output along with assessment of the integument will determine fluid volume status. It also reveals the effectiveness of IV therapy. Finally, a previous history of substance abuse requires an assessment for signs and symptoms of withdrawal that should not be ignored.

Upon initial contact with the client, she complains of throbbing pain concentrated at the site of incision, rated as 7 in a scale of 1 to 10, 1 being the lowest and 10 being the highest. Numeric rating of pain is considered severe. She exhibits facial grimacing and is diaphoretic. Supine on bed with eyes shut, she refuses to move except to scratch her left arm which she says is mildly itchy. She states that moving aggravates her pain. There is no evidence of skin irritation on left arm. Slight trembling noted on hands when at rest.

She also reports feeling weak and slightly nauseated but has not vomited. Nausea is not associated with smells, sights or body movements. She asks that the lights be turned off as these are too bright. No lights were on as it was still day time. She is irritable and does not want to be touched. She also repeatedly asks that she should be allowed to go out of the hospital as she had to take her exams today or else fail her course. Her exams are still due in one week.

She has an ongoing IVF of 1 liter Hartmann’s solution set at 125 ml per hour at 750cc level and infusing well. There is no pain, swelling or moistness at the IV insertion site. The patient is still on NPO. She does not feel thirsty.  Oral mucous membranes are moist and skin turgor is normal. No neck vein distention observed neither are there signs of edema. Urine output via IFC is 25 ml and light yellow in color. Upon inspection, abdominal wound is clean and dry with no evidence of inflammation. Wound drain in situ is intact and patent with 40 ml of blood already collected. Her abdomen is soft, not distended with hypoactive bowel sounds in all quadrants. She has not yet passed flatus or stool. Bladder similarly not distended upon palpation of suprapubic area.

Slight crackles are heard in left lung upon auscultation. Breathing is rapid and shallow. No use of accessory muscles observed and patient does not report difficulty of breathing. Capillary refill time is normal at 2 seconds. Initial vital signs are as follows: blood pressure of 138/96 mmHg, pulse rate of 104 beats per minute, respiratory rate of 23 cycles per minute and temperature of 37. 8oC categorized as low grade fever. Peripheral pulses are full and equal.

Based on patient assessment, actual problems are acute pain, nausea, fluid volume deficit and disturbed sensory perception while potential problems are risks to infection, injury and self-harm. These problems are explored below in order of prioritization and each discussion includes thenursinginterventions. Justification of problem prioritization is based on Maslow’s hierarchy of needs. This states that actual physiological needs must be met first in order to facilitate the fulfillment of safety and security as well as psychosocial needs (Lipe & Beasley 2004, p. 61).

Additionally, humanistic principles dictate that prioritization of problems depends on which is the most important concern based on the patient’s perspective and which problems are life-threatening based on the nurse’s judgment. The most life-threatening and most urgent according to patient verbalization should take precedence over other problems. The domino effect will also be taken into account – problems that have the potential to prevent the occurrence of other problems would be prioritized first. Prioritization is ranked as high, medium or low based on Craven and Hirnle’s classification (2003, p. 187).

Acute Pain

Pain is related to the surgical procedure done and is manifested by verbalisations of pain, facial grimacing, guarding behavior, diaphoresis and increased RR and PR. Explore laparotomy, appendectomy and the insertion of an in situ wound drainage are medical interventions that cause tissue injury, although these are necessary to allow visualisation of the extent of damage that the ruptured appendix has brought onto the peritoneum and other abdominal organs, remove the diseased organ and promote free flow of drainage from the wound respectively.

Tissue injury precipitates the release of various chemicals that activate pain receptors (Lome 2005, p. 202). The transmission of nociceptor impulses allows pain to be perceived by the brain and for the patient to display an emotional response to it. Severe acute pain causes extreme discomfort for the patient and is her primary concern based on assessment. Relief from pain is an expected outcome of nursing interventions. Because pain is a subjective experience, the patient should be allowed to decide on when and how often analgesics would be administered (Lome 2005, p. 205). Pain assessment is then imperative.

