

## Opinion Article

## Hypertensive Crisis: Potential Enemy

Claribel Plain Pazos<sup>1\*</sup>, Carmen Rosa Carmona Pentón<sup>1</sup>, Anisbel Pérez de Alejo Plain<sup>2</sup>, Nereyda Caraballo Moya<sup>3</sup>, Yaquelín Martínez Chávez<sup>4</sup> and Marcos A Chateloin Santos<sup>5</sup>

<sup>1</sup>Specialist of II Degree in Comprehensive General Medicine, Faculty of Medical Sciences of Sagua la Grande, Cuba

<sup>2</sup>Medical Faculty of Medical Sciences of Sagua la Grande, Villa Clara, Cuba

<sup>3</sup>Specialist of I Degree in Comprehensive General Medicine, Faculty of Medical Sciences of Sagua la Grande, Villa Clara, Cuba

<sup>4</sup>Specialist of I Degree in Pharmacology, Faculty of Medical Sciences of Sagua la Grande, Cuba

<sup>5</sup>Bachelor of Hygiene and Epidemiology, Faculty of Medical Sciences of Sagua la Grande, Cuba

### Opinion

Cardiovascular diseases constitute a serious epidemiological problem in the contemporary world. High Blood Pressure (HBP) has been seen over the years as "the most common of conditions affecting the adult human being, in all latitudes", its incidence, whether direct or indirect, continues to occupy an important place in the indexes of mortality and morbidity of most of the countries of the contemporary world [1].

The HBP is a chronic and systemic disease of multifactorial etiology that consists of the chronic elevation of the Blood Pressure (BP) figures above the values considered as normal. The optimal value for blood pressure should be less than or equal to 120/80 millimeters of mercury (mmHg). Arterial hypertension is considered when the systolic blood pressure figures are equal to or greater than 140 mmHg and 90 mmHg of diastolic blood pressure [2,3] and in the presence of diseases such as diabetes, chronic kidney disease, these values are in the limit of 130/80 mmHg [2]. The greatest danger of this disease is that on many occasions it is asymptomatic, so the patient does not know that he suffers from it and therefore does not receive medical treatment to keep it stable.

Control of chronic diseases is a challenge for health professionals. HBP is the most common and perhaps one of the most expensive for the individual, the family and the country [1]. Recent data suggest that systemic HBP is the cause of almost 7.1 million deaths worldwide per year [1,3]. Approximately 1% to 2% of patients with hypertension will develop a hypertensive crisis [1].

Hypertensive crisis is defined as the sudden and significant increase in BP, generally with systolic blood pressure  $\geq$  180 mmHg and diastolic blood pressure  $\geq$  20 mmHg [3,4]. It is characterized by

**Citation:** Pazos CP, Pentón CRC, de Alejo Plain AP, Moya NC, Chávez YM, Chateloin Santos MA. Hypertensive Crisis: Potential Enemy. *Ann Clin Cases*. 2020;1(2):1006.

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**Publisher Name:** Medtext Publications LLC

**Manuscript compiled:** June 10<sup>th</sup>, 2020

**\*Corresponding author:** Claribel Plain Pazos, Specialist of II Degree in Comprehensive General Medicine, Assistant Professor, Faculty of Medical Sciences of Sagua la Grande, Cuba, E-mail: claribelp@infomed.sld.cu

the acute elevation of the BP that can put the patient's life in imminent danger. It is important to consider that the severity of the condition is not determined by the absolute BP level, but rather by the magnitude of the sharp increase in BP level. Among the most important causes are the lack of adherence to treatment (either interruption or decrease in medication), inadequate treatment, endocrine, kidney, pregnancy and drug poisoning. They are presented as emergencies or hypertensive emergencies depending on whether or not there is target or target organ damage [4].

### Hypertensive Urgency (HU)

Is the severe and acute elevation of BP without acute damage to target organs, such as the central nervous system, heart and kidney, and which requires oral medication to control BP. Without indications of immediate complications, it can be corrected in hours and the patient does not necessarily have to be hospitalized.

### Hypertensive Emergency (HE)

Is the acute increase in BP with damage to target organs such as the central nervous system, the heart, or the kidney, which compromises the function of these organs, and requires parenteral medication and hospitalization to decrease BP.

