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TO STUDY ROLE OF RAUWOLFIA SERPENTINA IN HYPERTENSION

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ABSTRACT:

Hypertension is when blood pressure is higher than normal. It affects up to 10% of people in the general population. It's important because it's not always found during regular check-ups, but it can lead to serious health problems. It can cause damage to organs and increase the risk of heart and blood vessel issues.

People with severe hypertension might be younger, male, experience stress or high activity during the day, or have bad habits like smoking or drinking.

Because of changes in lifestyle like less exercise, poor habits, and modern living, hypertension has many causes.

These include lifestyle choices, family history, and other conditions like stress, smoking, obesity, diabetes, and high cholesterol.

There are many treatments for hypertension, including diuretics and other blood pressure medications.

Other factors that play a role are diet habits, such as eating too much salt or fat, and not getting enough exercise.

A person's diet and daily routine are also important factors.

In homeopathy, hypertension is seen as a condition linked to miasms, especially psora and sycosis.

It moves through all three main miasms. It's a long-term, reversible condition that can become acute. It has root causes, ongoing factors, and triggers. Rauwolfia serpentina is considered the best homeopathic remedy for hypertension and covers all its symptoms.

KEYWORDS: Hypertension, Blood pressure, Rauwolfia serpentina, Homeopathy, Homoeopathic Medicine

INTRODUCTION:

People who reach success early and then hit the top of their career often find themselves with no more goals but to visit the doctor for heart problems.
Because of the fast-paced, modern lifestyle, hypertension has become a "silent killer". Stress and tension have become part of everyday life.
As the population grows, many still face unemployment, making it hard to meet basic needs.
This leads to stress and tension, which are major causes of hypertension. One reason for this is the increasing use of technology in our personal lives, like computers, cell phones, and music in the bedroom.
Hypertension, or high blood pressure, is a long-term medical condition where blood pressure in the arteries is too high.
It is the opposite of low blood pressure. It can be classified into two types: primary and secondary. About 90-95% of hypertension cases are primary, meaning there is no known cause. The other 5-10% are secondary, caused by other medical issues that affect the kidneys, arteries, heart, or hormone system.
Long-term high blood pressure increases the risk of strokes, heart attacks, heart failure, and aneurysms.
It is also a leading cause of kidney failure. Even a moderate increase in blood pressure can shorten life. Changes in diet, lifestyle, and medicines can all help control blood pressure and reduce health risks.
Medical doctors often use antihypertensive and sedative medicines to treat high blood pressure, aiming to prevent serious complications.
However, these drugs may not always be effective and can even be harmful over time. A better approach is to treat the whole person, not just individual symptoms, as practiced in homeopathy.
Rauwolfia Serpentina, a natural remedy, has recently gained attention for its effectiveness in treating different levels of high blood pressure.

It is known to help ease the heart's workload, improve circulation, and reduce excessive pressure in the head and heart, which can bring blood pressure back to normal.

REVIEW OF LITERATURE:

Hypertension, also called high blood pressure, is a long-term health problem where the pressure of blood in the arteries is higher than normal. It is the opposite of hypotension, which is when blood pressure is too low. Hypertension can be of two types: primary and secondary. About 90 to 95 percent of people who have high blood pressure have primary hypertension, which means there is no specific medical reason found for it. The other 5 to 10 percent have secondary hypertension, which is caused by other health problems like those affecting the kidneys, arteries, heart, or hormone system.

Epidemiology:

In the year 2000, it was estimated that nearly one billion people, which is about 26% of all adults, had hypertension around the world.

It was common in both developed countries (333 million people) and less developed countries (639 million people). However, the rates of hypertension differ a lot in different parts of the world. For example, in rural India, the rates were as low as 3.4% for men and 6.8% for women, but in Poland, the rates were as high as 68.9% for men and 72.5% for women.

In 1995, it was estimated that 43 million people in the United States had hypertension or were taking medicine to lower it, which is almost 24% of all adults.

The number of people with hypertension in the U.S. has been increasing over time and reached 29% by 2004. Hypertension is more common in Black people than in white people or Mexican Americans. It also becomes more common with age and is more widespread in the southeastern part of the U.S. Men are more likely to have hypertension than women, but this difference tends to decrease after menopause. People with lower incomes also have a higher chance of having high blood pressure.

Over 90 to 95 percent of adult hypertension is essential, meaning there is no known cause.

The most common type of secondary hypertension is caused by a condition called primary aldosteronism. Exercise-induced hypertension, which is high blood pressure that happens during physical activity, is reported to be between 1 and 10 percent.

Classification:

There are two main types of hypertension:

A. Essential hypertension – this is the most common type, and no specific cause can be found.

B. Secondary hypertension – this type is caused by other health conditions.

Blood pressure is usually measured based on the systolic and diastolic numbers.

