

Challenges in the Management of Resistant Hypertension; Major Risk Factor for CVD

Verma MK*

Department of Biotechnology, Acharya Nagarjuna University, Nagarjuna Nagar, Guntur, Andhra Pradesh, India

*Corresponding Author: Verma MK, Department of Biotechnology, Acharya Nagarjuna University, Nagarjuna Nagar, Guntur, Andhra Pradesh, India.

E-mail: mahendraverma1980@gmail.com

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Cardiovascular diseases (CVD) are the leading cause of death and physical impairment across the globe, affecting millions of lives annually. In general, CVD referred to as a set of diseases including arrhythmia, angina, stroke, embolism, and ischemia that occur in the vascular system, including cardiac and cerebral. As per recent reports from the World Health Organization (WHO) more than 30% of global deaths caused by cardiovascular diseases alone. The onset of CVD is multifactorial and challenging to diagnose precise risk factors. However, significant risk factors associated with CVD are obesity, unhealthy diet, hypertension, diabetes, and consumption of tobacco and alcohol. Other risk factors, such as age, sex, and the human race, are also essential to understand the etiology of CVD. American Heart Association (AHA) diet is one of the most important modifiable risk factors for CVD and secondary risk factors for diseases such as obesity and diabetes. The risk factors associated with CVD can broadly be categorized into two categories modifiable and non-modifiable risk factors. The modifiable risk factor can be changed and regulated; however, a non-modifiable cannot. Both elements play a crucial role in the onset of CVD, but modifiable risk factors are more critical as can be regulated. Hypertension is a medical condition of high systolic and diastolic blood pressure in vascular pipeline precisely in arteries posed an additional pressure to heart for the cardiac workload. Hypertension can be essential and chronic based on duration and degree of elevated blood pressure in arteries. Essential hypertension is more frequent and often results in abnormal electrolyte water balance in the body. The normal blood pressure 120/80 mmHg signifies systolic and diastolic blood pressure in cardiac tissue. In the case of essential hypertension, a couple of degrees normal blood pressures raise, i.e., 140/100 mmHg for the small period from few hours to few days. On the contrary, chronic hypertension is a medical condition where the rise of systolic and diastolic blood pressure is more prominent, i.e., >180/120 mmHg. There are several adverse effects of such an increase in systolic and diastolic blood pressure in vascular tissue. By and large vital tissues such as brain, lung, and kidney get affected with altered physiology; in renal tissue at the site of filtration, i.e., glomerulus, a couple of degree rise in blood pressure affects entire urine formation physiology [1-10].

Resistant hypertension is another medical condition where the rise in blood pressure, both systolic and diastolic, remains for an extended period and have a more devastating effect on human physiology. On average, nearly 10 - 15% of chronic hypertension turns into resistant hypertension. However, there are several other triggering factors as well, including certain drugs, abnormal electrolytic water balance, disease, and genetics. Clinically resistant hypertension is defined as the rise in blood pressure, both systolic and diastolic, for a very long period up to six months even after intake of three primary three antihypertensive agents of different classes, one of which should be a diuretic. As discussed above, hypertension is one of the most crucial risk factors for CVD, and resistant hypertension posed a new challenge in the management of CVD. To treat hypertension, a series of therapeutics prescribed based on the severity of disease and patient pathophysiology. The most common drugs used in the management of hypertension are Aldosterone antagonists, Alpha1-blockers, Alpha2-agonists, ACE inhibitors, Angiotensin II receptor antagonists, Beta-blockers, Calcium channel blockers, and diuretics. The controlled intake of salt is the most crucial factor, along with recommended therapeutics, although a long list of antihypertensive drug management of resistant hypertension remains a misery. There are several challenges in the management of resistant hypertension. The most crucial aspect of the management of resistant hypertension is finding its precise cause. There are several factors associated with resistant hypertension, including drugs, hormonal abnormalities, patient's pathophysiology, chronic Renal Disease and diet, and lifestyle. The aldosterone antagonist and spironolactone seem the most effective drugs as a now to treat resistant hypertension. However, these drugs are also associated with several complications, such as long term use results in hypokalemia. There are several other safety and efficacy issues with the use of aldosterone antagonists such as spironolactone. Different classes of drugs mostly ineffective in case of resistant hypertension and lack of precision medicine for resistant hypertension posed a new threat toward a massive rise in CVDs instances worldwide. Apart from CVDs, renal impairment is the most common health issue associated with hypertension and, in the case of resistant hypertension outcomes of devastating. Hence, such ef-

forts are required to find and develop a more robust and effective therapeutic for resistant hypertension.

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