ABSTRACT

Hypertension (HTN) is the most widespread disorder in many nations of the world now-a-days. Many people throughout the world have high BP. The estimate of disease statistic is around 1 billion. Generally 7.1 million deaths occur due to hypertension. It is the condition where the force of the blood against the artery walls is too high. The system that regulates the center is Renin–angiotensin system that produces associate degree accelerator proteinase - a proteinase, which is made up of cells that surround capillary vessel afferent arterioles in response to variety of stimuli, as well as reduced urinary organ pressure, decrease in Intravascular volume, exaggerated sympathetic system activity, exaggerated artery stretch, and other effects. Renin acts on angiotensinogen to break off the peptide angiotensin I. This amide is then acted upon by Hypertension -converting accelerator (ACE) to make the eight-amino-acid amide angiotensin II, a potent agent and stimulant of mineral corticoid release from the adrenal glands. Despite the role of proteinase within the regulation of pressure level, it most likely doesn't play a central role within the pathologic process of most primary or essential hypertension; solely 10% patients have high proteinase activity, where as 60% have stable levels and 30% have decreased levels. In the article we would be discussing about the role of lipid content and its effect on hypertension.

INTRODUCTION

Generally many people have high blood pressure commonly referred to as hypertension unnoticed for years without any visible symptoms. The symptoms may not be clearly noticed but the damage to blood vessels and heart continues to strain the heart and increases the risk of stroke and eventually leads to sudden demise [1-5]. Hypertension is a common problem faced by many people in the world now-a-days. It is the state or condition where the blood flows through the blood vessels with high force than the normal ultimately leading to stroke[6-10]. On the other hand dyslipidemia is the condition where increased levels of plasma cholesterol, triglycerides in the blood results in causing atherosclerosis. Both the factors are responsible for leading to cardiovascular diseases. This mini-review, discusses the relation of dyslipidemia to hypertension known as 'LIPITENSION' for easy identification and treatment of both medical conditions [11-15]. Most of patients do not experience symptoms, which lead to non-adherence to hypertension treatment[6,17,18]. Dyslipidemia, one of the common reason leading to cardiovascular diseases, causes damage and loss...
of effective activity of the cardiovascular system [19,20]. The statistical analysis of existence of lipitension range from 15 to 31% in India. The chance of getting lipitension was 20% in women versus 16% in men and varies in different age groups of people. The treatment of these disorders, particularly in high-risk patients, requires multiple preventive measures, including proper diet and pharmacological factors [21-23]. The need for a treatment approach in CV medicine has commenced, due to coexisting problems of a geriatric people and less response to complex drug courses. This has led to development of combination drug courses. This step can be helpful to treat both hypertension and dyslipidemia [24,25].

**INTER-RELATIONSHIP BETWEEN HYPERTENSION AND DYSLIPIDEMIA**

Several previous studies showed the relation between hyperlipidemia and hypertension. An excessive daily intake of saturated fats, cholesterol, and other sources of calories and disturbance of lipid profile leads to hypertriglyceridemia and hypercholesterolemia further causing obesity and consequently hypertension [26,27]. Dyslipidemia is more common in patient not treated for hypertension than normotensives, and lipid levels shoots up as BP increases gradually. Though no specific reason for dyslipidemia has been consistently known among affected individuals, research shows that total cholesterol (TC) levels and lipoproteins [28,29,30] tend to be more among hypertensive patients than in the general population. The lipide profile is employed as a part of a risk assessment to confirm a person's risk of cardiopathy and to assist physicians to make a choice concerning what treatment [31,32] could also be best if there's borderline or high risk. Lipids area unit a gaggle of fats and fat-like substances that include vital constituents of cells and sources of energy [33]. Hence maintaining healthy levels of those lipids is very important in staying healthy. Approximately 40% of persons with essential hypertension also have hypercholesterolemia [34-36].

**CAUSES OF HYPERTENSION**

Generally hypertension may be the result of many factors and they are as follows:

- It may occur due to excessive smoking [37,38]
- Highly obese people are more prone to the disease
- It may occur due to lack of proper exercise and physical activity
- Intake of more salt in the food
- Increase in intake of alcohol
- It may also occur due to stress condition, old age, family genetic history
- Sometimes chronic kidney diseases and thyroid disorders also leads to hypertension [39]

**HYPERTENSION TYPES AND TREATMENT**

Hypertension can be broadly classified into following types:

**Essential Hypertension:** It is also referred to as primary hypertension. 90% of cases are of primary hypertension and the exact cause is not known [40,41].

