Jazmin Leal

Case Study, Chapter 53, Assessment of Kidney and Urinary Function

1. George Wright, 63 years of age, is admitted in same-day surgery for a renal angiogram for the diagnosis of renal artery stenosis. (Learning Objective 5)

a. What patient education should the nurse provide to the patient?

The nurse should educate the patient on a laxative being administered before to clear the colon. The nurse needs to also:

- Mark the peripheral pulses (radial, femoral, dorsalis pedis) for easy access after the procedure
- May need to shave the injection site, either femoral or axilla
- Obtain allergy information on shellfish, iodine, or other seafood
- Review nephrotoxic medications
- Inform they may feel warth, or flushing of the face temporarily
- May experience unusual flavor in their mouth
- Need to report any bruising or swelling at the injection site
- Hematoma, arterial thromboss or dissection, altered renal function, and false aneurysm formation are some complications

b. What preparation should the nurse provide for the patient who is going for a renal angiogram?

The nurse should give the laxative so that the colon does not obstruct the x-ray, shave the patient where the injection site is going to be, and mark peripheral pulse sites so that it is easy to access during assessment after. If contrast is going to use, the nurse needs to obtain a medical history, including allergies. The nurse needs to check the kidney function, and keep emergency supplies on standby. Patient needs to NPO for at least 8 hours before the procedure.

2. Laura is a new graduate nurse who has accepted a position on a medical ward that has a high percentage of patients with hypertension. In preparation for caring for these patients, Laura decides to review aspects of blood regulation, including the kidney’s renin--angiotensin system. (Learning Objective 2)

a. What does Laura learn in reviewing the role of the vasa recta in blood pressure regulation?
A substance goes into the vasa recta from the filtrate in tubular reabsorption. The substance moves into the tubular filtrate from the

vasa recta in tubular secretion. The blood pressure is continuously monitored by the vasa recta when the blood goes into the kidneys.

b. What is the physiologic reaction in the kidney to a decrease in blood pressure?

   Renin is secreted when the blood pressure is detected as low by the juxtaglomerular cells that are need the afferent arteriole, efferent arteriole, and distal tubule. Renin will stop being excreted when the blood pressure increase is detected by vasa recta.

c. How does angiotensin II affect blood pressure?

   Angiotension I is converted by renin, which then converts into Angiotensin II. Angiotensin II is the most powerful vasoconstrictor, and causes the blood pressure to increase.

d. How does the adrenal cortex function in conjunction with the kidney to increase blood pressure?

   Aldosterone is secreted by the adrenal cortex due in correlation to the pituitary gland stimulation, which happens in response to the increasing osmolality or poor perfusion. Blood pressure then rises, and renin will stop being secreted when the vasa recta detects the high blood pressure. Hypertension is the primary cause of this feedback mechanism failing.