

Erilaine Freitas Corpes ¹

 0000-0002-9681-3422

**Leiliane de Queiroz
Oliveira** ²

 0000-0001-8020-4641

**Paulo Alberto Cosquillo
Valdivia** ³

 0009-0009-5362-7505

Samyla Citó Pedrosa ⁴

 0000-0003-0287-5102

Jayranne Mara Santana ⁵

 0009-0000-1626-0112

**Marília de Andrade Guedes
Giesta** ⁴

 0009-0006-2057-7175

Vanessa Vieira de Sousa ⁶

 0000-0003-2171-9770

**Joana Dayse da Rocha
Andrade** ⁷

 0000-0002-3138-0443

Yury Tavares de Lima ³

 0009-0000-1624-2985

Geisy Lanne Munis Luna ³

 0000-0002-3906-8964

**Roberta Duarte Maia
Barakat** ⁸

 0000-0003-2305-1794

Sandra Machado Lira ⁷

 0000-0002-9711-2919

¹ Governo do Estado do Ceará,
Secretária de Saúde, Fortaleza,
Ceará, Brasil.

² SAMU Ceará. Cariri, Ceará,
Brasil.

³ SAMU Ceará. Fortaleza, Ceará,
Brasil.

⁴ SAMU Ceará. Eusébio, Ceará,
Brasil.

⁵ Instituto de Saúde e Gestão
Hospitalar. Eusébio, Ceará, Brasil.

Hypertensive Crisis in Urgent and Emergent Settings: Scientific Evidence

Crise hipertensiva em Urgência e Emergência: evidências científicas

Crisis hipertensiva en situaciones de urgencia y emergencia: evidencia científica

ABSTRACT

Introduction: Hypertensive crises are a frequent occurrence in urgent and emergency care settings, requiring careful clinical assessment to distinguish between situations involving acute target-organ damage and those without it. **Objective:** This integrative review aims to analyze recent scientific evidence regarding the management of hypertensive crises in adults within urgent and emergency care settings, focusing on clinical management, prognosis, and post-discharge follow-up strategies. **Methods:** The study selection process followed PRISMA 2020 guidelines. A total of 1,950 records were identified across the PubMed, LILACS, Scopus, and Cochrane databases. After removing duplicates and screening titles and abstracts, 19 articles were evaluated in full, resulting in the inclusion of 7 studies. Data extraction covered authors, year, country, study type, objectives, interventions, outcomes, and key findings; analysis was conducted using a thematic approach. **Results:** Findings showed that significant blood pressure elevations in the emergency department are associated with an increased cardiovascular risk, particularly in the weeks following the encounter. However, in patients without acute target-organ damage, aggressive blood pressure reduction did not demonstrate consistent benefits regarding mortality, stroke, or major cardiovascular events. Evidence supports prioritizing risk stratification, gradual blood pressure reduction, therapeutic adjustment, patient education, and early outpatient follow-up. **Conclusion:** Safe management of hypertensive crises depends on distinguishing between hypertensive emergencies and significant blood pressure elevations without target-organ damage, as well as on the integration between emergency care and primary care services.

Keywords: Hypertensive Crisis; Hypertension; Hospital Emergency Service.

⁶ Hospital Dr. Carlos Alberto Studart Gomes. Fortaleza, Ceará, Brasil.

⁷ Escola de Saúde Pública do Ceará. Fortaleza, Ceará, Brasil.

⁸ Universidade Estadual do Ceará. Fortaleza, Ceará, Brasil.

