A Client with Acute Renal Failure

Judy Devak is driving home late one evening when she loses control of her car trying to avoid hitting a deer in the road. Her car strikes a tree and rolls into a deep ditch beside the road, out of sight of passing cars. The wreck is not discovered until 2 hours later. On arrival at the accident scene, the paramedics find Ms. Devak hypotensive: BP 90/60, P 120, and R 24. She is alert and in severe pain, with a fractured right femur. After immobilizing Ms. Devak’s neck and back and extricating her from the car, they apply a traction splint to her leg and transport her to the local hospital.

ASSESSMENT
Katie Leaper, RN, obtains a nursing history on Ms. Devak’s admission to the intensive care unit. Ms. Devak indicates that she has been healthy, having experienced only minor illnesses and chickenpox as a child. She has never been hospitalized, and knows of no allergies to medications. Ms. Devak is not currently taking prescription or nonprescription drugs. Physical assessment findings include T 97.4°F (36.3°C) PO, P 100, R 18, and BP 124/68. Skin pale, cool, and dry, with multiple scrapes, minor abrasions, and bruises on face and extremities. A linear bruise is noted on her chest and abdomen from the seat belt. Lung sounds clear, heart tones normal, and abdomen tender but soft to palpation. Right leg alignment maintained with skeletal traction. One unit of whole blood was infused prior to ICU admission, a second unit is currently infusing. An indwelling urinary catheter and a nasogastric tube are in place.

During the first few hours after admission, Ms. Leaper notes that Ms. Devak’s hourly output has dropped from 55 mL to 45 mL to 28 mL of clear yellow urine. The physician orders a 500 mL intravenous fluid challenge, STAT urinalysis, BUN, and serum creatinine. The fluid challenge elicits only a slight increase in urine output. Urinalysis results show a specific gravity of 1.010 and the presence of WBCs, red and white cell casts, and tubular epithelial cells in the sediment. Ms. Devak’s BUN is 28 mg/dL; her serum creatinine, 1.5 mg/dL. The physician diagnoses probable acute renal failure and orders a nephrology consultation. In addition, the physician orders aluminum hydroxide, 10 mL every 2 hours per nasogastric tube, and ranitidine 50 mg intravenously every 8 hours.

DIAGNOSIS
Ms. Leaper identifies the following nursing diagnoses:
- Acute pain related to injuries sustained in accident
- Anxiety related to being in the intensive care unit
- Risk for excess fluid volume related to impaired renal function
- Impaired physical mobility related to skeletal traction
- Altered protection related to injuries and invasive procedures

EXPECTED OUTCOMES
The expected outcomes for the plan of care are that Ms. Devak will:
- Report adequate pain control.
- Verbalize reduced anxiety.
- Maintain stable weight and vital signs within normal range.

EVALUATION
After just over 3 days of oliguria, Ms. Devak’s urine output increases. By the end of the fourth day she is excreting 60 to 80 mL/hour of urine. Although her BUN, serum creatinine, and potassium levels remain high, they never reach a critical point, and dialysis is not required. She is transferred from the ICU on the fifth day after admission. When Ms. Devak is able to begin eating, she is placed on a low-potassium diet, restricted to 50 g of protein. Her renal function gradually improves. By discharge, results of her renal function studies, including BUN and serum creatinine, are nearly normal. Ms. Devak verbalizes an understanding of the need to avoid nephrotoxins such as NSAIDs until allowed by her physician.

Critical Thinking in the Nursing Process
1. What was the most likely specific precipitating factor for Ms. Devak’s acute renal failure? Did anything else contribute to her risk?
2. Why did the physician prescribe aluminum hydroxide and ranitidine? Consider both the acute renal failure and Ms. Devak’s placement in the intensive care unit.
3. Ms. Devak is at risk for respiratory distress related to potential fluid volume excess. How does her fractured femur further contribute to risk for respiratory distress?
4. Develop a care plan for Ms. Devak for the nursing diagnosis, Diversional activity deficit.

See Evaluating Your Response in Appendix C.