The resulting postoperative pain needs to be effectively managed to prevent a prolonged surgicalstressresponse which might exhaust the patient and delay her recovery. Surgery is a stressor that activates the surgical stress response (SSR) manifested in sympathetic nervous system, hormonal and immune system involvement (Mertin et. al. 2007, p. 19). The SSR is essentially a fight-and-flight response channeling blood and energy stores to related organs and altering vital signs.

The release of epinephrine and norepinephrine (NE) during fight-and-flight increases the heart rate and force of contraction while concentrating blood supply to the brain, cardiac and skeletal muscles (Tortora & Derrickson 2008, p. 537). With a diminished blood supply to the kidneys, the renin-angiotensin-aldosterone (RAA) pathway is activated leading to increased sodium and water retention in an attempt to increase blood volume. Urine output becomes nil. The RAA pathway also causes peripheral vasoconstriction that effectively raises blood pressure. Decrease in blood flow to the GI tract reduces peristalsis.

The same response also initiates the breakdown of protein and fat stores as well as the conversion of glycogen in the liver to glucose (Mertin et. al. 2007, p. 19). The ultimate goal is to increase blood glucose for the needs of vital organs and skeletal muscles. The increased metabolic activity produces heat inducing diaphoresis to help cool the body down. It also increases oxygen demands and carbon dioxide elimination. Thus, respiratory rates increase and airways dilate. Although further research is needed, epinephrine and NE have the capacity to amplify or inhibit white blood cell production potentially affecting the severity of inflammation (Mertin et. al. 2007, p. 19).

Since the patient has been on NPO prior to surgery and continue to be until bowel functions have returned, a prolonged physiological response to postoperative pain can drain the patient’s energy stores needed for tissue repair and wound healing and further complicated by a prolonged inflammatory response. At the same time, the surgical stress response exacerbates the effects of anesthesia in inducing urinary retention and depressing GI motility thus further prolonging the patient’s NPO status (Layzell 2008, p. 416).

Regarding activity, pain will diminish the patient’s tolerance of early ambulation, repositioning, deep breathing, coughing and leg exercises that pose risks in developing hospital-acquired pneumonia, atelectasis, constipation, ileus and deep vein thrombosis (Lewis, Heitkemper & Dirksen 2007, p. 402-03). Therefore, a rapid and full recovery is another expected outcome of pain interventions. As a physiologic problem, which when unmanaged has the potential to cause a variety of post-operative problems and being the primary complaint of the patient, pain is a high priority.

The management of pain can be pharmacologic and nonpharmacologic. Dependent nursing functions include the administration of fentanyl, a fast-acting but short duration opioid analgesic, at 20-30 mcg bolus dose via IV. Paracetamol, also via IV, will additionally be administered every 4 hours to decrease the need for fentanyl and thus, reduce its side effects. This can be shifted to oral paracetamol once bowel functions have returned.

Analgesic effects can be enhanced through nonpharmacologic methods. These include instructing the patient on relaxation techniques and guided imagery and promoting a calmenvironment(Doenges, Moorhouse & Murr 2008, p. 501). These will also aid in promoting sleep and rest to allow rejuvenation. Previoushealthteachings on splinting the incision during repositioning and coughing can also be reinforced. The type of interventions would depend on the patient’s tolerance and preferences.

Nausea

Nausea is commonly associated with the induction of anaesthesia and the handling of the bowel during surgery and is manifested by verbalisations of such. Anesthesia depresses the autonomic regulation of the GI tract and decreases motility. This permits gases to accumulate in the bowel without being eliminated resulting in abdominal distention and sensations of nausea. The administration of an NGT during the perioperative phase helps decompress the bowel of accumulated gases. However, the problem may persist postoperatively as long as peristalsis does not return.

