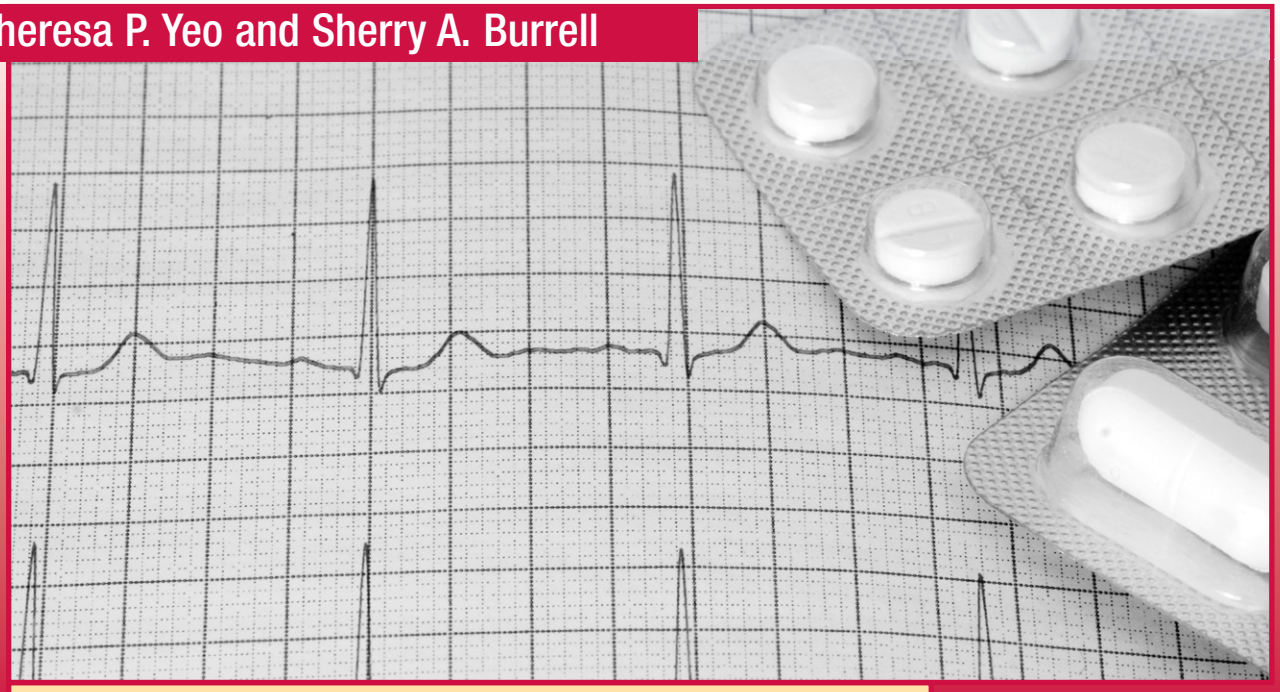
Hypertensive Crisis in an Era of Escalating Health Care Changes

Theresa P. Yeo and Sherry A. Burrell



ABSTRACT

Over the past decade, the prevalence of hypertension (HTN) in the United States has escalated, and today's acute care advance practice nurses (APNs) are likely to encounter more patients experiencing a hypertensive crisis. In this article, we highlight the rising prevalence and financial burden of HTN. Causes of hypertensive crisis, the clinical differences between HTN emergency and HTN urgency, and current recommendations for crisis management are discussed. Managing primary HTN is critical to preventing the development of hypertensive crisis.

Keywords: antihypertensive agents, hypertension, hypertensive crisis, hypertensive emergency, hypertensive urgency, target-organ damage

This continuing education activity is designed to augment the knowledge, skills, and attitudes of nurses and nurse practitioners and thus increase the quality of their care.