Systolic blood pressure is the pressure in the blood vessels when the heart is beating. Diastolic blood pressure is the pressure when the heart is resting between beats. If either the systolic or diastolic pressure is higher than the normal range for a person's age, it is classified as prehypertension or hypertension.

Hypertension has different types, including Stage I hypertension, Stage II hypertension, and isolated systolic hypertension. Isolated systolic hypertension means the top number (systolic pressure) is high, but the bottom number (diastolic pressure) is normal. It's more common in older people. These types are determined by looking at a person's blood pressure readings taken on two or more visits while they're resting. If someone is over 50 and has a blood pressure of at least 140 mmHg systolic or 90 mmHg diastolic, they are considered to have hypertension. If someone has blood pressure higher than 130/80 mmHg and also has diabetes or kidney disease, they may need more treatment.

Hypertension is also called resistant if medicines don't bring the blood pressure down to normal levels.

Exercise hypertension is when blood pressure goes up too much during physical activity.

Normal systolic pressure during exercise is between 200 and 230 mmHg. If someone has exercise hypertension, it might mean they are at risk of developing high blood pressure even when they're not exercising.

Causes of high blood pressure can be different.

According to the National Institutes of Health, some causes may include narrow arteries, too much blood volume, or the heart beating too fast or too hard. These issues can all increase pressure against the artery walls. High blood pressure can also be caused by other health problems. Most of the time, the exact cause is unknown. Diet plays a big role in developing hypertension, as does stress.

Even though stress and behaviour can be important factors, hypertension is most closely linked to diet.

It's one of many diseases connected to the Western diet, and is mostly found in developed countries. People living in remote areas of China, New Guinea, Panama, Brazil, and Africa have very little essential hypertension and don't experience a rise in blood pressure as they get older. However, when people from these areas move to less remote places and start eating a more "civilized" diet, their chances of getting hypertension increase a lot.

Essential hypertension, also known as primary or idiopathic hypertension, is a type of high blood pressure that has no clear cause. It is the most common kind, affecting 95% of people who have high blood pressure. It often runs in families and is likely the result of a mix of genetic and environmental factors. As people get older, the chance of having essential hypertension increases. Those who have high blood pressure at a younger age are more likely to develop it later in life. This condition can lead to problems in the brain, heart, and kidneys.

Risk Factors

Hypertension is one of the most common complex health issues.

The reasons for high blood pressure vary from person to person. While essential hypertension has no known cause, several risk factors have been found.

Hypertension can sometimes be caused by other health conditions, but over 95% of people with high blood pressure have essential hypertension, which is not clearly linked to any specific cause.

However, the following factors are known to increase the risk:

- Eating foods that contain high fructose corn syrup can raise the risk of developing high blood pressure.
- Having a family history of high blood pressure makes it more likely that someone will develop it.
- Essential hypertension is four times more common in Black people than in White people.

It also tends to develop faster, be more severe, and result in a higher risk of death in Black individuals.

1. Genetic and hereditary factors: More than 50 genes have been studied in relation to hypertension, and this number continues to grow. One such gene is the angiotensinogen (AGT) gene, which has been extensively studied by Kim and others. Their research showed that having more copies of the AGT gene can raise blood pressure and may contribute to hypertension. Studies that measure blood pressure over time, including those involving twins, suggest that essential hypertension has a strong genetic component. Evidence from both animal and human studies supports the idea that the inheritance of hypertension is usually multifactorial, meaning several genes each contribute to the condition in different ways. However, the exact genetic role in hypertension is not yet fully understood. It is believed that connecting specific genetic variations with high blood pressure traits could help prove how much genes influence the condition. Another possibility is that high blood pressure may be caused by mutations in single genes, passed down in a predictable, inherited pattern.

2. Age: Hypertension can also be linked to age, and when this happens, it often has many causes. One possible reason is that blood vessels become stiffer as people get older, which reduces their flexibility. This can happen due to a type of high blood pressure called isolated systolic hypertension, where the difference between the highest and lowest blood pressure readings is wider than usual.

3. Kidney Issues: As people get older, their kidneys may not work as well, and this can affect how well they remove extra sodium from the body. Certain kidney problems like microvascular disease and capillary rarefaction are related to this reduced ability to get rid of sodium. Research shows that kidney microvascular disease can be a key reason why some people develop salt-sensitive high blood pressure.

4. Obesity: Being overweight greatly raises the risk of hypertension, up to five times higher than for people with a normal weight. Up to two-thirds of high blood pressure cases are connected to being overweight. More than 85% of these cases happen in people with a body mass index (BMI) over 25. Studies in both animals and humans have clearly shown that obesity can cause high blood pressure. These studies suggest that many different processes are involved in how obesity leads to high blood pressure.