Additionally, nausea can be caused by severe pain and alcohol withdrawal. The latter is very likely since signs of Stage II withdrawal are already manifested. If not managed, nausea may lead to actual vomiting and exacerbate fluid loss. The expected outcome of interventions is a reduction or elimination of sensations of nausea. The management of nausea is mainly pharmacologic using anti-emetic drugs. Persistence even after drug administration may warrant decompression via NGT if abdominal distention is present. Hence, bowel sounds need to be monitored.

Disturbed Sensory Perception

The patient’s previous history of alcohol abuse may precipitate alcohol withdrawal because of the sudden cessation of alcohol intake following hospitalization. Upon assessment, signs of Stage II withdrawal are already manifested. Although an elevated BP, PR, temperature and diaphoresis are also associated with pain and alcohol withdrawal, hand tremors, tactile (itching) or visual (bright lights) hallucinations andanxietyare clearly the signs of withdrawal. Additionally, while nausea may be a side-effect of anesthesia, it can also be a symptom of withdrawal. The elevations in vital signs reflect the “ hyperactivity of the autonomic nervous system in rebound from the depressant effects of alcohol” (Indiana State Nurses Association 2009, p. 11).

The appropriate nursing diagnosis is disturbed sensory perception related to sensory overload secondary to alcohol withdrawal and is manifested by visual and tactile hallucinations and disorientation. The patient’s last binge was 2 days ago. The longer the duration from last alcohol intake without treatment, alcohol withdrawal can lead to Stage III. This is characterized by hallucinations, agitation, sustained elevations in vital signs, violent behavior and seizures (Indiana State Nurses Association 2009, p. 10). Collectively, these signs are referred to as delirium tremens, a medical emergency that can be fatal. The medical management of alcohol withdrawal is the administration of benzodiazepines as per physician’s orders and protocols. These drugs depress the central nervous system and mediate autonomic hyperactivity.

Management is geared at eliminating hallucinations and orientation the patient. Vital signs monitoring is important and should be done every half-hour until stable and every 3 hours thereafter (Indiana State Nurses Association 2009, p. 12). Maintaining a calm environment will decrease the amount of external stimuli to the CNS and facilitate orientation to time, place and person. Procedures must be explained adequately and the nurse must orient the patient to caregiver identity and purpose. Adequate hydration must also be ensured. Because of the high potential that such withdrawal will progress to a medical crisis, disturbed sensory perception is a high priority problem.

Risk for Fluid Volume Deficit

The risk for fluid volume deficit is related to the current NPO status, diaphoresis and rapid, shallow breathing. Interventions are expected to result in maintenance of adequate hydration as evidenced by normal skin turgor, moist mucous membranes and a balance in intake and output among others. An NPO status prior to, during and following surgery indicates the absence of oralfoodand fluid intake while diaphoresis and fast breathing represent insensible fluid losses.

While on NPO, Hartmann’s solution is administered to prevent fluid deficit. This type of fluid contains sodium, potassium, calcium, chloride and lactate (Alston, Theodosiou & Sanger 2007, p. 386). It is similar to Lactated Ringer’s Solution but is associated with a decreased rate of inducing metabolic acidosis as per the result of many clinical studies. This is because Hartmann’s solution has a higher strong ion difference (SID) similar to that of the blood as compared to LRS or PNSS. Metabolic acidosis occurs when the low SID of other IV fluids “ reduce the SID of blood forcing an increase in hydrogen ion concentration” (Alston, Theodosiou & Sanger 2007, p. 389).

As a compound sodium-lactate crystalloid solution, it is used to replace body fluids and electrolytes lost in the process of surgery and to maintain tissue perfusion. About three quarters of the fluid will diffuse rapidly mainly into the extracellular space composed of the interstitial space and plasma (Warwick University 2006, p. 1). In comparison, colloids are used to replace mainly plasma or for fluid resuscitation during hypovolemic shock.