Hypertension (HTN) is a common chronic condition, affecting 29% of Americans 18 years and older.[1] Over the past decade, the prevalence of HTN in the United States has been steadily rising, corresponding with the increasing number of older adults, obese Americans, and uninsured persons.[2] Hypertensive crises, which include hypertensive urgency and hypertensive emergency, are encountered by acute care advanced practice nurses (APNs) in a wide variety of clinical settings. Successful management of these conditions requires prompt identification and assessment, an accurate differential diagnosis, and appropriate treatment to prevent permanent organ damage. Moreover, sudden increases in blood pressure (BP) are often preventable, resulting from untreated HTN, inadequate management of existing HTN, or lack of patient adherence to antihypertensive therapies. The purpose of this article is two-fold, first to provide APNs with the

tools for prompt recognition, evaluation, and management of severely elevated BP in the acute care setting; and second, to discuss the responsibility of the acute care APN in the prevention of hypertensive crises.

The Joint National Commission on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-7) classification system is based upon the level of BP elevation.[3] The JNC-7 defines a systolic BP of between 120 and 139 mmHg or a diastolic BP of 80 to 89 mmHg as pre-HTN. Whereas a systolic BP of 140 to 159 mm Hg or a diastolic BP of 90 to 99 mmHg is considered stage I hypertension, and a systolic BP $\geq$ 160 or a diastolic BP $\geq$ 100 mmHg is classified as stage II hypertension. Hypertensive crisis is an umbrella term for acute, severe elevations in BP, which comprise 2 conditions on a continuum: hypertensive urgency and hypertensive emergency. *Hypertensive urgency* is severely elevated BP (diastolic BP $\geq$ 120 mmHg) with no obvious, acute target-organ damage (TOD). In contrast, *hypertensive emergency* is the most serious, but least common form of hypertensive crisis, representing only 5% of cases.[3] It is differentiated from hypertensive urgency by evidence of TOD, which may include signs and symptoms of stroke, papilledema, heart failure, or aortic dissection (Table 1).

EPIDEMIOLOGY OF HTN

Primary or essential HTN affects 72 million Americans and contributes to approximately 6% of all cardiovascular deaths.[2] Another 59 million Americans have pre-HTN.[3] The prevalence of HTN is greater among blacks and African Americans compared to other races in the United States, and is the highest rate worldwide.[4,5] In the 1970s, the prevalence of HTN among adults in the United States was 40%.[6] Following a massive public campaign to increase awareness of HTN, the prevalence dropped to 24% between 1980 and 1994. However, the 1999-2000 National Health and Nutrition Examination Survey (NHANES) found that the prevalence of HTN had crept up again to 29%.[6] This trend has continued, with most recent estimates of the prevalence of HTN at 34% in the United States. If this rate of increase persists, it is estimated that by 2025, there will be 104 million Americans suffering from HTN and associated comorbidities.[6]

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The main factors driving the increased prevalence of HTN in the United States are obesity, aging of the population, and lack of health insurance for many Americans. Obesity is strongly associated with HTN. According to the most recent estimates by the Centers for Disease Control and Prevention, obesity in the United States has reached epidemic proportions, affecting one third of all adults (72 million persons) and 16% of children.[7] With regard to aging, the U.S. Census Bureau reports that over 37 million persons or 12.4% of the U.S. population are over the age of 65.[8] These numbers are expected to reach 71.5 million (20% of the population) by 2030. It is well documented that systolic BP increases in whites, blacks, and Mexican Americans with aging and to a greater extent in women than men.[3] According to Robinson, the age-adjusted prevalence (of both diagnosed and undiagnosed) HTN between 1999 to 2002 was 78% for women and 64% for men aged 65-years or older based on NHANES data.[9] The number of Americans without access to health care is now estimated at 30 million, plus an additional 17 million undocumented persons.[8] According to NHANES data from 1999 to 2002, a lack of health insurance was associated with higher rates of inadequate blood pressure control among individuals being treated for HTN.[10] As the number of elderly persons grows, the number of obese Americans rises, and more persons are without access to health care, the prevalence of primary HTN is predicted to accelerate. Acute care APNs can expect to see an increase in the number of patients presenting with hypertensive crises.

In general, the earlier HTN develops, the greater the severity of the disease. HTN is also the most common predisposing condition for stroke, acute coronary syndromes, renal failure, and premature cardiovascular disease.[11] A history of HTN is reported among 69% of people with a first myocardial infarction (MI), 77% of those experiencing a first stroke, and 74% of those with heart failure (HF).[1] While the majority of cases of primary HTN are mild (70%), 10% of hypertensive patients are classified as having severe or very serve disease, and 15% of patients with diagnosed HTN