ADVANCED PHARMACOLOGY

Name

Institutional Affiliation

Date

**How a behavioral aspect, such as smoking Affect pharmacokinetic and pharmacodynamic processes for patients with cardiovascular diseases**

Stroke has led to many deaths in the USA. When stroke disease is related to other diseases such as diabetes and hyperlipidemia and hypertension, it kills faster. However, hypertension and diabetes can be modified based on the risk factor of stroke, Smoking, diabetes, and hypertension, which can be classified as risk factors of stroke (Burnier, 2018).

**Hypertension and stroke**

 Hypertension can be considered as a major risk factor of ischemic stroke. Elevated systolic pressures can be considered as a major risk factor for stroke. However, isolated systolic hypertension is another risk factor for stroke in older people who might also be having type 2 diabetes (Burnier, 2018). Controlling blood pressure has been proved to reduce the risk of stroke. About 130/80 mm Hg is recommended for hypertensive diabetic patients (Askari& Lincoff,2010). However, there is no information about a drug that can help in preventing stroke to those patients who have hypertensive diabetes (Burnier, 2018). However, good control of Blood pressure is recommended. Thus, this calls for a multi-drug policy. Clinicians have recommended a combination of some drugs such as calcium channel blockers, angiotensin‐converting enzyme (ACE) inhibitors, and angiotensin receptor blockers.

**Diabetes and stroke**

 Many patients have diabetes combined with stroke. Patients having glucose intolerance are likely to suffer from brain infractions (Burnier, 2018). This risk is usually greater in women than in men. Hyperglycemia has been proved to affect the outcome of stroke disease to nondiabetic and diabetic patients. Hyperglycemic increases the production of lactate in the brain, thus promoting the conversion of hyperperfused tissues to areas of infarctions. On the other hand, insulin resistance happens to be a risk factor for those that have type 2 diabetes (Maleki,., Alizadehasl, & Haghjoo, 2018).

**Hypertension and diabetes**

 Various studies have shown that BP control in patients improves the risk of various cardiovascular diseases such as stroke (Maleki,., Alizadehasl, & Haghjoo, 2018). However, the role in which angiotensin receptors paly in patients that have diabetes is not clearly explained (Askari& Lincoff,2010). The losartan intervention is also known to reduce hypertension effectively as compared to B- blocker therapy. On the other hand, patients are advised to quit smoking by all means.

**Hyperlipidemia and lipid-lowering therapy**

 Most of the information that relates to cholesterol-lowering in patients with diabetes has been obtained from information on patients with coronary heart disease (GOSWAMI, 2019). This study has shown that lowering lipids using statins reduces the probability of stroke incidences. Reduce stroke using lipid-lowering therapy has been demonstrated by the use of gemfibrozil and statins.

**Smoking and its effects**

Smoking greatly affects hyperlipemia, stroke, hypertension, and diabetes management. Drugs may not work effectively when a patient who is trying to manage this disease continues to smoke. Smoking is a significant cause of death in patients who have cardiovascular diseases. It also causes cardiovascular events (GOSWAMI, 2019). Smoking is a significant cause of cardiovascular diseases. Thus, for a patient who wants to manage cardiovascular diseases effectively, they need to take the recommended drugs as well as quitting smoking. If a patient continues to smoke, he is likely to continue suffering significant attacks of cardiovascular diseases, which could lead to death (Watson& Zibadi, 2018). It has been estimated that one out for four of people suffering from cardiovascular diseases, die out of smoking. Chemicals associated with smoke make a cell in blood vessels to become inflamed and swollen. This makes the blood vessels inflexible and can lead to many cardiovascular conditions. Atherosclerosis is a situation where arteries narrow, becoming less flexible. It occurs when substances in the blood form a plague in the walls of the blood arteries. On the other hand, stroke is caused when the blood that flows through the brain is interrupted. Stroke is likely to cause significant damage to the brain, which can lead to death. On the other hand, smoking can lead to high blood sugars and insulin resistance. Diabetic patients are likely to lose their lives if they continue smoking since the intake of tobacco may cause drugs to be ineffective (Watson& Zibadi, 2018). People that smoke many cigarettes in a day have a high chance of losing their lives compared to other people. On the other hand, hyperlipidemia means that there is too much cholesterol in the blood. Smoking is known to lower HDL, which is a protective effect against multiple heart diseases. HDL is very crucial for women that have high cholesterols. For drugs to work adequately, patients must be advised to quit smoking by all means.

**How changes in the processes might impact the patient's recommended drug therapy**

 However, when a patient smoke while still suffering from stroke, hypertension, diabetes, and hyperlipemia, he still can be put on medication after being advised to stop taking cigarette (Watson& Zibadi, 2018). The pharmacist can use polypharmacy to administer drugs to the patient. Polypharmacy is a situation where a patient is advised to take multiple drugs for treatment. A patient is expected to take 5 to 12 drugs. However, these drugs should be prescribed by a medical PR actioner. This kind of medication is mostly prescribed to older people as compared to young people. This is because there are always suffering from multiple medical conditions.

**How you might improve the patient's drug therapy plan**

However, the first step to treating a patient who smokes is outlining various ways in which he can quit smoking (Askari& Lincoff,2010). He can decide to stop smoking, This may not happen abruptly, but he can choose to reduce a cigar a day (GOSWAMI, 2019). Smokers that are unable to quit on their own can be put under nicotine replacement therapy. The patient should start taking the drugs a few days before the day they have set to quit smoking. A Patient can also be put under varenicline medication, which helps people to stop smoking by affecting the nicotine receptors which are located in the brain. It works by making a person get less pleasure in smoking while it also reduces symptoms that are associated with nicotine withdrawal.

**References**

Askari, A. T., & Lincoff, A. M. (2010). *Antithrombotic drug therapy in cardiovascular disease. Dordrecht: Springer.*

Burnier, M. (2018). *Drug adherence to hypertension and cardiovascular protection.*

GOSWAMI, K. E. W. A. L. C. (2019). *CSI CARDIOLOGY UPDATE 2018. S.l.: MCGRAW-HILL EDUCATION.*

Maleki, M., Alizadehasl, A., & Haghjoo, M. (2018). *Practical cardiology*.

Watson, R. R., & Zibadi, S. (2018). *Lifestyle in Heart Health and Disease.*