N311 Care Plan #1

Lakeview College of Nursing

Katie Finn

Demographics (5 points)

Date of Admission	Patient Initials	Age	Gender
10/3/2021 SBL	JCF	27	Female
Race/Ethnicity	**Occupation**	**Marital Status**	**Allergies**
Caucasian	Casey's Worker	Single	No known allergies
Code Status	**Height**	**Weight**	
Full Code	170.1 cm	84.4 kg	

Medical History (5 Points)

Past Medical History: Right renal stone (patient did not report date)

Past Surgical History: Repair of foot tendon (patient did not report date)

Family History: Negative (patient did not answer)

Social History (tobacco/alcohol/drugs): Smokes a pack of cigarettes 1-2 times a week. Uses marijuana 1-2 times a year. Drinks equivalent to 2 shots of whiskey every other day. Patient lives with father (age unknown), mother (age unknown), and her two children, ages 15 months and 1 month.

Admission Assessment

Chief Complaint (2 points): Lower back pain and dysuria

History of present Illness (10 points): On October 3rd, a 27-year-old female with no reported medical or family history was admitted to Sarah Bush Lincoln Hospital with complaints of flank pain, abdominal pain, body aches, burning sensation when urinating, and feeling nauseous. She first experienced this pain about a week ago and has described it as "sharp, stabbing pain that doesn't go away". Patient has reported dysuria, urinary frequency, oliguria, and incontinence. She reported that her urine "looks yellow but not see through" and "it smells kind of fishy". Patient does not report seeing blood in her urine and the last time she urinated was that morning (10/3) and last bowel movement was the afternoon before (10/2).

Primary Diagnosis

Primary Diagnosis on Admission (3 points): Acute pyelonephritis of left kidney

Secondary Diagnosis (if applicable): Urethritis and pyelitis

Pathophysiology of the Disease, APA format (20 points): Pyelonephritis is a kidney infection specifically in the renal pelvis and interstitium of the kidney. The infection can be acute or chronic and usually caused by bacteria that start in the lower urinary tract and work their way up to the kidneys (Capriotti, pp. 535). The acute infection affects 15-17 cases per 10,000 females and 3-4 cases per 10,000 males per year. The elderly and infants are at risk because of anatomical abnormalities and changes in their hormones, and about 20-30% of pregnant women will develop it in their second or early third trimester (Beyayeva & Jeong, 2021).

Acute pyelonephritis is most frequently a gram-negative *Escherichia coli* (*E.* coli) that starts in the lower urinary tract and goes up into the kidneys to cause an inflammatory process. This bacterium is the most common in acute pyelonephritis because of its' adhesive molecules called P-fimbriae. Those molecules "interact with receptors on the surface of uroepithelial cells" and the acute inflammatory response from the *E. coli* causes scarring in the renal tissue. This scarring leads to "localized infection, hypoxia, ischemia, and clotting in an attempt to contain the infection". All the inflammatory proteins, toxins from bacteria, and other reaction byproducts can lead to sepsis and shock to the person (Beyayeva & Jeong, para. 5).

Less commonly, acute pyelonephritis comes from an infection in the bloodstream with *Staphylococcus aureus* (Capriotti, pp. 535) or other gram-negative bacteria like *Proteus, Klebsiella,* and *Enterobacter*. Symptoms for pyelonephritis include nausea, vomiting, dysuria, increased frequency, and urgency, with fever and flank pain being the most common (Beyayeva & Jeong, 2021).

This condition is best diagnosed via urinalysis, and one should specifically look for pus in the urine which is the most common indicator of acute pyelonephritis. If the causative bacterium is *E. coli*, then there will be nitrites in the urine, and protein and blood may be seen under the microscope as well. If the patient is suspected of acute pyelonephritis, then a urine culture should be done to figure out the proper medications that should be used. A complete blood cell count should be done to see if there is an elevation in white blood cells (WBC). To assess kidney function, a complete metabolic panel should be done to check for abnormal levels of creatinine and BUN. Lastly an abdominal/pelvic CT with contrast can be used to image for acute pyelonephritis (Beyayeva & Jeong, 2021).

