Infective Endocarditis Related to IV Drug Abuse

Jasmine D. Branch
Otterbein University, jasmine.branch@otterbein.edu

Follow this and additional works at: https://digitalcommons.otterbein.edu/stu_msn

Part of the Nursing Commons

Recommended Citation
Branch, Jasmine D., "Infective Endocarditis Related to IV Drug Abuse" (2016). Nursing Student Class Projects (Formerly MSN). 136.
https://digitalcommons.otterbein.edu/stu_msn/136

This Project is brought to you for free and open access by the Student Research & Creative Work at Digital Commons @ Otterbein. It has been accepted for inclusion in Nursing Student Class Projects (Formerly MSN) by an authorized administrator of Digital Commons @ Otterbein. For more information, please contact digitalcommons07@otterbein.edu.
Infective Endocarditis Related to IV Drug Abuse

Jasmine Branch RN
Otterbein University, Westerville, Ohio

Introduction

Black drug abuse amongst youth and adults in the United States continues to rise. In 2014, the U.S. had the highest rate of deaths due to drug overdose (Centers for Disease Control and Prevention, 2015). One common way people abuse drugs today are intravenously (IV), this route works fast and can cause an "immediate high". These drugs are often drawn up in a syringe and then injected into a vein. People often inject heroin, cocaine, prescription opiate, and other illegal drugs. Needle are often shared amongst others, or re-used, leading to increased exposure to infectious diseases. The use of IV drugs can lead to serious health issues such as cellulitis, hepatitis, HIV, sepsis, abscesses, pulmonary emboli, and many other conditions. Infective endocarditis is a disease commonly related to IV drug abuse, and is often seen in this nurse’s unit. Infective endocarditis occurs when bacteria or fungi enter the bloodstream and often infects an individual’s heart valves (Peirce, Calkins, & Thornton, 2012). Infective endocarditis can be life-threatening and requires aggressive medical treatment. Treatment often includes long term antibiotics, frequent blood monitoring, drug monitoring and sometimes heart valve surgery. After treatment these patients have to re-learn to consider making lifestyle changes to improve their health and overall quality of life.

Implications of Nursing Care

Patients diagnosed with IE are often hospitalized for close management during the initial treatment process. Nurses have a vital role in caring for these patients while in the hospital, initial treatment process. Nurses therefore play an active role in caring for these patients while in the hospital, rehab facilities, and even in the home setting. Below is a few nursing implications:

• Monitoring vital signs
• Administration of antibiotics (IV/PO)
• Post-operative care (if surgery indicated)
• Encourage drug cessation, lifestyle modifications
• Education

Conclusion

IE can be a major complication for the IVDA. IE often needs aggressive medical therapy, and sometimes surgical treatment. Individuals who abuse drugs with the need to consider lifestyle modifications to prevent further infections and promote a healthier life. With the climbing rates of drug abuse within the U.S. today, we may start to see a rise in patients with IE and other drug related deaths. As health professionals it is imperative for us to continue to encourage drug cessation, support those trying to quit, and always educate our community the importance of not using drugs.

References


Signs and Symptoms

While injecting drugs intravenously bacteria can enter the bloodstream and microorganisms can travel to the heart (McCance & Huether, 2014). Endocardial damage may cause a release of cytokines, adhesion molecules are then expressed and tissue factor activity easy, resulting in bacterial adhesion (Evans & Gammie). Bacterial adhesion on the valve cause an inflammatory response where monocytes react to the release of cytokines which then leads to ulceration, destruction of tissue, and fibrin clotting scar the valve (Evans & Gammie, 2011). The tissue then begins repair itself excessively, causing vegetation to the heart valves (Evans & Gammie, 2011). The complication cascade is activated by tissue factor and platelets are then attracted, which is an element to vegetation (Evans & Gammie, 2011). As the vegetation increases, bacteria continuously binds and proliferates within the valve (Evans & Gammie, 2011).

Pathophysiology

Ill is a serious medical condition and can be life threatening. Although there have been medical advancements, the morbidity and mortality rates of IE are still high (Sabe, Shrestha, Menon, 2013). Treatment of IE may include long term use of IV antibiotics for several weeks. If the heart valves are severely damaged, the valve may need to be replaced via open heart surgery (IE can result from several conditions other than IVDA. Other causative factors may include: congestive lesions, acquired valve disease, platelets (thrombocytopenia, devalve lesions), heart transport, long-term intravenous catheters, or dental procedures (McCance & Huether, 2014). Different pathogenesis may occur with each condition. The causative factors mentioned above may not all be 100% preventable, however, IE caused by IVDA is 100% preventable. IVDA accounts for approximately 9% of the risk factors for IE (Peirce, Calkins, & Thornton, 2012). Choosing not to abuse drugs would drastically lower one’s role of developing endocarditis.

Additional Resources


Frequent Drugs Injected

• Heroin
• Cocaine
• Fentanyl
• Prescription Opiates (codeine, morphine, hydrocodone)

Significance of Pathophysiology

While injecting drugs intravenously bacteria can enter the bloodstream and microorganisms can travel to the heart (McCance & Huether, 2014). Endocardial damage may cause a release of cytokines, adhesion molecules are then expressed and tissue factor activity easy, resulting in bacterial adhesion (Evans & Gammie). Bacterial adhesion on the valve cause an inflammatory response where monocytes react to the release of cytokines which then leads to ulceration, destruction of tissue, and fibrin clotting scar the valve (Evans & Gammie, 2011). The tissue then begins repair itself excessively, causing vegetation to the heart valves (Evans & Gammie, 2011). The complication cascade is activated by tissue factor and platelets are then attracted, which is an element to vegetation (Evans & Gammie, 2011). As the vegetation increases, bacteria continuously binds and proliferates within the valve (Evans & Gammie, 2011).

References


Figure 1: (Agar, 2013)

Figure 2: (Nabih et al., 2010)

Figure 3: (Keys, 2015)