5. Salt Sensitivity: Another key factor is how sensitive someone is to salt (sodium). This is an environmental factor that has been studied a lot. About one-third of people with essential hypertension are affected by how much salt they eat. When a person consumes too much sodium, the body can't get rid of all of it through the kidneys, so fluid moves into the blood vessels, increasing blood volume. This can raise blood pressure as the heart pumps more blood. Special mechanisms in the blood vessels try to compensate by making the vessels more resistant to keep blood pressure normal. However, as sodium intake goes up, the body excretes more sodium, but this comes at the cost of increased blood pressure. Higher sodium levels also trigger the release of antidiuretic hormone (ADH) and increase thirst, which causes the kidneys to reabsorb more water, leading to concentrated urine and a feeling of thirst that leads to drinking more water. While the movement of water between body cells and the spaces around them plays a smaller role, the main impact is from the sodium and the related changes in the body. The relationship between sodium consumption and blood pressure is not entirely clear. While reducing salt intake does lower blood pressure, the effect is not strong enough to justify a general recommendation to cut down on salt for everyone.

6. Renin: High levels of renin are another risk for high blood pressure. Renin is an enzyme made by a part of the kidney called the juxtaglomerular apparatus. It works with aldosterone in a system that helps control blood pressure. Because of this, some people with high blood pressure are called low-renin, while others have essential hypertension. Low-renin hypertension is more common in African Americans than in white Americans. This might explain why African Americans often respond better to diuretics than to drugs that affect the renin-angiotensin system. High renin levels lead to higher blood pressure because they cause the body to retain more sodium. Here's how: More renin causes more angiotensin II, which makes blood vessels narrow, increases thirst and ADH, and raises aldosterone. These changes make the kidneys keep more sodium in the DCT and CD parts, which leads to higher blood pressure.

7. Insulin resistance: High blood pressure can also be linked to insulin resistance and/or high levels of insulin, which are parts of the metabolic syndrome. Insulin is a hormone made by cells in the pancreas. It helps control blood sugar levels, working against glucagon through a negative feedback system. Insulin also has a relaxing effect on blood vessels. In people with normal blood pressure, insulin might increase the body's stress response without raising blood pressure much. But in people with the metabolic syndrome, increased stress signals can make the blood vessels constrict more than insulin can relax them.

8. Vitamin D factor: There is a belief that low levels of vitamin D are connected to heart problems. People with low vitamin D often have higher systolic and diastolic blood pressure. Vitamin D helps keep renin levels low by acting as a negative regulator of the renin-angiotensin system. So, when vitamin D is lacking, more renin is released, which can cause high blood pressure. This might explain why there is a connection between blood pressure and vitamin D levels in the blood.

9. Role of Potassium: Some experts think that potassium can both prevent and help treat high blood pressure.

10. Smoking: Smoking, which is already a risk for other heart diseases, can also increase the chance of developing high blood pressure.

11. Type A personality: People with a Type A personality are more likely to develop essential hypertension.

Symptoms of Hypertension

Most people with primary hypertension do not have any clear symptoms at all.

Also, the possible symptoms of high blood pressure can be different for each person. These symptoms might also be caused by other health problems, but here are some of the more common signs to watch for.

You might experience headaches that last for several days, not just a few hours.

If this happens, you should see a doctor right away and have your blood pressure checked. Often by this time, the blood pressure has already become high enough to be dangerous. This is one of the last symptoms someone with hypertension might have before the condition becomes more serious.

Other symptoms include feeling generally tired or worn out, especially at night.

General Management:

Lifestyle Changes

The first step in treating hypertension is making lifestyle changes.

These include things like eating healthier, exercising regularly, and losing weight, which have all been shown to help lower blood pressure in people with hypertension. Even if medications are needed right away, lifestyle changes are still important along with medicine. Some programs that focus on reducing stress, like biofeedback, relaxation techniques, or meditation, are sometimes advertised as ways to lower blood pressure. However, most scientific studies do not strongly support these claims, and the studies that have been done are usually of low quality.

Medications

The goal of treatment is to bring blood pressure down to a safe level.

Antihypertensive Drug

Phytochemical Constituents

Rauvolfia serpentina has been a main topic of research for many years.

Many scientists have studied this plant because of its natural chemical compounds. The different chemical substances found in R. serpentina include alkaloids, phenols, tannins, and flavonoids.

Alkaloids

The alkaloids from the root of R. serpentina directly affect the central nervous system, which helps lower blood pressure compared to other medicines used for this purpose.

R. serpentina roots contain about 0.7 to 3.0 percent of total alkaloids and approximately 0.1 percent of the active compound, reserpine. Reserpine is an indole alkaloid found in the root. Because of this, growing the roots of this plant can be economically important. Some of the alkaloids found in Rauvolfia include ajmaline, ajmalimine, ajmalicine, deserpidine, indobine, indobinine, reserpine, reserpiline, rescinnamine, rescinnamidine, serpentine, serpentinine, and yohimbine, among others.

