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Atrial Fibrillation

Patient Profile
E.W., a 76-year-old white man, comes to the emergency department after a syncopal episode at a local restaurant. He is accompanied by two friends.

Subjective Data
- Has been feeling weak for a few days
- Became dizzy and fainted while awaiting his dinner
- Takes one medication, a "water pill" for high blood pressure (BP)

Objective Data
Physical Examination
- BP 92/50, pulse 125 and irregular, respirations 24, temperature 97°F
- Alert and oriented
- Lung sounds clear in all fields

Diagnostic Studies
- ECG monitor shows atrial fibrillation

Discussion Questions
1. What is atrial fibrillation?
   Answer: An irregular heart rhythm that causes poor blood flow and increases the potential for clots to form in the atria.
   Rationale: A disorganization of atrial electrical activity due to multiple ectopic foci resulting in an irregular, often rapid heart rate with ineffective atrial contraction, and poor blood flow.

2. What are your priority actions at this time?
   Answer: decrease ventricular response/HR (β-blockers, Ca^{2++} channel blockers, digoxin), prevent stroke (anticoagulant therapy) and cardiovert to normal sinus rhythm
   Rationale: The heart can only sustain rapid beating for a limited time before it tires out. The blood accumulates in the atria due to the rhythm, so anticoagulant therapy is needed to prevent thrombus formation that could lead to stroke or pulmonary emboli. Cardioversion will provide an electrical shock that will return the rhythm to a normal sinus rhythm.

3. What additional history should you obtain from E.W.?
   Answer: I would obtain past medical history, such as, metabolic issues, thyroid problems, diabetes, CKD, lung disease, hypertension, congenital heart defects and medications the patient has taken. I would want to know a social history, such as, alcohol or stimulant consumption.
   Rationale: Collecting relevant past medical history and social history are important to provide overall care to the patient. Try to obtain a complete medication history as medication reconciliation is important to the patient's ongoing treatment.

4. Describe the risks associated with atrial fibrillation.
   Answer: atrial clots, stroke, pulmonary embolism, drastic decrease in cardiac output, heart failure

Rationale Abnormal electrical conduction (fast and chaotic) in the atria causing the atria to ineffectively contract and squeeze blood into the ventricles. The fast electrical impulses that do reach the AV node result in rapid, irregular contraction of the ventricles. All of this causes blood to flow slowly through the atria and is more likely to clot which can lead to stroke or pulmonary embolism. The poor pumping action of the ventricles result in a decrease of cardiac output. Atrial fibrillation over a long period of time will weaken the heart and lead to heart failure.

5. E.W. is placed on diltiazem, warfarin, and dronedarone. What is the purpose of each of these medications in treating E.W.'s atrial fibrillation?
   Answer: diltiazem-Ca^{2++} channel blocker to initially control the ventricular rate; warfarin-anticoagulant to prevent formation of clots; dronedarone-antiarrhythmic to restore sinus rhythm and lower heart rate
   Rationale: Diltiazem initially controls the ventricular rate to increase cardiac output and sufficiency. Warfarin prevents atrial blood clots that in turn lowers the chances of stroke. Dronedarone restores the sinus rhythm and lowers blood pressure reducing hospitalization or death.

Case Study Progress

E.W. is admitted with a diagnosis of new onset of atrial fibrillation. Despite medical therapy, 12 hours later, he is still experiencing dizziness, and his systolic BP remains below 100. A transesophageal echocardiogram is done, showing E.W. does not have any blood clots, so the provider elects to perform a cardioversion.

6. What instructions should you give E.W. to prepare for a cardioversion? What do you tell him to expect during the procedure and what nursing assessments will you be performing?
   Answer: Instructions: Do not eat or drink anything for 8 hours prior to procedure, and only take medications the HCP has allowed with a small sip of water. Expectation: Patient will be sedated with a short-acting sedative via IV before the procedure, so he will probably not remember anything. Assessments: airway and breathing, hemodynamic stability-HR, BP, ECG readings
   Rationale: Patients should not eat or drink prior to the procedure because there is a chance that immediate surgery could be needed. Some medications increase the risk for problems during the procedure. Patients are temporarily sedated during the procedure to reduce the feeling of pain and anxiety. Monitoring airway, breathing and hemodynamic stability is important to rapidly identify any complications and need for intervention.