

Joey Runde

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?
 - a. Teach the patient how the surgery is going to work. Tell the patient that an angiogram provides an image of the renal arteries. It is used to provide renal blood flow.
- b. What preparation should the nurse provide for the patient who is going for a renal angiogram?
 - a. The patient should be given a laxative to evacuate the colon so that the unobstructed x-ray can be obtained. The injection sites should be shaved and the peripheral pulses should be marked. They are marked so it is easy access during postprocedural assessment.

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. The vasa recta are specialized vessels of the kidney that constantly monitor blood pressure as blood goes into the kidneys. The vasa recta detects when the blood pressure is too low or too high. When the vasa recta notices an increase in blood pressure, the renin secretion stops.
- b. What is the physiologic reaction in the kidney to a decrease in blood pressure?
 - a. If the blood pressure is too low, specialized juxtaglomerular cells near the afferent arteriole, distal tubule, and efferent arteriole secrete the hormone renin. Renin then converts angiotensinogen to angiotensin I. Angiotensin I is then converted to angiotensin II.
- c. How does angiotensin II affect blood pressure?

- a. Angiotensin II is the most powerful vasoconstrictor. Therefore, angiotensin II cause the blood pressure to increase.
- d. How does the adrenal cortex function in conjunction with the kidney to increase blood pressure?
 - a. The adrenal cortex secretes aldosterone in response to stimulation by the pituitary gland. This occurs due to poor perfusion or increasing serum osmolality. That will then result in an increase in blood pressure.

Hinkle, J.L. & Cheever, K.H.(2018). Brunner & Suddarth's textbook of medical-surgical nursing(14th ed.). Philadelphia, PA: Wolters Kluwer Health Lippincott Williams & Wilkins