



CODEN [USA]: IAJPBB

ISSN : 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**

SJIF Impact Factor: 7.187

Available online at: <http://www.iajps.com>

Review Article

**ROLE OF NURSING IN THE MANAGEMENT OF
HYPERTENSION CRISIS; REVIEW**

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Although the importance of nursing care and management in the emergency department (ED) for individuals with uncontrolled hypertension (HTN) cannot be overstated, there is a lack of recent literature updates on HTN awareness specifically in the ED setting. Given the comprehensive role of emergency department (ED) nurses in providing treatment, which encompasses activities such as identifying, referring, and ensuring appropriate monitoring for uncontrolled hypertension (HTN) within the ED setting, we conducted a thorough examination of existing scholarly literature pertaining to nursing policies and the management of HTN for all relevant articles that were published up to the end of 2021. The objective of this review is to conduct a thorough examination and integration of the current body of literature, pinpoint areas where knowledge is lacking, and deliberate on the implications for future research and practice in the field of nursing in managing HTN crisis.

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Please cite this article in Sameer Mohammed Algrigri et al, *Role Of Nursing In The Management Of Hypertension Crisis; Review*, Indo Am. J. P. Sci, 2022; 09 (05).

INTRODUCTION:

Hypertension, also known as HTN, is highly prevalent in the United States (U.S.) and is linked to elevated rates of morbidity and death attributed to cardiovascular disease (CVD) [1]. Due to its prevalence among around one-third of the adult population in the United States and the potential to affect over 90% of persons at some point in their lives, the effective management of blood pressure (BP) holds significant significance in terms of public health [1]. Nevertheless, recent research suggests that a mere 48% of individuals who have hypertension (HTN) are able to effectively manage their blood pressure (BP). This particular demographic is overrepresented in emergency departments (EDs) across the United States [2].

Approximately 44% of patients seeking medical attention at the emergency department (ED) exhibit raised blood pressure (BP), in contrast to 27% of individuals who consult their primary care physician (PCP). Moreover, there is a consistent rise in the occurrence of visits related to hypertension (HTN) [3]. Although emergency department (ED) clinicians frequently come across patients with uncontrolled blood pressure (BP) on a daily basis, a significant number of these patients do not exhibit any symptoms and visit the ED for reasons unrelated to their BP [2, 4]. Multiple studies have demonstrated that the emergency department (ED) is an optimal setting for hypertension (HTN) screening, primarily due to the high sensitivity of persistent raised blood pressure (BP) in the ED for detecting HTN [5]. Moreover, recent research has indicated that a solitary hypertensive episode in the emergency department (ED) is an autonomous predictor of significant unfavorable cardiovascular (CV) events over an extended period. Nevertheless, engaging in follow-up care subsequent to the ED visit might substantially mitigate this risk [5].

As per the World Health Organization (WHO), insufficient adherence to antihypertensive medications is widely recognized as the primary factor contributing to inadequate blood pressure management, leading to a higher incidence of cardiovascular events and recurrent hospitalizations [5]. Adherence, in this context, refers to the degree to which an individual's actions align with the agreed-upon recommendations provided by a healthcare professional [5]. Non-compliance within this particular cohort of patients may be exacerbated by the heightened quantity of necessary antihypertensive medications [6], as well as intricate treatment regimens, particularly among individuals at high risk who are undergoing

combination therapy [7]. The available evidence indicates that a significant proportion, ranging from 50% to 80%, of patients who have been prescribed pharmacological antihypertensive therapy have low levels of adherence to their prescribed treatment regimen [8]. Consequently, adherence to medical treatment has emerged as a significant concern for healthcare providers. According to recent research, it has been found that the use of nurse-administered interventions as part of a healthcare team can lead to enhanced management of blood pressure in individuals with hypertension [8].

The classification of hypertensive emergencies into specific degrees is frequently cited, but lacks general consensus and is subjectively determined. The rate at which blood pressure exceeds the baseline level is a significant factor that can account for why individuals without chronic hypertension may exhibit symptoms of hypertensive emergency at lower levels, whereas individuals with longstanding hypertension may endure extremely high blood pressure without experiencing acute organ dysfunction [9].