DOI

10.54620/m791t927



Licença CC BY 4.0

RESUMO

Introdução: As crises hipertensivas representam condição frequente nos serviços de urgência e emergência e exigem avaliação clínica criteriosa para diferenciar situações com e sem lesão aguda de órgão-alvo. **Objetivo:** Esta revisão integrativa objetiva analisar as evidências científicas recentes acerca do manejo das crises hipertensivas em adultos nos serviços de urgência e emergência, com ênfase nas condutas assistenciais, no prognóstico clínico e nas estratégias de acompanhamento após a alta. **Métodos:** O processo de seleção dos estudos foi conduzido conforme as recomendações do PRISMA 2020. Foram identificados 1.950 registros nas bases PubMed, LILACS, Scopus e Cochrane. Após a remoção de duplicatas e triagem por títulos e resumos, 19 artigos foram avaliados na íntegra, resultando em 7 estudos incluídos. A extração dos dados contemplou autor, ano, país, tipo de estudo, objetivos, intervenções, desfechos e principais achados, sendo a análise conduzida por abordagem temática. **Resultados:** Os resultados demonstraram que elevações importantes da pressão arterial no pronto-socorro estão associadas a maior risco cardiovascular, especialmente nas semanas subsequentes ao atendimento. Entretanto, em pacientes sem lesão aguda de órgão-alvo, a redução agressiva da pressão arterial não apresentou benefício consistente sobre mortalidade, acidente vascular cerebral ou eventos cardiovasculares maiores. As evidências sustentam a priorização da estratificação de risco, redução gradual da pressão arterial, ajuste terapêutico, educação do paciente e acompanhamento ambulatorial precoce. **Conclusão:** Conclui-se que o manejo seguro das crises hipertensivas depende da distinção entre emergência hipertensiva e elevação importante da pressão arterial sem lesão de órgão-alvo, bem como da integração entre pronto-socorro e atenção primária. **Palavras-chave:** Crise Hipertensiva; Hipertensão; Serviço Hospitalar de Emergência.

RESUMEN

Introducción: Las crisis hipertensivas son frecuentes en los servicios de urgencias y emergencias, y requieren una evaluación clínica cuidadosa para diferenciar entre situaciones con daño agudo a órganos diana y aquellas que carecen de él. **Objetivo:** Esta revisión integradora tiene como finalidad analizar la evidencia científica reciente sobre el manejo de las crisis hipertensivas en adultos en entornos de urgencias y emergencias, centrándose en el manejo clínico, el pronóstico y las estrategias de seguimiento tras el alta. **Métodos:** El

proceso de selección de estudios siguió las directrices PRISMA 2020. Se identificaron 1.950 registros en las bases de datos PubMed, LILACS, Scopus y Cochrane. Tras eliminar duplicados y cribar títulos y resúmenes, se evaluaron 19 artículos a texto completo, resultando en la inclusión de 7 estudios. La extracción de datos abarcó autores, año, país, tipo de estudio, objetivos, intervenciones, resultados y hallazgos clave; el análisis se realizó mediante un enfoque temático.

Resultados: Los hallazgos mostraron que las elevaciones significativas de la presión arterial en el servicio de urgencias se asocian con un mayor riesgo cardiovascular, especialmente en las semanas posteriores a la atención. Sin embargo, en pacientes sin daño agudo a órganos diana, la reducción agresiva de la presión arterial no demostró beneficios consistentes en cuanto a mortalidad, accidente cerebrovascular o eventos cardiovasculares mayores. La evidencia respalda priorizar la estratificación del riesgo, la reducción gradual de la presión arterial, el ajuste terapéutico, la educación del paciente y el seguimiento ambulatorio temprano. **Conclusión:** El manejo seguro de las crisis hipertensivas depende de distinguir entre emergencias hipertensivas y elevaciones significativas de la presión arterial sin daño a órganos diana, así como de la integración entre los servicios de urgencias y la atención primaria.

Descriptores: *Crisis hipertensiva; Hipertensión; Servicio de urgencias hospitalarias.*

INTRODUCTION

Cardiovascular diseases remain among the leading causes of morbidity and mortality, and arterial hypertension is one of their most relevant modifiable risk factors. In urgent and emergency care settings, marked elevations in blood pressure are common and require careful clinical assessment, particularly to distinguish hypertensive emergency – characterized by elevated blood pressure associated with acute target-organ damage – from situations involving markedly elevated blood pressure without acute organ damage.¹ This distinction is critical because it guides the intensity, rate, and treatment site.

Hypertensive crises were traditionally classified as hypertensive emergency and hypertensive urgency. Hypertensive emergency refers to a marked elevation in blood pressure associated with acute target-organ damage, such as hypertensive encephalopathy, acute myocardial infarction, stroke, or acute aortic dissection. It requires immediate and controlled blood pressure reduction, generally with intravenous medications and hospital admission.^{1,2}

The condition previously termed hypertensive urgency is now described in the 2025 Brazilian Guideline on Arterial Hypertension as marked blood pressure elevation without acute target-organ damage. This terminology emphasizes that therapeutic decisions should be based not only on blood pressure levels but, above all, on the presence or absence of acute organ damage.³