The main treatment for acute pyelonephritis is antibiotics to treat the infection, analgesics to manage pain, and antipyretics to reduce the patient's fever. Nonsteroidal anti-inflammatory drugs (NSAIDs) do well to help with the pain and fever, and the antibiotic used should be based on the urine culture's sensitivity to it (Beyayeva & Jeong, 2021).

My patient was diagnosed with a urinalysis and a urine culture for acute pyelonephritis caused by *E. coli*. She is at a higher risk because her sex is female, so she has a shorter urethra making it easier for her to get a urinary tract infection (UTI) and the bacteria to work its way up to the kidneys. My patient should be educated on voiding before and immediately after intercourse, wiping from front to back after voiding or having a bowel movement, and avoiding dehydration (Beyayeva & Jeong, 2021).

Belyayeva, M., & Jeong, J. M. (2021). Acute Pyelonephritis. *StatPearls*. https://www.ncbi.nlm.nih.gov/books/NBK519537/?report=classic

Capriotti, T. M. (2020). *Davis advantage for pathophysiology: Introductory concepts and clinical perspectives* (2nd ed.). F. A. Davis Company. https://fadavisreader.vitalsource.com/books/9781719641470

Laboratory Data (20 points)

If laboratory data is unavailable, values will be assigned by the clinical instructor

CBC Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Lab	Normal Range	Admission Value	Today's Value	Reason for Abnormal Value
RBC ($x10^6/\mu L$)	3.90-4.98	N/A	3.35	RBC value is low because of decreased erythropoietin from the kidney infection (Van Leeuwen & Bladh, pp. 505).
Hgb (g/dL)	12.0-15.5	N/A	11.2	Hgb value is low because of decreased erythropoietin from the kidney infection (Van Leeuwen & Bladh, pp. 516).
Hct (%)	35.0-45.0	N/A	33.3	Hct value is low because of decreased levels of erythropoietin from kidney infection (Van Leeuwen & Bladh, pp. 482).
Platelets (K/µL)	140-400	N/A	209	N/A
WBC (K/µL)	4.0-9.0	N/A	7.2	N/A
Neutrophils (%)	40-70	N/A	79.6	Neutrophil level is high because of infection in the kidney (Van Leeuwen & Bladh, pp. 525).
Lymphocytes (%)	10-20	N/A	10.3	N/A
Monocytes (%)	3.0-13.0	N/A	9.2	N/A
Eosinophils (%)	0.0-8.0	N/A	0.5	N/A
Bands (%)	0.0-10	N/A	N/A	N/A

Chemistry Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Lab	Normal Range	Admission Value	Today's Value	Reason For Abnormal
Na- (mmol/L)	135-145	N/A	138	N/A
K+ (mmol/L)	3.5-5.1	N/A	3.8	N/A
Cl- (mmol/L)	98-107	N/A	107	N/A
CO2 (mmol/L)	22-29	N/A	22	N/A
Glucose (mg/dL)	70-99	N/A	98	N/A
BUN (mg/dL)	8-21	N/A	23	BUN level is high because of decreased renal excretion from infection (Van Leeuwen & Bladh, pp. 1183).
Creatinine (mg/dL)	0.50-1.00	N/A	0.60	N/A
Albumin (g/dL)	3.5-5.2	N/A	3.1	Albumin level is low because of renal tubule damage from infection (Van Leeuwen & Bladh, pp. 25).
Calcium (mg/dL)	8.4-10.5	N/A	7.7	Calcium level is low because of decreased albumin level which is the calcium's carrier protein. It is also low because of damage to renal tubules which decreases synthesis of vitamin D which absorbs calcium (Van Leeuwen & Bladh, pp. 343).
Mag (mg/dL)	1.6-2.6	N/A	N/A	N/A
Phosphate (units/ L)	2.4-4.5	N/A	N/A	N/A
Bilirubin (mg/dL)	0.3-1.0	N/A	0.3	N/A
Alk Phos (units/L)	34-104	N/A	75	N/A

