Argumentative Research Paper Assignment

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**Abstract**

A migraine is a common headache disorder in which a person experiences recurrent headaches. Typically, people having migraines experience a severe headache in one half of their head that last for several hours to 3 days. In recent years many researchers are debating over a topic that whether migraine is one of the potential causes of stroke or not. According to many researchers people who experience migraines with aura are more prone to having a stroke. As migraines with aura tend to form blood clots due to narrowed blood vessels causing stroke. However, many researchers do not agree upon the statement that migraines cause strokes. According to them, migraines with aura affects the senses of a person due to which a person experiences light flashes, numbness of arms and legs. These symptoms are similar to the symptoms of stroke due to which people often get confused. This paper provides detail on the controversy surrounding migraines as a potential cause of strokes by comparing the symptoms and causes of both migraines and strokes. A detailed literature review regarding previous studies done on this topic is also presented that will help in understanding the connection between strokes and migraines. Furthermore, arguments in the favor and against of the topics are also presented to support the statement that migraines cause strokes are also presented.

**Introduction**

There is a complex association between migraine and stroke that is a topic of debate for more than a decade. Stroke is considered to be the second most common cause of death worldwide. It is also the third leading factor that causes disabilities in people. On the other hand, migraine affects more than 13% population especially women. A stroke is a medical condition that occurs due to the poor blood flow to the brain. The two main types of strokes are ischemic that occurs due to lack of blood supply to the brain while the other is hemorrhagic that is caused due to excessive bleeding. In contrast, Migraines are a recurring type of headache disorder that causes moderate to severe throbbing pain typically on one side of the head. This pain is accompanied by nausea, vomiting, light and sound sensitivity. Generally, migraines begin from childhood to adolescence progress through four stages. These stages are pro-drome, aura, attack and post-drome (Migraine and stroke, 2017) Due to these similarities people often think that migraine can trigger stroke. As during migraine, the blood supply to the brain is decreased that can make blood clots causing a stroke. Several studies conducted on migraines often linked it with cardiovascular disease that may result in a stroke. Also, migraine infarction is a condition in which a person can have a stroke due to migraines. Although, migraine infarctions occur rarely yet still people think that migraines increase the risk of having a stroke. Despite several studies conducted on both of these disorders, researchers are still debating over the topic that whether migraine trigger stroke or not. Many researchers and health care professionals do not agree that migraine can trigger stroke. According to them, factors such as obesity, smoking, and drinking are the main factors that increase the risk of having a stroke (De Reuck et al., 2010). In this paper, a detailed literature review related to the topic under discussion is presented, followed by the pro side and con side of the controversy. Lastly, a conclusion of the whole paper is discussed that briefly summarizes all the points related to the study that was discussed in the previous sections is presented.

**Literature review**

Stroke is considered one of the most common causes of death. Several factors cause stroke such as obesity, smoking, and drinking, etc. However, one factor that is often neglected and sometimes not even considered is a migraine. Researchers and healthcare professionals are divided on the issue that whether migraine triggers a stroke or not. Several researchers are favoring the statement that migraine triggers stroke and to determine whether the statement is true or not they conducted several experiments and research.

The author Androulakis in his paper investigated the association of migraine in causing ischemic stroke while incorporating the atherosclerosis risk. For this purpose, the author conducted an experiment in which he included participants from the age group 45-64 in four different communities from the US. Initially, the participants were a part of the ARIC study. The ARIC study aimed to identify the causes of atherosclerosis and clinical sequel. However, to investigate the role of migraine in the cause of a stroke were identified by using these participants from the ARIC study. To assess the headache a questionnaire was given to all the participants and the results were analyzed statistically. The results yield that 5.3% of all the participants having migraine experiences an ischemic stroke. Also, 4 out of 1000 persons having migraine experienced stroke per year. Additionally, people having Migraine are more to have a cardio-embolic stroke (Androulakis et al., 2016). Similarly, the author Mi Ji in his paper also explored the role of migraine in causing a stroke. The author explained several factors that connect migraines with stroke. The first factor explained was a genetic association in which a gene known as methylenetetrahydrofolate reductase was considered as the gene that mediates an increased risk of stroke in patients having a migraine. The second factor was endothelial dysfunction that is characterized by reduced vasodilator activities. Although, there is very little association between systemic endothelial and cerebral endothelial dysfunction in patients having migraines yet still there is a potential risk of stroke in patients having a migraine. The third factor discussed was coagulation abnormalities. The individuals having migraine have an increased level of platelet-activating factor. Thus making migraine a risk factor in causing a stroke. Additionally, the author also explained that people having migraines are also prone to have a hemorrhagic stroke. Specifically, females are more vulnerable to have a hemorrhagic stroke. All the studies mentioned in this paper points out the fact that migraines do trigger stroke. (Lee et al., 2016). According to the article presented by the American Heart Association, migraines with aura are linked to causing blood clots that lead to cause a stroke. According to the statistics people having migraine with aura are 2.4 times more prone to have an ischemic stroke than people having migraines without aura. Migraine alters the blood vessels of the brain that results in the formation of clots. Not only the brain but Migraine also disturbs the heart and neck blood vessels. However, in the US only 87% of the strokes are ischemic strokes due to which it is necessary to take into account the migraine factor to avoid further issues (A.B. Caminero et al., 2012).