Untreated hypertensive urgency can trigger a hypertensive emergency if it causes injury to target organs, so both hypertensive urgency and hypertensive emergency need emergency medical treatment, although specific to each case, in order to rapidly decrease the blood pressure figures. However, the authors do not recommend reducing diastolic blood pressure below 100 mmHg 105 mmHg in any of these circumstances because of the risk of cerebral or myocardial ischemia [5-7].

The symptoms of CH vary widely, from asymptomatic or nonspecific symptoms such as headache, dizziness, vomiting, and palpitations, to acute involvement of target organs [3].

In Hypertensive Urgency there are some controversial points in the route of administration and the drugs used, the sublingual route of administration is no longer accepted in most guidelines due to its erratic and unpredictable absorption, preferring the oral route. There is also controversy about the most effective drug for lowering blood pressure, although nifedipine has been widely used for its rapid action, adverse effects secondary to its cerebral vasodilatory action and its positive chronotropic and negative inotropic effects on the heart observed, and together with the impossibility of controlling the degree of decrease in blood pressure, this drug is not accepted [6].

Although it is important to note that two decades ago this drug was widely used as the medicine of choice for this emergency.

Currently, captopril is the drug of choice for hypertensive urgencies in most guidelines. It is an angiotensin converting enzyme inhibitor, its use is orally. Starting with 25 mg and repeating doses if after 30 minutes the recommended therapeutic figures are not reached, complementing it if necessary, with other drugs of second choice such as diuretics and ACE inhibitors [6]. It is also essential that the chronic hypertensive patient who was taking treatment continue with his basic treatment, and if he has abandoned it, restart it immediately.

In a hypertensive emergency, general therapy consists of urgent hospital admission, generally in the intensive care room, in order to continuously monitor the constants and the echocardiogram, strictly monitoring the patient's level of consciousness. Reducing blood pressure, without abrupt drops, to safe values of 20% to 25% from the first minutes to the first 2 hours, constitutes the base treatment. The reduction percentage and the time relationship of blood pressure should be adjusted and respond to the patient's condition and the damage or disposition to target organ damage that it presents [3,8].

For drug treatment, the parenteral route of administration will be used. The drugs of choice are, among others [3,6].

### Sodium Nitroprusside

It is the most preferable and effective drug for the treatment of severe arterial hypertension. The preload and after load decrease with the dilation of the arterioles and venules, and the oxygen demand decreases, it has no effect at the level of the autonomic system or in the CNS. It is not administered as boluses, but as a continuous infusion. It has an immediate start and lasts for 1-2 minutes. Its use is made in most hypertensive emergencies, taking caution in cases of high ICP and nitrogen retention. Contraindicated in eclampsia.

### Labetalol

It is a beta- and alpha-adrenergic blocker, it is used in hypertensive emergencies for immediate control of initial blood pressure in boluses and then in continuous infusion for maintenance. The onset of action is 5-10 minutes and the duration of 3-8 hours. It is the drug of choice in severe preeclampsia-eclampsia. It is contraindicated in heart failure with systolic failure, peripheral arterial ischemia, and obstructive pulmonary disease.

- Beta blockers and nitroglycerin if the hypertensive emergency is associated with cardiac pathology. It produces a dilation of the venous system, useful in myocardial ischemia and heart failure.

The intensity of the intervention is determined by the clinical situation, depending on the damage of the target organ.

The mortality rate of patients with hypertensive emergency has decreased significantly over the years, from 80% in 1928 to 10% in 1989, mainly due to the availability of antihypertensive drugs [6].

Undoubtedly, hypertensive crises both in the form of hypertensive urgency and in the form of a hypertensive emergency constitute a potential danger to the patient's life at the present time. The key is not in the treatment of crises but in the prevention of them. Early diagnosis is essential for timely treatment. Where the fundamental role is played by primary health care, with the work of the GP. Arterial hypertension is a preventable and treatable disease.

Once the hypertensive crisis is triggered, emergency treatment is necessary with the consequent generation of anxiety in the patient, in addition to the possibility of disability or sequelae that the crisis itself can cause. Prevention is better than treatment.

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