Urinalysis Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Lab Test	Normal Range	Value on Admission	Today's Value	Reason for Abnormal
Color & Clarity	Straw/light yellow and clear	N/A	Light yellow and cloudy	Urine is cloudy due to WBC in the kidneys fighting infection then get transferred into the ureters as pus (Van Leeuwen & Bladh, pp. 1561).
pH	5.0-9.0	N/A	7.0	N/A
Specific Gravity	1.001-1.029	N/A	1.011	N/A
Glucose	Negative	N/A	Negative	N/A
Protein	Negative/Trace	N/A	Trace	N/A
Ketones	Negative	N/A	Negative	N/A
WBC (per hpf)	0-5	N/A	81	WBC level is high because of the pyelonephritis to fight the infection (Van Leeuwen & Bladh, pp. 1564).
RBC (per hpf)	0-5	N/A	4	N/A
Leukoesterase (+/-)	Negative	N/A	N/A	N/A

Cultures Highlight All Abnormal Labs—Explanations must be in complete sentences and contain in-text citations in APA format.

Test	Normal Range	Value on Admission	Today's Value	Explanation of Findings
Urine Culture	Negative	Positive	N/A	*E. coli* is one of the most common causes of pyelonephritis (Capriotti, 2020)
Blood Culture	N/A	N/A	N/A	N/A
Sputum Culture	N/A	N/A	N/A	N/A
Stool Culture	N/A	N/A	N/A	N/A

Lab Correlations Reference (APA):

Capriotti, T. M. (2020). *Davis advantage for pathophysiology: Introductory concepts and clinical perspectives* (2nd ed.). F. A. Davis Company. https://fadavisreader.vitalsource.com/books/9781719641470

Lakeview College of Nursing. (2021). *Tab: Diagnostics: Lab* [Class handout]. Charleston, IL: Lakeview Colling of Nursing.

Van Leeuwen, A. M., & Bladh, M. L. (2015). *Davis's comprehensive handbook of laboratory & diagnostic tests with nursing implication* (6th ed.). F. A. Davis Company

Diagnostic Imaging

All Other Diagnostic Tests (10 points):

1. **Urine culture 10/3/2021** – Patient was admitted to SBL hospital because of flank pain, dysuria, frequency, and urgency which indicated an infection. Urine culture was found positive for *E. coli* greater than 100,000. This shows what caused the pyelonephritis and helps chose which antibiotics to use.
2. **Blood Work (complete metabolic panel) 10/5/2021** – Patient had a complete metabolic panel done to check if her kidney function is improving from treatment for the acute infection. The panel showed increased levels of BUN 23 mg/dL) which means that there is a decrease in renal excretion due to the infection. The panel also showed low levels of albumin (3.1 mg/dL) and calcium (7.7 mg/dL) which indicated damage to renal tubules, so they are not able to absorb albumin or calcium as well**.**

Current Medications (10 points, 2 points per completed med)
5 different medications must be completed

Medications (5 required)