Despite all the research conducted on the role of migraine in triggering stroke there still are many researchers that do not agree with this statement. The author Anna in her research also studied the link between stroke and migraine. According to her research, several underlying mechanisms coincidently links migraine and stroke. The first factor identified was (CSD) cortical spreading depression. This factor underlies migraine aura and plays a vital role in the pathogenesis of ischemic stroke and other subtypes of strokes. CSD alters the blood-brain barrier permittivity that increases cerebral blood flow causing an ischemic stroke to occur. The second factor identified as patent foramen ovale (PFO). This factor is linked to cryptogenic stroke. Although, many studies reported a high prevalence of PFO in patients having a migraine that may cause a stroke. The author concluded that there exists a correlation between migraine and stroke yet there is no evidence that supports that strokes are only caused due to migraine. Also, strokes are common in patients having migraine with aura but people that have episodic migraine does not experience stroke. (De Reuck et al., 2010). However, it is necessary to target migraine with aura to reduce the chances of stroke. Also, there is an immense need to further investigate the role of migraine in triggering stroke. Moreover, in an article presented by the American stroke association, the relation between migraine and stroke was discussed. According to the author, having migraines with aura makes a person twice vulnerable to have a stroke. Also, women taking contraceptive pills are more prone to have a stroke if they are migraine patients yet still the association of migraine in triggering a stroke is very low. This is because factors like smoking and obesity are the main risk factors that cause a stroke. Additionally, most of the population experiences migraines without aura which means that they are less likely to have a stroke due to migraines (Migraine and stroke, 2017). Thus, it is important to focus on other factors such as obesity, smoking, and drinking while discussing stroke as these factors cause an increased risk of stroke. Also, lack of physical activities and an unhealthy lifestyle is associated to trigger migraine while also making an individual prone to having a stroke.

**Epidemiological evidence associating migraines with stroke**

**Ischemic stroke and migraine**

For many neurologists, the link between migraine and stroke is still a perplexing problem. However, the occurrence of strokes during migraine prompts to the new discussion that whether migraines are directly linked or indirectly linked to stroke. Migraines infarctions can be considered as a direct link between migraine and stroke. It is a condition in which a stroke occurs during a migraine. As migraine is a neurovascular disorder during which arterial constriction and the decreased blood flow to the posterior circulation results in the spreading of neuronal depression in the cerebral cortex. Typically, a prolonged decrease in the cerebral blood flow results in sluggish flow during migraine with aura in large intracerebral vessels. All these effects combined can lead to migraine infarction. Several other factors link migraine directly with stroke especially cerebral ischemia. These factors include genetics association, endothelial dysfunction, and cervical artery dissection (Zhang & Qian, 2017).

**Hemorrhagic stroke and migraine**

Most of the studies conducted on migraine and its link with stroke were more focused on ischemic stroke. Fewer studies have shown a link between hemorrhagic stroke and migraine. Typically, women are more prone to have a hemorrhagic stroke. More specifically the females who have a history of migraine and take contraceptive pills are more prone to have a hemorrhagic stroke (Kurth Tobias & Diener Hans-Christoph, 2012)Although, factors such as age and healthy lifestyle choices also accounts for having a hemorrhagic stroke yet still migraine can be considered as a potential risk factor (Kuo & Pan, 2013).