Marked blood pressure elevation without target-organ damage accounts for a substantial proportion of visits to urgent care departments, particularly among adults with poorly controlled hypertension, low treatment adherence, irregular access to health services, and associated comorbidities. In such cases, recommended management includes clinical assessment, exclusion of warning signs, adjustment or initiation of oral antihypertensive therapy, gradual blood pressure reduction, and early outpatient follow-up.^{2,4-6}

Despite advances in national and international guidelines, disagreements persist regarding terminology, the intensity of pharmacological intervention, and the optimal follow-up of these patients after discharge. The *American Heart Association*, for example, discourages the use of the term *hypertensive urgency*, whereas Brazilian guidelines have adopted the expression *marked blood pressure elevation without target-organ damage*. This conceptual and clinical heterogeneity may lead to inconsistent management, including excessively aggressive treatment in patients without acute injury or, conversely, underestimated cardiovascular risk associated with markedly elevated blood pressure.^{1,2,7}

In this context, appropriate management of hypertensive crises should integrate risk stratification, detailed clinical assessment, patient education, treatment adherence, control of risk factors, and care continuity within the health care network.⁸ In prehospital and hospital settings, early identification of warning signs,¹⁰ clinical monitoring, and timely referral are essential to reduce complications, avoid unnecessary interventions, and improve the quality of care.^{3,9,11}

A critical summary of the available evidence is warranted given the high prevalence of marked blood pressure elevations in urgent and emergency care services and the persistent heterogeneous management practices in clinical care.¹² Accordingly, this integrative review aims to analyze recent scientific evidence on the management of hypertensive crises in adults receiving urgent and emergency care, emphasizing on clinical management, prognosis, and post-discharge follow-up strategies.

METHODS

This study is an integrative literature review, a method that enables the summary and analysis of scientific knowledge produced on a given event. Its relevance lies in its ability to assess the quality of the available evidence, integrate findings from different methodological designs, identify gaps in scientific production, and foster the development of new research questions, thereby contributing to the construction of a robust empirical foundation for evidence-based practice.¹³ To identify the studies, we systematically searched the LILACS (Latin American and Caribbean Health Sciences Literature), PubMed, Scopus, and Cochrane Library databases and scientific repositories.

The integrative review followed the methodological steps described by Souza et al.¹³ and the recommendations of the *Joanna Briggs Institute*,¹⁴ both of which are widely used references for conducting literature reviews because of their methodological rigor. The process included formulating the research question; establishing inclusion and exclusion criteria; identifying and selecting studies; critically appraising the evidence; extracting and categorizing the data; and analyzing, synthesizing, and interpreting the results.¹³

Search strategy and study selection

We adopted the PICO strategy (Patient/Population, Intervention, Comparison, and Outcome) to define the research problem and formulate the guiding question. This method is widely used in Evidence-Based Practice (EBP) because it enables research questions to be formulated in a structured, clear, and objective manner. This strategy helps define the scope of the investigation, facilitates the identification of the most relevant scientific evidence, and optimizes database searches by reducing the retrieval of irrelevant studies.¹⁴

The PICO strategy is an important methodological resource for developing research questions across different fields of knowledge, including clinical practice, health management, and the assessment of health technologies and clinical instruments.¹⁵ Besides guiding the literature search, it enables precise identification of the evidence needed to address the research problem, thereby contributing to the quality and methodological consistency of integrative reviews.¹⁶

The PICO strategy was employed to formulate the guiding question for this review. The P component (Patient/Population) corresponds to adults experiencing a hypertensive crisis; the I component (Intervention) refers to the

management strategies adopted by emergency care services and medical regulation in response to this condition; the C component (Comparison) does not apply to the present study because no interventions or groups are being compared; and the O component (Outcome) relates to clinical management, patient stabilization, and referrals made during care. Based on this strategy, the following guiding question was formulated: “What scientific evidence published between 2016 and 2024 describes the management, clinical and cardiovascular outcomes, and post-discharge follow-up of adults with hypertensive crisis or markedly elevated blood pressure treated in urgent and emergency care services?”

Table 1 – PICO strategy used to formulate the research question. Fortaleza, Ceará, Brazil, 2025.

Element	Components
P	Adult patients experiencing a hypertensive crisis
I	Management strategies adopted by emergency care services and medical regulation
C	Not applicable (there is no explicit comparison between interventions or groups).
O	Management, clinical stabilization, referral, and care provided to patients

Source: Prepared by the authors.