DISCUSSION:

The understanding of the mechanisms behind hypertensive crises remains limited. It has been hypothesized that the earliest stages of the illness process involve the failure of autoregulation and a sudden rise in systemic vascular resistance (SVR) [10]. It is widely believed that the elevation of systemic vascular resistance (SVR) is a consequence of the release of vasoconstrictor substances from the endothelial lining of a vessel experiencing stress. Subsequent to the rise in pressure within the vessel, a series of events is initiated, including endothelial injury, activation of the clotting cascade, fibrinoid necrosis of small blood arteries, and the subsequent release of more vasoconstrictors. Should the process remain uninterrupted, the ongoing cycle of vascular injury, tissue ischemia, and autoregulatory failure persists. The majority of individuals experiencing a hypertensive emergency have unregulated hypertension or have just ceased their prescribed medications. Therefore, the comprehensive collection of medical and pharmaceutical history by the critical care nurse might yield useful insights and contribute to the effective management of the hypertensive emergency [11].

The inclusion of a patient-centered, multidisciplinary team is a crucial characteristic of care models that have demonstrated effectiveness in enhancing care processes and managing rates of control. Nurses, in addition to their clinical responsibilities, undertake

research in clinic and community settings to enhance the disparity in hypertension quality and ethnic differences. This research approach involves a comprehensive examination of social, cultural, economic, and behavioral factors that influence hypertension outcomes. Furthermore, nurses develop interventions that are culturally sensitive to effectively address these factors [12].

The assessment of hypertensive crisis is contingent upon the manifestation of accompanying symptoms and indications. Upon establishing the presence or likelihood of a genuine hypertensive emergency, laboratory tests such as metabolic panels, urinalysis, B-natriuretic peptide, and cardiac enzymes may prove to be valuable diagnostic tools. It is advisable to perform an electrocardiogram (ECG) in patients who are suspected of experiencing cardiac ischemia. The utilization of computed tomography (CT) of the head is advised for individuals presenting with acute neurologic symptoms or exhibiting abnormal findings during a clinical examination. The utilization of a chest radiograph has the potential to provide valuable diagnostic information in those experiencing dyspnea. In cases of aortic dissection, a chest x-ray may exhibit an enlargement of the mediastinum; however, this diagnostic method is not highly sensitive. Therefore, it is recommended to conduct CT angiography of the chest and abdomen to definitively diagnose or exclude aortic dissection and assess the extent of the intimal rip [13].

The primary focus of therapy for hypertensive emergencies is the prompt reduction of blood pressure, with the specific treatment approach influenced by the damaged target organ. The objective is to reduce the mean arterial pressure by a range of 20% to 25% within the initial 1 to 2 hours. Multiple agents can be employed; however, the common attributes shared among them are their prompt action and convenient adjustability. Due to this rationale, oral medicines, like clonidine and nifedipine, do not have a significant role in the immediate therapy of a hypertensive emergency. Intravenous vasoactive infusions, including labetalol,

esmolol, nicardipine, and nitroglycerin, have been shown to be successful treatment choices [14].

The occurrence of hypertensive emergency at the emergency room is not infrequent. Despite the recognition of its significant morbidity and mortality rates, a substantial proportion of individuals diagnosed with hypertension fail to adhere to their prescribed treatment regimen, with estimates suggesting that at least 50% of patients exhibit non-compliance. The issue is further aggravated when the sole means of access for these individuals is the emergency department. Numerous standards have been established by national authorities and organizations pertaining to the management of blood pressure; nonetheless, a considerable number of patients appear to lack a comprehensive understanding of the gravity associated with hypertension. It is recommended to use an interprofessional strategy for the management of hypertension, commencing with the primary healthcare provider. The optimal approach for managing hypertension involves outpatient care, as the limited duration of interaction with a cardiologist in a hospital setting seldom yields significant outcomes [15].

The nurse and primary practitioner have a crucial role in patient education on hypertension, as indicated in Table 1. The importance of consistently monitoring blood pressure and maintaining regular communication with healthcare professionals cannot be overstated. It is imperative to communicate to patients the need of modifying their lifestyle, adopting a nutritious diet, engaging in regular physical activity, ceasing tobacco use, and adhering to prescribed drug regimens. Regrettably, the implementation of evidence-based guidelines has not resulted in a reduction in the incidence of individuals seeking medical attention in the emergency room due to hypertensive episodes [16]. Blood pressure monitoring should be conducted during each clinic visit. The involvement of a social worker in the provision of care is essential to mitigate potential financial constraints that may impede the patient's capacity to purchase necessary medications.

