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Systemic Lupus Erythematosus: Cardiovascular Pathophysiology
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Pathophysiological Disease Process
- SLE activates the immune system and the complement cascade.
- The chronicity of this activation theoretically contributes to atherosclerosis (Ammirati et al., 2014).
- “Atherosclerosis is an inflammatory disease initiated by dysfunction of the endothelial cells of the vasculature... resulting in damage to the endothelial layer of the arterial wall” (Turano, 2013, p. 49).
- Inflammation stimulates macrophages, cytokines, T cells and oxidation of low-density lipoproteins (LDLs)
- The cycle continues, “macrophages release growth factor that produces collagen forming a cap (plaque) over the accumulation of inflammatory cells, lipid, and necrotic tissue” (Turano, 2013, p. 49).
- The obstruction limits blood flow or can rupture

Signs and Symptoms
- “Dyspnea, cough, fever, chest pain, abdominal/flank pain, skin rash, decreased urine output, arthritis”
- Elevated troponin 1
- Anemia
- Proteinuria
- Sinus tachycardia
- Pericardial effusion
- Mitral valve regurgitation

Implications for Nursing Care
- Advanced Practice Nurses should monitor SLE patients:
  1. Hypertension
  2. Heart failure
  3. Diabetes mellitus
  4. Labs

Conclusion
- SLE is a complicated disease.
- A collaborative effort between Advanced Practice Nurses and patients is necessary to ensure success on the wellness continuum.

References
- Wigen, M., Nilsson, C., & Renzi, C. (2013). The focus of this research is to gain an understanding of the cardiovascular implications of SLE. Nakita, A. K., & Kow, M. A. (2014) found lupus patients older than 35 are >50 times more likely to develop cardiovascular disease (CVD) than their age and sex linked counterparts” (p. 1). Advanced Practice Nurses are essential to recognizing, screening and managing care for persons affected with SLE (Weinstein et al., 2014).
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- Systemic lupus erythematosus (SLE) is an autoimmune disease potentially chronic inflammation throughout the human body.
- “Autoantibodies react with circulating antigens to form complexes that can deposit in: kidney(ly), brain, heart, lungs and vasculature” (Turano, 2013, p. 49).
- Gilbert and Ryan (2014) report SLE predominately affects females between 20-40 years of age, but can begin in childhood.
- The measurement of increased endothelial dysfunction from the FMD correlation may correspond with increased cardiovascular dysfunction (Barsalou et al, 2016)
- SLE is linked to an increased rate of hypertension and premature cardiovascular disease (Gilbert & Ryan, 2014).
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