Bullet Point Nursing

Angina and MI pharmacology

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Pathophysiology review

- Angina is when oxygen demand exceeds supply in the heart
- Classic symptom is chest pain/discomfort
- Stable angina is when the chest pain comes in a predictable pattern (with exertion)
    - Pain is relieved with rest and/or nitroglycerin
- Myocardial infarction (MI) is caused by an obstruction in one or more of the coronary arteries
    - Usually a result of plaque or a thrombus or both
    - Ischemia (hypoxia) leads to injury, which leads to infarction (cell death)

Drug class: Nitrate (Vasodilators)

- Drug:
    - Nitroglycerin
- MOA: Dilates veins (at high doses can dilate arteries)
- Indications: Acute angina and heart failure
- SE/AE: Headache, orthostatic hypotension, reflex tachycardia
- Routes: Sublingual, transdermal, IV, PO
    - Be sure to wear gloves when handling transdermal medications
- Dosed for acute stable angina SL at 0.4mg (400mcg) q5 minutes PRN up to three doses
    - Reassess BP prior to each dose when administered by a healthcare provider
    - Patients must be educated to seek emergency medical care if no relief after three doses
- Used PRN as first line agent for stable angina
- Used as alternative agent for angina prevention via the transdermal route
    - Requires dose vacation due to tolerance build up
- Contraindicated for patient that took sildenafil, vardenafil, or tadalafil within 48-72 hours
- Contraindicated in patients with suspected acute RV MI, closed angle glaucoma,
- Hypotension related to nitroglycerin is treated with fluids
- BP must be assessed prior to administration due to hypotensive effects

Drug class: Beta adrenergic antagonists (Beta blockers)

- Drugs:
    - Nonselective:
        - Propranolol
    - Cardioselective:
        - Metoprolol
        - Atenolol
        - Esmolol
    - Non-selective with vasodilating effects:

        - Labetalol
        - Carvedilol
- MOA: Blocks beta one receptors, reducing cardiac chronotropy and inotropy
- Indications: Angina, HTN, heart failure, AMI, dysrhythmias, migraines prevention, anxiety
- SE/AE: Fatigue, bradycardia, hypoglycemia, sexual dysfunction
- Black Box warning: Abrupt discontinuation can cause adverse CV effects, especially in angina
- Caution in using a nonselective with underlying pulmonary conditions
    - Can cause bronchoconstriction
- Assess HR and BP prior to admin

Drug name: Ranolazine

- MOA: Unknown – decreases oxygen demand
- Indication: Angina prevention
- SE/AE: QT prolongation

Acute angina is treated with nitroglycerin

Chronic angina is treated with beta blockers first or a calcium channel blocker, ranolazine, nitroglycerin

Drug class: Thrombolytics

- Drugs:
    - Alteplase
    - Reteplase
    - Tenecteplase
- MOA: Initiates fibrinolysis (breakdown of clots)
- Indications: AMI, CVA, PE
- IV only
- Usually given with a loading dose followed by one hour infusion
- SE/AE: Intracranial hemorrhage (Referred to as conversion in the case of a stroke)
- Only drugs that can breakdown an existing clot
- Often requires a checklist to assess for high-risk complications and contraindications
    - i.e. uncontrolled HTN, recent surgery, recent stroke, hx of bleeding stroke
- Avoid extraneous cannulation of arteries or veins when administering thrombolytics
- Reversed with Cryoprecipitate

Medications in the guidelines for patients with an acute MI:

- Aspirin
- Nitroglycerin
- Anticoagulation / Additional antiplatelet
- Statin
- Oxygen / Morphine (**as needed!)**

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References

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