Brand/ Generic	Normal Saline/0.9% sodium chloride	Zyban/ Bupropion hydrochloride	Zofran/ Ondansetron hydrochloride	Dilaudid/ Hydromorphone hydrochloride	Toradol
Dose	1000 mL	150 mg	4 mg/2 mL	0.5 mg	15 mg
Frequency	100 mL/hr	BID	Q6H	PRN Up to Q4H	Q6H
Route	IV	PO	IV	IV	IV
Classification	Crystalloid fluid	Aminoketone	Selective serotonin (5-HT_3) receptor antagonist	Opioid	NSAID
Mechanism of Action	The fluid contains sodium and chloride ions to help give the patient fluid while preserving the isotonic nature of the body (Tonog & Lakhkar, 2021).	Works to inhibit dopamine, norepinephrine, and serotonin uptake by neurons to relieve symptoms of depression (Jones, 2020).	Medication will block the serotonin receptors in the chemoreceptor trigger zone and at vagal nerve terminals in the intestines to prevent nausea and vomiting (Jones, 2020).	Medication stimulates the kappa and mu receptors on the spinal cord and higher levels in the CNS to depress perception of pain (Jones, 2020).	Medication helps decrease inflammatory response by blocking cyclooxygenase, an enzyme needed to synthesize prostaglandins. Prostaglandins mediate the inflammatory response and promote pain communication from periphery to spinal cord (Jones, 2020).
Reason Client Taking	Meet daily hydration needs	Smoking cessation	Reduce feelings of nausea and vomiting	Alleviate pain from infection	Alleviate pain from infection
Contrain	1.	1. seizure	1.	1. Acute	1. Active peptide

dications (2)	Overhydration 2. pulmonary edema (Tonog & Lakhkar, 2021)	disorder 2. Hypersensitivity to bupropion (Jones, 2020)	Hypersensitivity to ondansetron or its components 2. Using with apomorphine (Jones, 2020).	asthma 2. Severe respiratory depression (Jones, 2020).	ulcer disease 2. High risk of bleeding (Jones, 2020).
Side Effects/Adverse Reactions (2)	1. Infection at injection site 2. Increase in serum potassium levels (Tonog & Lakhkar, 2021)	1. Coma 2. Bronchospasms (Jones, 2020)	1. Agitation 2. Chest pain (Jones, 2020)	1. CNS depression 2. Hepatotoxicity (Jones, 2020)	

Medications Reference (APA):

Jones & Bartlett Learning. (2020). *2021 nurse's drug handbook* (20th ed.). Jones & Bartlett Learning.

Tonog, P., & Lakhkar, A. D. (2021, July 21). Normal saline. *StatPearls*, https://www.ncbi.nlm.nih.gov/books/NBK545210/

Assessment

Physical Exam (18 points)

GENERAL: **Alertness:** **Orientation:** **Distress:** **Overall appearance:**	**A&O x4. Patient was alert and oriented to person, place, time, and situation.** **Patient was calm and unresisting to assessment.** **Overall appearance was healthy, clean, and well cared for**
INTEGUMENTARY: **Skin color:** **Character:** **Temperature:** **Turgor:** **Rashes:** **Bruises:** **Wounds:** . **Braden Score: 21** **Drains present: Y☐ N ☒** **Type: N/A**	**Patient's skin was dry, warm, pink, and intact. Skin turgor was elastic and <3 seconds. No rashes, lesions, or bruises. Patient had no drains.** **Braden score is 21 which indicates low risk of pressure ulcers.**
HEENT:	**Patient's head is normocephalic and neck is**

