6.4: Nursing Process Related to Cardiovascular and Renal Medications

Assessment

Understanding the mechanism of action of a cardiac medication will help a nurse choose the proper assessments to perform on a patient. It is important for a nurse to complete a full cardiac assessment to fully understand the health status of the patient, the safe implementation of the medication, and the expected effectiveness of the medication.

Many cardiovascular medications alter a patient's blood pressure or heart rate, such as antiarrhythmics, cardiac glycosides, antihypertensives, or diuretics. Therefore, it is important for a nurse to assess a patient's blood pressure and heart rate prior to administration. Medication parameters are often included in the order by a healthcare provider. For example, a common medication parameter is to hold a beta blocker if a patient's heart rate is less than 60 beats per minute. Additionally, antiarrhythmic medication will alter the electrical conduction of the heart, so intermittent or continuous ECG monitoring may be required during initial therapy or dose changes.

Electrolytes can play a large role in cardiac conduction and muscle function. Medications that alter electrolytes, such as loop diuretics, require a review of laboratory values before administration. Loop diuretics such as furosemide (Lasix) often cause a depletion of potassium. If a nurse administers a loop diuretic to a patient who already has low serum potassium levels (called hypokalemia), worsening symptoms of hypokalemia will occur, which can cause a life-threatening arrhythmia.

Monitoring kidney function is also important when administering many cardiovascular medications. For example, diuretics can cause renal injury. A nurse should be aware of cardiovascular medications that are affected by impaired renal function or cause renal injury. In addition, a nurse must appropriately assess and report abnormal laboratory values such as worsening serum creatinine and glomerular filtration rates (GFR). It is also important to assess for signs
of dehydration, as well as intake and output in patients taking diuretics.

Anticoagulant medications cause serious risk for bleeding that can be life threatening. Prior to administering medication that alters a patient’s coagulation, it is important to assess for signs and symptoms of unusual bleeding or bruising. Laboratory values, such as INR, PTT, or platelets, may also require review prior to administering an anticoagulant medication. Any new abnormal lab values or signs of increased bleeding and internal bleeding should be immediately reported.

Implementation

Before administration of any cardiovascular medication, it is vital for the nurse to determine if this particular cardiac medication is safe for this patient at this time. For example, if the patient’s heart rate or blood pressure is below the anticipated parameters, the medication should be withheld and the prescribing provider notified.

It is also important to consider the effect of the medication before administering it at the ordered time. For example, if a diuretic is prescribed before a patient is sent to a diagnostic test, the test may be disrupted by the need for the patient to urinate, and the dosage should be rescheduled for a later time. A more significant safety concern arises when a patient who is scheduled for surgery is prescribed aspirin or an anticoagulant. The nurse should consider these types of upcoming events before administering medications as they are ordered.

Evaluation

It is always important to evaluate the patient’s response to a medication compared to what is expected. Many medications require dose adjustments to produce desired effect. For example, IV heparin is administered based on a protocol that requires dose adjustment based on PTT or aPTT lab results to achieve therapeutic range (and avoid overdosage that can cause life-threatening bleeding).

It is also important to evaluate the patient’s understanding of the purpose and proper use of their cardiac medications, as well as when they should notify their provider of changing symptoms. Additional patient education before discharge home is often required, especially if new medications are prescribed.

Nurses should continue to monitor a patient’s blood pressure, heart rate, intake and output, edema, or other cardiac assessments to evaluate if ordered cardiac agents are effective or if further treatment or dosage adjustment is required. The patient should be continually monitored for potential adverse effects of medication, some of which can be life threatening and require prompt notification to the prescribing provider.