Reserpine

Reserpine is a pure, single alkaloid that comes from the roots of Rauvolfia.

It was first discovered in 1952. It is a weak base found in the oily part of the root. Reserpine is used to treat high blood pressure, heart problems, and certain brain-related disorders. The ability of Rauvolfia roots to lower blood pressure is mainly because of reserpine, which is a type of indole compound based on 18-hydroxy yohimbine. It is the most important of all the alkaloids and is used as a natural calming agent. Today, reserpine is also used in studies about the body's functions and drug effects.

Reserpine lowers blood pressure by affecting the central nervous system and the peripheral nervous system.

It works by attaching to special storage parts in nerve cells where chemicals like adrenaline and serotonin are kept. This stops these chemicals from being stored properly, leading to a decrease in their levels. It also affects the autonomic nervous system by reducing the amount of chemical messengers in nerve cells and possibly by increasing activity in the parasympathetic part of the nervous system. These chemicals are important for controlling heart rate, heart contractions, and blood pressure in the blood vessels. Reserpine also helps reduce stress and lower blood pressure, especially in cases where high blood pressure is worsened by stress and activity in the sympathetic nervous system. It also causes the release of 5-hydroxytryptamine (5-HT) from the places where it is normally stored and increases the amount of this chemical in urine.

Ajmaline was first found by Salimuzzaman Siddiqui in 1931 from the roots of R. serpentine. He named it after Hakim Ajmal Khan, who was a very famous doctor in Unani medicine in South Asia. Ajmaline is a type of drug called a class I antiarrhythmic, which means it helps with heart rhythm problems. It is especially useful for diagnosing Brugada Syndrome, which is a genetic heart condition, and for telling the difference between different types of people who have this disease. These drugs are mainly grouped into four categories based on how they work in the body: blocking sodium channels, blocking beta-adrenergic receptors, slowing down the heart's repolarization, and blocking calcium channels. Ajmaline works by blocking sodium channels and starts working quickly when given through a vein, which makes it good for testing. Giving a Rauvolfia alkaloid to someone with this kind of heart rhythm problem is called the “Ajmaline Test”. It is also said to help with breathing and moving food through the stomach. The effect of ajmaline on blood pressure in the body and lungs is similar to that of serpentine.

Serpentine is a type of drug that stops topoisomerase II, an enzyme, and has antipsychotic properties.

The enzyme peroxidase (PER) helps change ajmalicine into serpentine by acting on a special type of compound, called a bisindole alkaloid, that is found in the vacuole of the cell.

Saponins are a type of compound made from triterpenes or sterols and are found in over 70 types of plants.

Some of the things saponins do include making foam in water, breaking down red blood cells, attaching to cholesterol, and tasting bitter. Saponins can also cause red blood cells to clump together. Because Rauvolfia serpentina has a lot of saponins, it is used to stop bleeding and help with wounds.

R. serpentina is important in the world of medicine because it has many alkaloids in the oil part of its roots.

These alkaloids are very useful for treating heart and blood pressure problems, high blood pressure, and irregular heartbeats.

R. serpentina is a useful herb and medicine that has a wide range of health benefits.

It is mainly used for treating high blood pressure and mental health conditions like schizophrenia, anxiety, epilepsy, insomnia, and mental illness. It is also used as a sedative and a sleep-inducing drug.

CONCLUSION:

Hahnemann noticed that if a person's diet and lifestyle aren't fixed, they can keep the illness going. On the other hand, he also said that if someone's body has been used to many things over a long time and those things aren't causing the illness or helping the treatment, there's no need to get rid of them at all. Besides choosing the right medicine, the doctor should also look at how the patient lives.

Unhealthy habits in this area can lead to both mental and physical problems. In Aph 256, Hahnemann says, "... but if during the use of other medicines in chronic diseases, the best-chosen Homoeopathic medicine in the correct dose doesn't bring about any change or improvement, this is a sure sign that the cause of the disease is still present, and there must be some factors in the patient's lifestyle or situation that need to be removed in order to ensure a lasting cure."

From the above, it's clear that Dr. Hahnemann wanted doctors to be protectors of health.

Along with choosing the right medicine, they should know what causes the disease and how to eliminate those causes.

The doctor should help the patient adopt healthy habits.

The patient should eat balanced meals, walk in the open air, and do light exercise outdoors. These things can improve life. The patient should wear cotton clothes, live a disciplined and controlled life, and have access to clean water, good food, and fresh air. They should avoid smoking and drinking alcohol. They should also try to avoid and manage mental stress, anxiety, frustration, and worry, as these can block the healing process. The doctor should always consider these aspects along with choosing the right medicine. Two important rules about diet and lifestyle are:

The patient should not take anything that might interfere with or stop the medicine from working.

The patient should not take anything that is harmful to their condition.

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