Head/Neck: **Ears:** **Eyes:** **Nose:** **Teeth:**	**symmetrical with trachea at midline. Ears are symmetrical and have no visible drainage or cerumen. Patient did not appear to have any difficulty hearing and was responsive to sounds. Patient does not wear glasses and eyes showed PERRLA and displayed good movement ability when extraocular movements were assessed with pupils being 4 mm. Eyes are symmetrical with no drainage or inflammation, and conjunctive was pink and moist. Nose is midline with no deviated septum and nares appeared to be symmetrical. Patient has all teeth intact, tongue and buccal mucosa was pink, moist, and no lesions.**
CARDIOVASCULAR: **Heart sounds:** **S1, S2, S3, S4, murmur etc.** **Cardiac rhythm (if applicable):** **Peripheral Pulses:** **Capillary refill:** **Neck Vein Distention: Y ☐ N ☒** **Edema Y ☐ N ☒** **Location of Edema: N/A**	**S1 and S2 heart sounds were audible. No murmurs or S3/S4 sounds heard.** **Cardiac rhythm is steady and regular.** **Peripheral pulses were symmetrical in beat and strength. Carotid and radial pulses were palpable at a +3.** **Capillary refill was <2sec. No jugular vein distention was seen.**
RESPIRATORY: **Accessory muscle use: Y☐ N ☒** **Breath Sounds: Location, character**	**There were no abnormal lung sounds during auscultation. Respiratory rate was assessed while patient was in Fowler's position and was 18 respirations per minute and were even and regular. No accessory muscles were used for respiration. No chest deformities were observed. Patient also denied any coughing or sputum production.**
GASTROINTESTINAL: **Diet at home:** **Current Diet** **Height:** **Weight:** **Auscultation Bowel sounds:** **Last BM:** **Palpation: Pain, Mass etc.:** **Inspection:** **Distention: None** **Incisions: None** **Scars: None** **Drains: None** **Wounds: None** **Ostomy: Y ☐ N ☒**	**Patient reported her diet at home is mostly pizza, burgers, and "lots of junk food".** **Current hospital diet is regular and has no restrictions.** **Patient's height is 170.1 cm and weight is 84.4 kg with a BMI of 29.2.** **Bowel sounds were heard in all four quadrants at a rate of 4-28 per minute. Patient did report some nausea but no vomiting or diarrhea. Her last BM was the night previous 10/4/2021. Patient did state that she has been a little constipated from the medications. Abdomen was non tender and soft when palpated, and not distended with no drains, incisions, scare, or wounds. Patient does not have any**

Nasogastric: Y ☐ N ☒ **Size: N/A** **Feeding tubes/PEG tube Y ☐ N ☒** **Type: N/A**	**ostomies, nasogastric or feeding tubes.**
GENITOURINARY: **Color:** **Character:** **Quantity of urine:** **Pain with urination: Y ☒ N ☐** **Dialysis: Y ☐ N ☒** **Inspection of genitals: N/A** **Catheter: Y ☐ N ☒** **Type: N/A** **Size: N/A**	**Urine color is straw yellow, odorless, and a little cloudy.** **Patient voided twice and is continent during this shift. Patient did report pain of 4/10 when voiding and decrease of urgency and frequency since being admitted into the hospital. No dialysis or catheters are being used.**
MUSCULOSKELETAL: **Neurovascular status:** **ROM:** **Supportive devices:** **Strength:** **ADL Assistance: Y☐ N ☒** **Fall Risk: Y ☒ N☐** **Fall Score: 5** **Activity/Mobility Status:** **Independent (up ad lib) ☒** **Needs assistance with equipment ☒** **Needs support to stand and walk☐**	**Neurovascular status is intact, and patient is in control of her senses. Patient does not report any paresthesia or paralysis and does not show any pallor. Patient does experience 8/10 pain in the left flank area. Patient displayed full range of motion and equal strength (5/5) in all limbs and extremities. Patient has slightly impaired mobility due to pain and needs help unplugging the IV from the wall to ambulate to the bathroom. Patient does not need assistance standing or walking. Fall risk score is a 5 (low risk) on Morse Fall Scale. Patient does not need help with her ADLs.**
NEUROLOGICAL: **MAEW: Y ☒ N☐** **PERLA: Y ☒ N☐** **Strength Equal: Y ☒ N ☐ if no -** **Legs ☐ Arms ☐ Both ☐** **Orientation:** **Mental Status:** **Speech:** **Sensory:** **LOC:**	**Patient moves all extremities with no noted weaknesses. Her eyes show PERRLA signs and articulates well. Patient is A&O x4 and is alert and calm to her situation. Patient is mostly focused on managing her pain and resting. Patient can sense touch all over her extremities.**
PSYCHOSOCIAL/CULTURAL: **Coping method(s):** **Developmental level:** **Religion & what it means to pt.:** **Personal/Family Data (Think about home environment, family structure, and available family support):**	**Patient's coping methods are watching television in their room and occasionally texting or calling her family. Patient states that she is "ready to get out of the hospital once the infection is out of my system". Developmental level is appropriate for age and has a high school diploma.**