TABLE 1: NURSING ROLES IN MANAGEMENT OF HYPERTENSION CRISIS

• Monitor blood pressure frequently. Know the target set by the physician
• Administer antihypertensive medications as prescribed
• Have two large-bore IVs
• Provide oxygen if the saturations are low (less than 94%)
• Limit fluid intake if the patient is in heart failure
• Assess ECG to ensure the patient is not having a heart attack
• Check report of the chest x-ray to ensure the patient is not in heart failure
• Listen to the heart for murmurs and lungs for rales and crackles
• Check if the patient has edema
• Check renal function and electrolyte levels
• Encourage rest and provide a quiet room
• Educate the patient on how to lower stress
• Educate patient on a low salt diet, exercise, and healthy eating
• Educate the patient on the importance of taking antihypertensive medications

The importance of patient and family education in the healthcare setting is emphasized by the Emergency Nurses Association (ENA). According to the ENA, every interaction with a patient or their family presents a valuable chance to provide instruction and knowledge regarding prevention, wellness, and the effective management of diseases. The ENA proposes techniques to incorporate patient education as a fundamental component of emergency department (ED) care [17]. The ENA released a position statement in 2005 titled "Prevention, Wellness, and Disease Management." This statement acknowledged that for numerous patients, their sole access to healthcare and education on preventative care may occur during a visit to the emergency department [17].

An episode of hypertension in the emergency department (ED) is a risk factor on its own for unfavorable cardiovascular events. However, the risk can be significantly reduced via proper follow-up treatment [18]. However, our examination of the existing body of literature did not uncover any clinical studies specifically aimed at enhancing follow-up rates among patients with hypertension (HTN) who had excessive blood pressure (BP) readings in the

emergency department (ED). This finding indicates a significant deficiency in the present research, hence constraining the extent of our study. There is a pressing need for more comprehensive trials in order to enhance medical practice and achieve better outcomes for patients suffering from uncontrolled hypertension. There is a pressing need for clinical trials that focus on enhancing the reassessment of blood pressure and the referral to appropriate care. These trials should involve diverse samples of emergency department practitioners from various disciplines. Moreover, there have been clinical trials conducted to assess the effectiveness of connecting patients with hypertension (HTN) to appropriate follow-up care subsequent to their visit to the emergency department (ED). These investigations specifically focused on patients with and without a prior diagnosis of hypertension (HTN) [18].

Nursing organizations ought to prioritize enhancing the accessibility of recommendations for emergency department (ED) nurses, given their substantial involvement in the care and treatment of patients with hypertension (HTN) within the ED setting. In order to effectively translate the latest research results on the

significance of identifying and referring patients with uncontrolled hypertension in emergency departments to appropriate care, it is imperative to have nurse champions and leaders who can play a pivotal role in disseminating this knowledge and facilitating its integration into clinical practice. Emergency department (ED) nurses often serve as the initial and, in many instances, final point of contact for patients in the emergency department. Therefore, emergency department (ED) nurses possess a distinct advantage in delivering hypertension (HTN) counseling and facilitating referrals for continuous HTN management among patients. There is a pressing need for additional research on strategies aimed at enhancing nursing awareness of hypertension (HTN) and improving the referral process for patients in this population. Such research could potentially enable emergency departments (EDs) to play a significant role in connecting patients to appropriate therapy before the onset of cardiovascular disease. The emergency department (ED) can serve as a significant health resource for patients, as it plays a crucial role in not only identifying hypertension (HTN) but also facilitating the connection to subsequent healthcare services [19].

The literature demonstrates that nurses play a crucial role in assisting patients with hypertension in achieving blood pressure control, adhering to drug regimens, and implementing lifestyle modifications to effectively manage their condition. In order to ascertain the specific elements that contribute to the success of nursing treatments, it is imperative to conduct well-designed clinical trials [20].

COCNLSUION:

The choice of agent to treat hypertensive crises differs in clinical practice. A standardized pharmacotherapeutic approach based on data in the available literature would be advocated with the development of national guidelines. Such a strategy could reduce variability in the treatment of hypertensive emergencies among practitioners and institutions.

Each existing treatment for treating hypertensive crises has both positive and bad characteristics. With various intravenous, short-acting medicines available, doctors must make educated selections about the optimal treatment for their patients, based on organ function as well as the patient's clinical presentation. The fundamental goal in hypertensive emergencies is to lower blood pressure quickly and safely in order to prevent further end-organ damage. Critical care nurses play a critical role in the safe and successful care of

these patients. Knowledge of treatment goals, hemodynamic monitoring, and pharmaceutical therapy for hypertensive emergencies can help these critically sick patients recover safely.

Over the last 50 years, the role of the nurse in improving hypertension control has expanded, complementing and enhancing that of the physician. Nurses' engagement began with blood pressure (BP) measurement and monitoring, as well as patient education, and has grown to become one of the most effective ways for improving BP control. Nurses and nurses in hypertension management today are involved in all aspects of care, including (1) detection, referral, and follow-up; (2) diagnostics and medication management; (3) patient education, counseling, and skill building; (4) coordination of care; (5) clinic or office management; (6) population health management; and (7) performance measurement and quality improvement.

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