The adverse effects of Hartmann’s solution administration are associated with over infusion. The resulting fluid overload then manifests as pedal edema, difficulty of breathing, shortness of breath, wheezes and distended neck veins (Warwick University 2006, p. 1). Some patients may also exhibit nausea and vomiting, headache, dizziness, drowsiness or confusion (Baxter Healthcare 2002, p. 2). The IV insertion site must be continually assessed for patency and signs of infiltration or phlebitis. Intake and output monitoring must be conducted.

Managing the underlying causes of insensible fluid losses and initiating postoperative exercises to stimulate the return of peristalsis will result in a reduction of fluid loss and tolerance of clear liquids which would soon progress to a soft diet and diet as tolerated. Maintaining adequate hydration is a physiological need and should be prioritized. However, this problem is still a risk and is highly preventable so that it is classified as medium priority.

Other Potential Problems

The patient is at risk for respiratory infections if coughing and deep breathing exercises, repositioning and early ambulation to promote lung ventilation will not be achieved. The pooling of secretions from respiratorydepressionrelated to anesthesia compounded with maintaining a supine position becomes an ideal medium for bacterial growth. There is also an increased risk for gastrointestinal infections if the return of peristalsis will take long also due to pooling of fluids. Meanwhile, the risks for hypoactive bowel will increase the probability of constipation. Thromboembolism may result from deep vein thrombosis also from the pooling of blood in peripheral veins and subsequent clotting.  Early ambulation will reduce all of these risks while current antibiotic therapy may also be effective for hospital acquired infections.

These potential problems represent major postoperative complications but the high preventive potential, along with the appropriate management of factors that impede early ambulation and postoperative exercises (i. e. pain, nausea and disturbed sensory perception), allows these risks to be classified as medium priority. These problems will become actual problems in the following days post-op if not managed.

The risk for injury is related to the progression of alcohol withdrawal to delirium tremens. Intense hallucinations, disorientation and seizures may result in fall injuries. However, the administration of benzodiazepines will greatly reduce this risk. Meanwhile, a risk for self-harm arises mainly from the patient’s history of harm directed to self and is indicated by a similar history of depression and alcohol abuse. There are no signs that can be singled out as indications of emotional distress (e. g. uncooperativeness, irritability, mood swings or suicidal ideation). Determining the patient’s mental status and developing a therapeutic nurse-client at the start will aid in helping the client develop appropriate coping skills and prevent distress. This can be undertaken once the patient is oriented, not in pain or discomfort and is rested. Hence, these are low priority problems.

In summary, caring for Ms. Doyle is focused on mediating the lingering effects of anaesthesia, preventing postoperative complications and hastening her recovery. This is accomplished by interventions done in the earliest time possible based on client tolerance and which will increase when comfort and rest is ensured. Her history of substance abuse will also warrant preventing the progression of alcohol withdrawal towards crisis levels while a history of self-harm and depression will require focus on psychosocial needs.

Part B. The Case of Mr. Paul Zanoc

Mr. Zanoc is a 56-year old post below-the-knee amputee. The procedure was done because of peripheral vascular disease (PVD) secondary to Type IIdiabetes. He was returned to the ward a few hours back. Diabetes was largely uncontrolled as evidenced by erratic blood glucose levels. Along with DM, the patient also has gastro-oesophageal reflux disease (GORD), hypertension and PVD. His short acting insulin infusion is due at the moment – 2 units per hour via IV.

Mr. Zanoc’s Medical Emergency

Checking on the patient, he is in side-lying position with eyes closed. He is unconscious and his skin is cool and clammy. Considering my lack of training in life support, I can only assess for airway, breathing , circulation and vital signs but will not be able to do CPR or intubate the patient. I would have to call the Medical Emergency Team first. While waiting for their arrival, I will carefully position Mr. Zanoc supine on the bed. Checking the airway will mean doing the head-tilt, chin-lift maneuver. Checking for breathing would mean looking for a rhythmic rise and fall of his chest. Assessing pulse would mean feeling for pulsations in his carotid artery. I will also check for pupil dilation, blood pressure and blood glucose level (BGL).