The search was conducted in July 2025 and included studies published between January 2016 and December 2024, with no language restrictions. The search strategies were structured into three conceptual blocks – hypertensive condition, urgent/emergency care setting, and management/outcomes. Synonyms were combined with OR, and the blocks were connected with AND. Controlled MeSH/DeCS descriptors and free-text terms were adapted to the syntax of each database. Proper use of parentheses was prioritized to prevent OR operators from broadening the search to studies that were not simultaneously related to both the hypertensive condition and the emergency care setting.

Table 2 – Search strategy by database

Database	Revised search strategy	Records
PubMed/MEDLINE	("Hypertensive Crisis"[MeSH Terms] OR "hypertensive crisis"[Title/Abstract] OR "hypertensive emergency"[Title/Abstract] OR "hypertensive urgency"[Title/Abstract] OR "severe hypertension"[Title/Abstract] OR "elevated blood pressure"[Title/Abstract]) AND ("Emergency Service, Hospital"[MeSH Terms] OR "Emergency Medical Services"[MeSH Terms] OR "emergency department"[Title/Abstract] OR "emergency care"[Title/Abstract] OR "urgent care"[Title/Abstract]) AND ("Antihypertensive Agents"[MeSH Terms] OR management[Title/Abstract] OR treatment[Title/Abstract] OR prognosis[Title/Abstract] OR	1,087

	outcome*[Title/Abstract] OR "cardiovascular event"[Title/Abstract] OR follow-up[Title/Abstract] OR revisit*[Title/Abstract] OR readmission*[Title/Abstract])	
LILACS	("Crise Hipertensiva" OR "Hypertensive Crisis" OR "Emergência Hipertensiva" OR "Urgência Hipertensiva" OR "Hipertensão Grave" OR "Pressão Arterial Elevada") AND ("Serviço Hospitalar de Emergência" OR "Serviços Médicos de Emergência" OR "Pronto-Socorro" OR "Departamento de Emergência") AND (manejo OR tratamento OR "Agentes Anti-Hipertensivos" OR prognóstico OR desfechos OR "eventos cardiovasculares" OR seguimento OR visita OR readmissão OR hospitalização)	541
Scopus	TITLE-ABS-KEY(("hypertensive crisis" OR "hypertensive emergency" OR "hypertensive urgency" OR "severe hypertension" OR "elevated blood pressure") AND ("emergency department" OR "emergency service" OR "emergency care" OR "urgent care") AND (management OR treatment OR prognosis OR outcome* OR "cardiovascular event*" OR follow-up OR revisit* OR readmission* OR hospitalization)) AND PUBYEAR > 2015 AND PUBYEAR < 2025	180
Cochrane Library	("hypertensive crisis" OR "hypertensive emergency" OR "hypertensive urgency" OR "severe hypertension" OR "elevated blood pressure") AND ("emergency department" OR "emergency service" OR "emergency care") AND (management OR treatment OR prognosis OR outcome* OR "cardiovascular events" OR follow-up)	142

Source: Prepared by the authors.

Eligibility criteria and study selection

We included primary observational or interventional studies available in full text that involved adult participants (≥ 18 years) treated in urgent and emergency care services for hypertensive crisis, severe hypertension, or marked blood pressure elevation. To be eligible, studies had to report at least one of the following domains: clinical or pharmacological management; decision to discharge or hospitalize; persistence of elevated blood pressure levels; revisit/readmission; cardiovascular or renal events; mortality; or follow-up after acute care. We excluded studies limited to chronic hypertension outside the acute care setting; studies in which elevated blood pressure was merely an incidental finding unrelated to the review question; exclusively prehospital studies without evaluation of the hypertensive episode in an urgent/emergency care setting; pediatric studies; reviews; guidelines; editorials; letters; dissertations; theses; conference abstracts; and duplicate records.

The main descriptors used included *"Hypertensive Crisis"*, *"Hypertension"*, *"Emergency Medical Services"*, *"Emergency Medical Dispatch,"*

“Telemedicine Emergency Care”, “Health Services Research”, “Time-to-Treatment”, and “Antihypertensive Agents”. These terms were selected based on their conceptual relevance to the topic under investigation, enabling the retrieval of publications addressing both the clinical aspects of hypertensive crisis and the organization of emergency care services, prehospital care, the use of telemedicine, and the therapeutic strategies employed in this context. Table 3 presents the terms used in the database searches.