**Cardiovascular diseases and migraine**

Migraine is also tied to many cardiovascular diseases. The main reason that tie the two is that during migraine the constriction of cerebral arteries occurs in the brain that makes a person more prone to stroke. Additionally, people having migraine need to rest a lot due to which they are less involved in physical activities this could increase their risk of blood clots and atrial fibrillation. Cardiovascular diseases are often linked to people who are obese or have a drinking or smoking problem yet migraine is one the factor that should not be neglected. Also, people having migraine could have elevated blood pressure that could further increase their risk of getting a stroke. Thus, it is important to maintain normal blood pressure during a migraine to reduce the risk of having a heat stroke (Schürks & Kurth, 2009).

**Stroke risk links with migraine-specific medicines**

Some of the medicines that are prescribed for migraine attacks can also indirectly serves as a factor for increased risk of strokes. For instance, medicine triptans and ergot alkaloids can have a Vasco-constrictive effect on the patients that are taking these medicines. This constriction in the blood vessels can lead to the formation of clots that are directly linked to strokes. Not only these clots are formed in the blood vessels in the brain but they are also formed in the cerebral arteries as well. Thus increasing the risk of heart attack as well. Specifically, many studies revealed that prolonged use of ergotamine is directly linked to increasing the risk of cardiovascular diseases in the patients having a migraine.

**Epidemiological evidence not associating migraines with stroke**

As explained in the literature review section many researchers even many health care professionals do not consider as an independent risk factor. Although, they support the link between migraine and stroke they do not consider it as a sole factor in causing a stroke. Strokes are typically caused when there is a very less or limited blood supply to the brain that deprives brain tissues of accessing oxygen. Due to this brain cells begins to die. In contrast, migraine causes the narrowing of blood vessels. This narrowing sometimes may cause blood clots especially in people that have migraine with aura (Milhaud & Liot, 2001).However, the relation of all migraine types with stroke has little to no evidence. Also, factors like smoking, diabetes, high blood pressure, and smoking, etc are the most important factors that cause a stroke. Therefore, it is important to not mix the symptoms of migraine with that of stroke so that both the disorders can be treated separately to avoid serious consequences.

**Conclusion**

Migraine is a very common neurological condition in which a person experiences severe headaches. Migraine causes the narrowing of blood vessels that may cause clots. This is the reason that migraine is considered to be a potential trigger of stoke (Androulakis et al., 2016). However, many researchers and health professionals do not agree with this statement. According to them, migraine is not the sole reason for triggering stroke yet several other factors combined with migraine can cause a stroke. However, they also agree that migraine indirectly does trigger stroke. The paper provides detailed literature in the favor and against the statement that migraine triggers stroke. The analysis of the literature revealed that migraine does trigger stroke. Even some medicines that are prescribed during a migraine can increase the factor of stroke. It was also revealed that migraine with aura is directly linked to ischemic strokes. Also, a condition migration infarction is discussed in which a stroke occurs during a migraine attack. All these factors point out the main topic of the paper that migraines are involved in causing a stroke. In this paper, a brief discussion regarding gender was also discussed in the literature review. This discussion also pointed that regardless of the gender migraine can trigger stroke however women are more to have a hemorrhagic stroke. Several other factors pointed in the paper can also increase the risk of stroke yet still the factor migraine triggering stroke should not be neglected.

**Part 3 (Reflection)**

The basic purpose of this paper was to get a deep understanding of the connection between migraine and stroke. Initially, the whole research was focused on the topic migraine. However, after researching more about the topic the main issue highlighted was migraine as a potential reason for triggering stroke. Furthermore, while I was researching this statement I found several studies that were in favor of or against this statement. After, analyzing the literature review I analyzed that many researchers do not consider migraine as a potential cause of stroke yet still they believe that it does indirectly cause a stroke. In my paper, I have discussed each type of stroke and its link to migraine separately so that a new reader can easily grasp the concept.

Moving on with my research I came across several articles that supported my topic however they were lacking several points. For instance, many articles do not come from an authentic source and the statistical data provided lacks the proper citation. In contrast, the academic articles and research papers include all the details regarding the issue with proper reference and methodology that helped me a lot in grasping the main concept. This assignment helped me a lot in learning the argumentative type research paper and essay as I have discussed both the pro and con side of my main topic. Overall my experience was very good as I learned a lot from doing this research.

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