Since Mr. Zanoc is a diabetic, my differential diagnoses would be hypoglycaemia, diabetic ketoacidosis (DKA) or hyperglycaemic hyperosmolar state. DKA usually occurs in Type I DM but can occur in Type II sufferers “ due to catabolic stress during an episode of critical illness” (Kisiel & Marsons 2009, p. 1094). Following surgery, increased metabolism is an effect of the surgical stress response as discussed in Part A. It precipitates the breakdown of glucose stores but without insulin, cellular glucose uptake will be impossible and glucose will continually accumulate in the blood.

Starved of glucose, the body will compensate by breaking down and utilizing protein and adipose tissues. However, this produces ketones that give rise to metabolic acidosis. In sufficient amounts, ketones can cause coma. A BGL of 7. 0 and above, checking for a fruity breath and ketones in urine will help determine if the case is DKA (Ballard 2009).

In hyperglycaemic hyperosmolar state, blood glucose levels are similarly elevated and cause blood hyperosmolarity. Insulin promotes the reabsorption of water in the kidneys to maintain fluid volumes and normal osmolarity but with inadequate or no insulin, this will not be achieved. Compounded with polyuria, as excess glucose eliminated through urine pulls water with it, dehydration is a highly probable. Coma is thought to be caused by intracellular dehydration. Checking for a severely elevated BGL and urine for the presence of glucose but not ketones will aid in making a certain diagnosis (Kisiel & Marsons 2009, p. 1095).

Finally, hypoglycemia occurs when there is an excess amount of insulin administered compared to the amount of glucose in the blood. This can happen through missing a meal, taking a meal low in carbohydrates or engaging in strenuous activities (American Diabetes Association 2003, p. S124). With insulin, cellular uptake of glucose is enhanced but with BGL not replaced by food intake or is utilized at a higher rate during physical activity, the BGL will fall.

The heart and brain, which rely on glucose supply in the blood, will be most affected. Hence, the symptoms are mainly neurologic in nature - weakness, dizziness, confusion to loss of consciousness (Blair & Hazelwood 2010, p. 35). A BGL that is less than 3. 9 mmol/L indicates hypoglycaemia. In the case of Mr. Zanoc, his BGL was very low at 1. 9 mmol/L. Measuring the BGL before giving insulin, and taking into account the patient’s food intake as well as activity levels would have prevented the incident. Oral carbohydrates (e. g. 15 grams in juice) should have been made available at the earliest signs to promptly correct the BGL and prevent unconsciousness (American Diabetes Association 2003, p. S124).

Type II Diabetes Mellitus, Comorbidities and Complications

Type II DM is a disorder characterized by a decreased sensitivity of muscle and fat cells to insulin, a progressing dysfunction of pancreatic beta cells and an uncontrolled glucose production by the liver (Barr, Myslinksi & Scarborough 2008, p. 36). Insulin is a hormone that carries glucose from the blood to body cells. It functions to decrease blood glucose levels to within normal range by increasing glucose delivery to cells, stimulating storage of excess glucose and inhibiting the production of glucose from glycogen in the liver.

Unlike Type I DM, pancreatic beta cells in Type II still produce insulin but a low sensitivity to this hormone hinders glucose uptake by the muscles and also the conversion of excess glucose into adipose tissue. Since cells require glucose for metabolism but cannot get obtain it, the brain continuously stimulates the pancreatic beta cells to produce more insulin until beta cell functioning becomes impaired (Barr, Myslinksi & Scarborough 2008, p. 35). Without insulin that regulates hepatic glucose generation, the liver will not cease producing glucose. The net effect would be hyperglycaemia.

The increased osmolality of the blood from excessive glucose causes hypertension that affects the small and large blood vessels. Decreased perfusion to the peripheral organs (i. e. the legs and feet) causes delayed healing of wounds and at an extreme, tissue necrosis because of inadequate oxygen supply and energy supply (Sorensen et. al. 2007). Gangrene necessitates amputation to prevent systemic infection. Hyperglycaemia also causes damage to the axons of nerves inhibiting sensation and voluntary control of peripheral skeletal muscles. Neurovascular damage characterizes PVD.