**Secondary Hypertension:** This condition occurs due to:

- Renal complications
- Endocrinial changes
- Miscellaneous factors [42,43]

In India 25% of urban population and 10% of rural population suffer from hypertension. 70% of all hypertensive patients are stage I hypertension.12% of all hypertensive suffer from isolated systolic hypertension [44,45]. Other factors also increase the risk of hypertension such as Advancing Age, Postmenopausal condition in women, family history of cardiac disorders, sedentary lifestyle, high cholesterol diet habits [46], smoking, weight gain etc. The diagnosis of the disorder is very difficult as specific symptoms are unnoticeable in early stages. However slight dizziness, fatigue, blurred vision may be present.
The treatment regimen for hypertension includes lifestyle modification, pharmacological treatment, follow up and monitoring of the disease. Anti-hypertensive drugs are used to control the condition such as diuretics, \( \beta \)-blockers, calcium channel blockers, \( \alpha \)-blockers, ACE- inhibitors, Angiotensin-II receptor blockers [47].

Treating hypertension can be a prolonged approach as it includes various things like diet changes, medication, and exercise. Some treatment methods are as follows:

The treatment for hypertension is designed in many ways considering the lifestyle of the patient along with medication that suits the patient.

Smoking increases the risk of hypertension so it must be avoided.

High stress can lead to emotional and psychological problems, including coronary artery disease and hypertension [48].

There are many approaches of complementary and alternative treatments for effectively treating hypertension. The treatment is majorly classified into non-pharmacological therapy and pharmacological therapy.

Multi-drug combinations are suggested by a physician to lower the hypertension levels in a patient.

**CALCIUM CHANNEL BLOCKERS**

Calcium Channel Blockers also known as calcium antagonists are the drugs that hinder the movement of calcium through calcium channels. These drugs are mainly acting on the large blood vessels that are blocked by stiffening in elderly people affected by hypertension. They act by reducing chest pain, prevents cerebral vasospasm.

Examples: Amlodipine, Aranidipine, Barnidipine etc

**ACE INHIBITORS**

These are the drugs that are used to relax and inhibit the ACE enzyme to prevent the formation of angiotensin II from angiotensin I. These drugs bind to the tissue and plasma proteins and imparts its action in reducing hypertension levels.

Examples: Captopril, Enalapril etc.

**ANGIOTENSIN II RECEPTOR BLOCKERS (ARBS)**

Angiotensin II receptor blockers (ARBs) have the same effects as ACE inhibitors. These drugs affect the angiotensin II which causes the narrowing of blood vessels and therefore the blood vessels are broadened which helps in easy flow of blood.

Example: Losartan, Temisartan etc

**DIURETICS (WATER PILLS)**

They are commonly known as water pills. They act by eliminating excess water and salt through urine. This process lowers the blood pressure and improves the functioning of heart.

Example: Esidrix, Zaroxolyn

**BETA-BLOCKERS**

Beta-blockers are drugs used to treat high blood pressure. They act by blocking the hormone epinephrine or adrenaline which in turn slows down the rate of heart beat.

**OMEGA-3 FISH OIL SUPPLEMENTS**

Omega-3 Fish oil supplements are the essential nutritive medication that greatly helps in reducing the hypertension levels and several cardiac disorders. Many studies show that consumption of omega 3 fish oils reduces the cardiovascular mortality by modifying the cellular metabolic functions, lowering lipid levels. There is another phase of hypertension which is prehypertension. It is a condition where body show elevated levels of blood pressure above normal but not to the extent of causing hypertension[49]. Prehypertension show no symptoms at the time of diagnosis. Normal symptoms like headaches, visual changes, fatigue can be observed sometimes.
EFFECT OF HYPERTENSION ON KIDNEY

High blood pressure can damage blood vessels present in the kidneys, effecting their functioning because hypertension results in flow of blood at high force throughout the body so the blood vessels stretch to allow easy blood flow thereby causing scars in kidneys.

EFFECT OF HYPERTENSION ON CARDIOVASCULAR SYSTEM

Hypertension causes an impact on cardiovascular system by causing ventricular hypertrophy, dysfunction and failure. This results in several cardiovascular diseases like arrythmias etc.

A potential etiology of hypertension has been linked to several factors like genetic makeup, adrenergic tone etc [50].

CONCLUSION

Regular health checkup, awareness of healthy lifestyle, and the use of better therapy helps to reduce the incidence of the disease. High blood pressure is a non-communicable disease which is normally customary in aged population. High blood pressure often coexists with an aberrant lipid profile and has been a plague globally, regardless of the development of the USA or community. Public cognizance approximately the function of hyperlipidemia in decreasing the morbidity performs a pivotal function.

REFERENCES

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