Table 3 – Model used for the information sources (databases, portals, and directories): descriptors and alternative terms.

Descriptors	Alternative terms	Scope note
<i>Hypertensive Crisis</i>	Hypertensive Emergency Hypertensive Urgency	Acute and severe rise in blood pressure that can result in stroke or myocardial ischemia.
<i>Hypertension</i>	Arterial Hypertension Systemic Arterial Hypertension High Blood Pressure	Persistently high systemic blood pressure. Based on multiple measurements (blood pressure readings), hypertension is currently defined as systolic pressure repeatedly exceeding 140 mm Hg or diastolic pressure of 90 mm Hg or higher.
<i>Emergency Medical Services</i>	Pre-hospital Emergency Care Pre-hospital Care Emergency Center Emergency Centers Emergency Department SAMU (Mobile Emergency Care Service) Emergency Response Services Emergency Health Services	Services specially prepared (human resources and equipment) to provide emergency care to patients.
<i>Emergency Medical Dispatch</i>	Dispatch 190 Dispatch 192 Dispatch 911 Police Emergency Dispatch Fire Emergency Dispatch	Mobilization of emergency medical services to locations and individuals in need of them.
<i>Telemedicine Emergency Care</i>	Emergency Telemedicine Assistance Emergency Telemedicine Care Tele-emergency Services	Includes modern telemedicine communication solutions to provide medical services in emergency situations.
<i>Health Services Research</i>	Health Services Evaluation Service Evaluation Health Services Evaluation Health Services Epidemiology Epidemiology in Health Services Health Services Research Medical Care Research Health Care Delivery Research Action Research	The integration of epidemiological, sociological, economic, and other analytical sciences in the study of health services. Health services research generally focuses on the relationships between need, demand, supply, utilization, and health service outcomes. The research aims

		to conduct evaluations, specifically regarding structure, process, outputs, and outcomes.
<i>Time-to-Treatment</i>	Treatment Interval Time to Treatment Time to Treatment Initiation	Time interval between the onset of symptoms or suspicion of disease and the start of therapy, comprising the combined waiting time for the appointment, diagnostic, and treatment services.
<i>Antihypertensive Agents</i>	Antihypertensive Agent Antihypertensive Agents Antihypertensive Antihypertensive Drug Antihypertensive Drugs Antihypertensive Medication Antihypertensive Medications	Drugs used to treat hypertension (acute or chronic), regardless of their pharmacological mechanism. Antihypertensives include diuretics [especially thiazide diuretics (=sodium-chloride symporter inhibitors)], beta-adrenergic antagonists, alpha-adrenergic antagonists, angiotensin-converting enzyme inhibitors, calcium channel blockers, ganglionic blockers, and vasodilators.

Source: Health Sciences Descriptors (DeCS). 2025.

Eligible studies for this review were identified through a systematic literature search conducted in July 2025 in accordance with the PRISMA 2020 recommendations. The search included publications indexed between 2016 and 2024, with no language restrictions. Full-text studies that included adults as the population of interest were considered eligible.

The search strategy combined controlled descriptors and free-text terms selected according to the research question and adapted to the specific requirements of each database. Table 2 presents the descriptors, keywords, and corresponding synonyms used to develop the search strategy. Table 3 provides the complete search strings, including the term combinations and Boolean operators used in each database, thereby ensuring transparency, reproducibility, and methodological rigor in the study identification process.

During study selection, thorough eligibility criteria were established to ensure the methodological quality, scientific relevance, and consistency of the evidence included in the integrative review. As shown in Table 4, only full-text primary studies involving adults (≥ 18 years) and addressing hypertensive urgency in the context of emergency care services, access regulation, or health transportation were considered eligible.

Table 4 – Inclusion and exclusion criteria of the selected studies

Inclusion criteria	Exclusion criteria
Primary observational or interventional studies.	Reviews, guidelines, scientific statements, editorials, letters, theses, dissertations, and conference abstracts.
Adults (≥ 18 years).	Exclusively pediatric or obstetric population when not relevant to the scope.
Care in an urgent/emergency setting for hypertensive crisis, severe hypertension, or significant elevation in blood pressure.	Chronic hypertension evaluated exclusively outside the acute setting, or elevated blood pressure as an incidental finding.
Presentation of management, clinical disposition, persistent hypertension, return visits, hospitalizations, cardiovascular/renal events, mortality, or follow-up.	Absence of outcomes or information related to the scope of the review.
Publications from 2016 to 2024, without language restrictions, available in full text.	Duplicates or publications without full text available.