The deficiency in insulin is treated by parenteral insulin therapy since Diabex, an oral anti-hyperglycaemic drug, is contraindicated to periods prior, during and after surgery. A diabetic diet was prescribed to control glucose intake and make insulin dosing easier and the effects more predictable. Nexium is taken to protect the oesophageal mucosa from the erosion of acidic gastric contents flowing back up the stomach’s cardiac sphincter. Anticoagulants are given to decrease thrombotic events related to surgery.

Upon discharge, a more aggressive control of diabetes to prevent further progress of complications must be emphasized to the client. This poses a challenge to the patient with an advancing age and living alone and also to the health care team faced with treating a complex chronic condition with existing comorbidities. Collaborative and standardization of care through the formation of a diabetic team must be established to enable the best possible outcome for the patient (Arevian 2005, p. 448). The elements of treatment are “ proper

nutrition, regular physical activity, self-managementeducation, and pharmacologic therapy” (Rochester et. al. 2010, p. 43)

Compliance with a diabetic diet must be enhanced through teaching the client to plan appropriate meals based on preferences, financial resources and functional capacity to purchase and prepare his food. The input of a nutritionist or dietetist is essential in this aspect as nutrients and carbohydrate content must be approximated for each type of meal. A meal plan will be geared towards control of glucose intake while fulfilling energy and nutrient needs.

Being an amputee and expectedly will be taught to use crutches for ambulation, this itself will increase the patient’s energy needs. Exercise is still necessary despite physical impairment in order to promote circulation, enhance glucose uptake, lose or maintain weight, relieve depression and maintain muscle tone and strength. A physical therapist will need to teach the patient about effective use of crutches and also suggest exercises that are suited for his physical and metabolic condition. Referral to diabetic exercise programs will also be helpful.

Discharge and going back home might become a stressful event for the patient and depression may ensue out of losing a leg (disturbed body image) and part of his independence while lacking a social support network (Jack et. al. 2005, p. 29). Counseling to develop coping skills and proper transitioning to the home environment is an importantresponsibilityof the nurse. Nurses can reinforce teachings or instructions regarding medication, diet, activity, self-care measures (e. g. skin care, foot care, oral care), regular check-ups and other prevention measures. Home care visits or follow-ups through the phone will help increase compliance.

Most importantly, the patient must develop the capacity for self-management of blood glucose. He had been previously prescribed with Diabex (metformin hydrochloride) and had been taking this oral drug at home. It works by increasing cell sensitivity to insulin, inhibits the liver from breaking down glucagon into more glucose and decreases the rate of glucose absorption in the small intestines (Better Health Channel 2006). The physician will determine if the drug is still appropriate for home medication. The collaborative involvement of a pharmacist in choosing the therapy, in monitoring and evaluating efficacy and adjusting doses as needed has been proven to be beneficial (Rochester et. al. 2010, p. 42).

Hypertension, PVD and GORD must also be managed appropriately to prevent heart disease, CVA, renal dysfunction, retinopathy and blindness, further amputation and oesophageal injury that may require another surgical procedure (Hill 2009, pp. 51-53). The collaboration of the primary care provider and specialists (e. g. gastroenterologist, endocrinologist) will result in appropriate therapies for the patient’s medical problems. As a caregiver at the frontline and as an advocate of the patient, the nurse performs a role in coordinating care provided by different members of the health care team.

The case of Mr. Zanoc reflects the experiences of the many Type II diabetes sufferers who often also have comorbidities. The disease affects various organs of the body and leads to debilitation, progressive organ dysfunction and death. The medical conditions associated with Type II DM traverse many medical specializations and other health care professions. A health care team formed to provide care specifically for diabetics will facilitate a more systematic and efficient way of treating the disorder. A great amount of participation in his care is needed from the patient to promote functional capacity and a positive self-concept despite long-term illness.

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