

Evaluation of Drug Management of Essential Hypertension in Hospitalized Patients

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ABSTRACT:- Essential hypertension is a prevalent and potentially life – threatening condition that requires meticulous management, especially in the hospital setting. Hypertension becoming the serious and common problem day by day specially in low and middle- income nation (LMICs). It observed in 2010 that in every 1.39 billion people globally 31.1% are patient of hypertension as compare to the high income nation. This review aims to comprehensively evaluate the current strategies and best practices in drug management for essential hypertension among hospitalized patients. The article encompasses an overview of essential hypertension, discusses the goals of management and evaluation of hypertension, including lifestyle modifications, pharmacological interventions and emphasizes individualized approaches in different clinical scenarios.

KEYWORDS:- Hypertension, Antihypertensive Medication, Combination drug therapy, Drug Management, Blood Pressure Control, Hospitalized Patient, Essential Hypertension.

I. INTRODUCTION:-

Hypertension is defined as elevated blood pressure > 140/90 mmHg. It is an important and treatable risk factor for cardiovascular disease with a high prevalence in the general population. High blood pressure is considered a “silent killer”. It is a major risk factor for death and disability worldwide, with more than 40% of people aged over 25 suffering from high blood pressure. Intake of bad diets (high salt, saturated fat, and trans fats, insufficient intake of fruits and vegetables), physical inactivity, use of nicotine and alcohol, and being overweight are among the adjustable risk factors. Age over 65, a family history of hypertension, and co-existing conditions like diabetes or kidney illness are examples of non-adjustable risk factors that can cause the problem. It is common and treatable but if left untreated, it can

become dangerous. Roughly 50% of individuals with hypertension do not receive proper treatment; yet, 76 million fatalities might be prevented between 2023 and 2050 if nations were to increase coverage. In the world, one in three adults suffers with hypertension. The majority of hypertensive individuals experience no symptoms. In addition to other symptoms, extremely high blood pressure can cause headaches, blurred vision, and chest pain. Lifestyle changes can help lower high blood pressure by taking more fruits and vegetables. Performing physically active such as walking, running, swimming, dancing, or muscle-strengthening activities and weight lifting at least 150 minutes per week or 75 minutes per week of high-intensity aerobic exercise. but there is still need to continue antihypertensive medication to prevent and reduce high blood pressure.

PHARMACOLOGICAL TREATMENT OF HYPERTENSION ANTIHYPERTENSIVE MEDICATION

A range of antihypertensive medication are available for the management of essential hypertension, including thiazide diuretics, ACE inhibitors, angiotensin II receptor blockers (ARBs), calcium channel blockers, and beta-blockers. Each class of medication has its unique mechanism of action, side effects, and contraindications. The choice of medication should be individualized based on patient characteristics and co morbidities.

According to recently published research, high blood pressure can be treated by using *Lactobacillus paracasei* that has been specially engineered to produce ACE2, a protein that lowers blood pressure by reducing gut angiotensin II. The research, conducted on lab rats lacking the ability to naturally produce ACE2 and predisposed to hypertension, provides new insights into the possibility of using our body's microbiome to control blood pressure.

Table -1 (some anti-hypertensive drug employed by prescribers in the management of some associated conditions.)

Cardiac disease	Administer a beta- blocker
Bronchial asthma	Administer an ACE- I
Malignant hypertension	Administer Hydralazine
Heart Failure	Administer an ACE- Inhibitor
LVH	Give an ARB
DM	Administer an ACE- Inhibitor
Pheochromocytoma	Give a beta blocker
Renal failure	Give an ACE inhibitor
Thyrotoxicosis	Beta blocker administration
Pregnancy	Administer methyl dopa
Cushing's syndrome	Give an ARB

Combination Therapy: Many hypertensive patients require combination therapy to achieve target blood pressure levels. The article explores

the rationale behind combining medications and highlights potential synergistic effects while addressing the importance of monitoring for effect.

Table -2 (Prescriber reasons for use of anti-hypertensive drug therapy in treating hypertension)

DESCRIPTION	REASON FOR USE
Combination therapy	CCB, Vasodilator, BB used for lower
	First line therapy failure
	To manage other symptoms
	Signs of end organ damage
	Vasodilator and pulse rate lowering effect need simultaneously
Monotherapy	To avoid drug interaction
	Monotherapy has always been effective

MONITORING AND EVALUATION: a. Blood Pressure Measurement: Accurate measurement of blood pressure is crucial. It is recommended to use

standardized techniques and appropriate equipment. b. Ambulatory Blood Pressure Monitoring (ABPM): This provides a more

comprehensive assessment of blood pressure over a 24-hour period, helping to identify white-coat hypertension and masked hypertension. c. Home Blood Pressure Monitoring: Patients can monitor their blood pressure at home using validated devices, which can provide additional information for management decisions. d. Target Organ Damage Assessment: Evaluating for signs of target organ damage, such as echocardiography, kidney function test, and fundoscopic examination.

PREVALANCE OF HYPERTENSION:

1. Global prevalence:

- According to the World Health Organization (WHO) , it is estimated that approximately 1.13 billion people worldwide had hypertension in 2015.
- This no is expected to rise to 1.56 billion by 2050 if current trends continue.

2. Regional Variations:

- Prevalence rate vary significantly by region. For example, hypertension is more prevalent in low- and middle- income countries compared to high-income countries.
- Some region, such as Sub-Saharan Africa, have particularly high rates of hypertension.

3. Age- Related Prevalence:

- The prevalence of hypertension increase with age. It is relatively low in younger population and becomes more common as individuals get older.
- This trend underscores the importance of regular blood pressure monitoring, especially in older age groups.

4. Gender difference:

- The prevalence of hypertension tends to be similar in men and women, although specific age groups or regions may show variation.

5. Risk factors:

- Several risk factors contribute to the development of hypertension, including genetics, lifestyle factors (e.g. diet, physical activity, tobacco use), obesity, excessive alcohol consumption, and stress.

6. Impact on global health:

- Hypertension is a major risk factor for cardiovascular disease, stroke, kidney disease, and other health conditions. It contributes

significantly to the global burden of disease.

7. Public Health Initiatives :

- Various public health initiatives and campaigns aim to raise awareness about hypertension, promote healthy lifestyle habits, and improve access to healthcare services for blood pressure management.

II. CONCLUSION:

Proper drug management of essential hypertension in hospitalized patients is essential to prevent severe complications and improve overall outcomes. This review article highlights the various pharmacological treatment options available and discusses their efficacy and challenges. The personalized approach to medication selection and combination therapy is emphasized, along with the need for vigilant monitoring and patient education. By addressing these factors, healthcare professionals can play a significant role in optimizing the care of hypertensive patients in hospital settings.

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