Source: Prepared by the authors.

Data extraction and analysis

Data were extracted using a standardized instrument developed to systematically organize the relevant information from the included studies. The instrument included the following variables: author, publication year, study design, country of origin, objectives, interventions performed, outcomes assessed, and main findings.

Data were analyzed using thematic analysis, as proposed by Whittemore and Knafl⁵ and updated by Souza et al.⁴. This procedure enabled the findings to be organized into analytical categories, facilitating the identification of convergences, divergences, knowledge gaps, and practical recommendations grounded in the available scientific literature.^{11,15}

Because this was an integrative review based exclusively on the analysis of previously published studies available in the scientific literature, there was no direct involvement of human participants, collection of primary data, or access to individualized information. Therefore, the study did not require review by a Research Ethics Committee, in accordance with Resolution No. 510/2016 of the Brazilian National Health Council.¹⁵

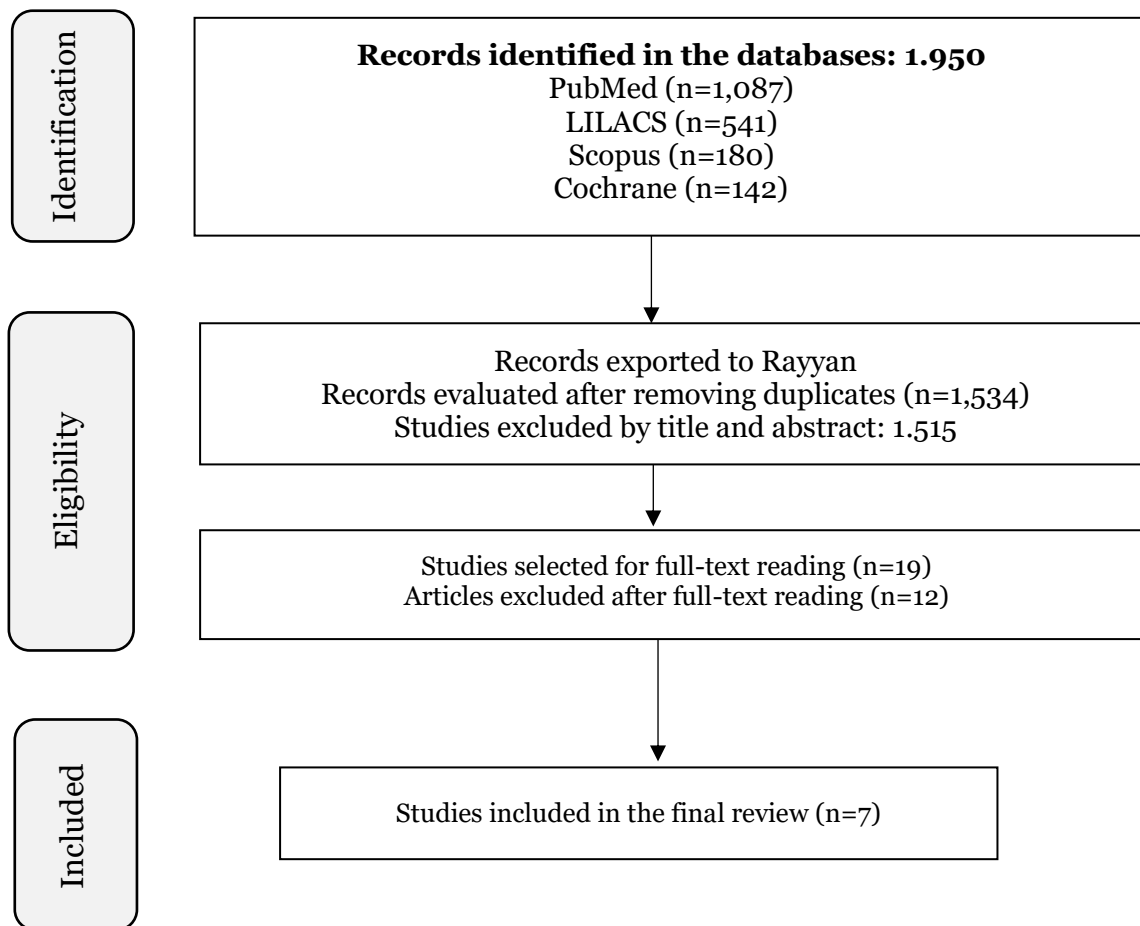
RESULTAS

Study selection

A total of 1,950 records were identified: 1,087 in PubMed/MEDLINE, 541 in LILACS, 180 in Scopus, and 142 in the Cochrane Library. After removing 416 duplicates, 1,534 records proceeded to title and abstract screening. At this stage, 1,515 records were excluded, and 19 full-text articles were assessed for eligibility. After reassessing the alignment among the guiding question, eligibility criteria, and study content, 12 articles were excluded following full-text review, leaving out

only seven studies in the final summary. Figure 1 presents the total number of records identified through the study selection flowchart.

Figure 1 – Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart. Fortaleza – Ceará, Brazil. 2025.



Source: Prepared by the authors.

The records identified in the databases were exported to Rayyan, which was used to manage references, identify duplicates, and conduct study screening. Initially, 1,950 records were identified: PubMed (n=1,087), LILACS (n=541), Scopus (n=180), and Cochrane (n=142). After duplicate records were removed in Rayyan, 1,534 records remained for screening.

Titles and abstracts were reviewed during the screening stage, and 1,515 records were excluded because they did not meet the eligibility criteria. Thus, 19 articles were selected for full-text review. After this stage, 12 articles were excluded, resulting in 7 studies included in the final review.

Table 5 presents a summary of the main data extracted from the studies included in this review, focusing on the care of adults with marked blood pressure elevation without acute target-organ damage, a condition previously termed hypertensive urgency.