	Patient did not report a religion. **Patient lives in her parents' home with her mother, father, and her two children (1 month and 15 months old)**

Vital Signs, 1 set (5 points)

Time	Pulse	B/P	Resp Rate	Temp	Oxygen
1130	73 bpm pulse oximeter	118/78 LA	18 resp/min	37.4 ˚C tympanic	95% RA

Pain Assessment, 1 set (5 points)

Time	Scale	Location	Severity	Characteristics	Interventions
1200	FLACC Scale	Flank	8	Sharp & stabbing	Pain medications

Intake and Output (2 points)

Intake (in mL)	Output (in mL)
500 mL of IV fluid in this shift 75% of food	Patient voided 2x No BM

Nursing Diagnosis (15 points)
Must be NANDA approved nursing diagnosis

Nursing Diagnosis • Include full nursing diagnosis with "related to" and "as evidenced by" components	**Rational** • Explain why the nursing diagnosis was chosen	**Intervention (2 per dx)**	**Evaluation** • How did the patient/family respond to the nurse's actions? • Client response, status of goals and outcomes, modifications to plan.
1. Impaired urinary elimination related to frequent urination, urgency, and hesitancy as evidence by dysuria, urinating frequently, and difficulty voiding.	This diagnosis was given because patient has been experiencing pain when urinating and does not feel that she has "peed it all out"	1.Assess the patient's elimination pattern 2.Encourage patient to void Q2-3H	Patient was compliant to instructions and seemed willing to follow. Client has a goal of writing down her elimination pattern for nurse and to try to void Q2-3H even if not feeling the need to.
2. Disturbed sleep pattern related to flank pain and 24 hr IV as evidence by "my back hurts that it keeps me up" and "the IV makes it so I can't turn on my side"	This diagnosis was given because patient complained of being tired and not sleeping well because of pain and the "IV gets in my way"	1. Show patient how to use PCA pump for pain 2.Teach patient relaxation techniques	Patient now understands how to use the PCA pump for pain during the night. Relaxation techniques interests the patient, and she is willing to try them. Nurse met goal of teaching patient how to use PCA pump and will let nurse know how relaxation techniques work in the morning.

Phelps, L. L. (2020). *Sparks and Taylor's nursing diagnosis reference manual* (11th ed.). Wolters Kluwer.

Overall APA format (5 points):

Concept Map (20 Points):

Subjective Data

8/10 pain in flank
Body aches
Dysuria
Hesitancy when urinating
Feeling of not completely voiding bladder
Nausea

Nursing Diagnosis/Outcomes

Impaired urinary elimination related to frequent urination, urgency, and hesitancy as evidence by dysuria, urinating frequently, and difficulty voiding
Patient experiences less pain while urinating but still has the feeling of frequency.
Disturbed sleep pattern related to flank pain and 24 hr IV as evidence by “my back hurts that it keeps me up” and “the IV makes it so I can’t turn on my side”
Patient has learned how to use PCA pump to help control flank pain and has been taught relaxation techniques to help prepare for sleep.

Objective Data

High level of neutrophils (79.6%)
Low RBC (3.53 x 10^6/L) and hemoglobin (11,2 g/dL)
Low calcium level (7.7 mg/dL)
Low bilirubin level (0.2 mg/dL)
Cloudy urine
Positive urine culture for *E. coli* > 100,000
VS: T 37.4, BP 118/78, P73, R 18, O2 95%

Patient Information

27-year-old patient has pyelonephritis, urethritis, and pyelitis
Admitted d/t flank pain and dysuria

Nursing Interventions

Assess the patient’s elimination pattern
Encourage patient to void Q2-3H
Show patient how to use PCA pump
Teach patient relaxation techniques for sleeping

References

Belyayeva, M., & Jeong, J. M. (2021). Acute Pyelonephritis. *StatPearls*. https://www.ncbi.nlm.nih.gov/books/NBK519537/?report=classic

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