Information on author, publication year, country of origin, study objective, methodological design, sample, interventions performed, main results, and

conclusions was systematically organized. This structure facilitates comparative analysis of the findings and enables the identification of care patterns, clinical strategies, management approaches, and knowledge gaps related to the management of this condition across different urgent and emergency care settings.

Table 5 – Summary of the methodological assessment of the included studies

Study	Design / JBI instrument	Favorable aspects	Precautions for the summary
Poon et al. ⁸	Retrospective cohort / JBI Cohort	Serial blood pressure measurement, multivariate adjustment, and 1-year follow-up.	Inclusion contingent upon blood pressure readings during follow-up may introduce selection bias; the approach is more applicable to the persistent hypertension than to therapeutic efficacy.
Paini et al. ⁹	Observational cohort with follow-up / JBI Cohort	Defined blood pressure criteria, characterization of target-organ damage, and multivariate analysis of events.	Single-center study and loss to follow-up via telephone contact; risk of underestimating events and limited generalizability.
Lin et al. ¹⁰	Retrospective cohort / JBI Cohort	Large sample and assessment of short- and long-term outcomes.	Potential confounding by indication: treated and untreated patients may differ in severity and clinical profile despite adjustments.
McAlister et al. ¹¹	Retrospective cohort / JBI Cohort	Large linked population base and adjustment for cardiovascular factors.	Broad population of emergency patients, not all with hypertensive crisis; indirect evidence for acute therapeutic decisions.
Chaudhry et al. ¹²	Retrospective cohort / JBI Cohort	Large sample of severe hypertension without acute organ damage and propensity score analysis.	Observational design and potential for residual confounding; lack of randomization regarding blood pressure targets at discharge.
Liberman et al. ¹³	Case-crossover / JBI Case Control (applicable domains)	Large administrative database and intrapersonal temporal comparison, reducing confounding due to fixed characteristics.	Reliance on diagnostic codes and lack of detailed clinical measurements; temporal association does not equate to causality.

Nowicki et al. ¹⁴	Descriptive retrospective cohort / JBI Cohort	Defined inclusion criteria and clinical description of patients with acute blood pressure elevation without hypertensive emergency.	Single-center study, smaller sample, and descriptive focus, limiting prognostic inferences and generalizability.
------------------------------	---	---	--

Source: Prepared by the authors.

Characteristics and main findings

The seven studies were published between 2020 and 2024 and conducted in the United States, Italy, Taiwan, Canada, and Poland. The scientific literature was concentrated around three interrelated axes: (1) the clinical significance and persistence of elevated blood pressure levels after care; (2) pharmacological management and blood pressure at discharge; and (3) cardiovascular prognosis, revisits, and care continuity. This organization makes it possible to incorporate studies with different scopes without treating them as equivalent evidence addressing the same therapeutic question.

Table 6 – Characteristics of the included studies and contribution to the summary

Nº	Study	Country / Design / Sample	Objective	Main results	Contribution to the summary
1	Poon et al., 2020 ⁸	USA; retrospective cohort; n=8,105	To evaluate whether elevated BP in the emergency department is associated with sustained elevated BP in the subsequent year.	Consistently elevated BP during care was strongly associated with elevated mean BP during follow-up, especially in people without a previous diagnosis of hypertension.	Advocates for the need to identify and follow up on potentially undiagnosed hypertension.
2	Paini et al., 2021 ⁹	Italy; observational cohort; n=895 at follow-up	To evaluate cardiovascular events following care for a hypertensive emergency or urgency.	Ninety-six cardiovascular events occurred during a mean follow-up of 12 ± 5 months; morbidity and mortality were higher following hypertensive emergency.	Shows prognostic heterogeneity depending on the presence of acute target-organ damage.

3	Lin et al., 2021 ¹⁰	Taiwan; retrospective cohort; n=22,906	To evaluate the association between antihypertensi ve treatment in the emergency department and post- discharge outcomes.	Pharmacologic al treatment was associated with an 11% reduction in 30- and 60- day revisits, but not with lower long- term cardiovascular mortality or stroke incidence.	Indicates a potential effect on service utilization, without showing a benefit regarding major cardiovascular outcomes.
4	McAlister et al., 2021 ¹¹	Canada; retrospective cohort; n=30,278	To evaluate the frequency of elevated BP in the emergency department, subsequent diagnosis of hypertension, and cardiovascular events.	Elevated BP was frequent and often preceded a new diagnosis of hypertension; after adjustment, there was no independent association with cardiovascular events at 2 years.	Reinforces the diagnostic relevance of the finding, but relativizes its independent prognostic capacity.
5	Chaudhry et al., 2024 ¹²	USA; retrospective cohort; n=12,044	To identify predictors of MACE in severe hypertension without acute organ damage and to evaluate the association between discharge systolic blood pressure and MACE.	MACE occurred in 15.5% of patients at 1 year; achieving an SBP $\leq$ 160 mmHg at discharge was not associated with lower MACE at 30 days.	Questions the benefit of a rigid immediate blood pressure target in the absence of acute target organ injury.
6	Liberman et al., 2024 ¹³	USA; case- crossover; database with 2,225,722 hospitalizations due to MACE	To estimate the risk of MACE following an emergency department visit for a hypertensive urgency	Visits for hypertensive urgency were 3.5 times more frequent in the week preceding MACE than during the	Highlights a window of heightened short- term cardiovascular vulnerability following the medical encounter.

			resulting in discharge for home.	control period; the association lost significance around the 11 th week.	
7	Nowicki et al., 2024 ¹⁴	Poland; retrospective cohort; n=570	To characterize patients with an acute rise in BP without hypertensive emergency and factors associated with hospitalization	The population was predominantly female and elderly; the study showed clinical and care heterogeneity among patients evaluated for acute BP elevation.	Contributes to clinical characterization and disposition decisions, with less weight given to prognostic inferences.

Source: Prepared by the authors.

The studies included in this review highlight the clinical relevance of elevated blood pressure identified in emergency care settings, both because of its association with increased cardiovascular risk and its potential role as a marker of clinical vulnerability and subsequent adverse events.

In the first axis, studies^{8,11} show that elevated blood pressure in the emergency department should not automatically be attributed to pain, anxiety, or the transient nature of emergency care. In some patients, this finding precedes persistently elevated blood pressure and a future diagnosis of hypertension. However, the association between elevated blood pressure in the emergency department and cardiovascular events lost statistical significance after adjusting for age, sex, and comorbidities, indicating that prognostic interpretation should consider overall cardiovascular risk.¹¹

In the second axis, study¹⁰ observed a lower frequency of revisits at 30 and 60 days among patients who received antihypertensive medications during their stay in the emergency department, with no proven reduction in cardiovascular mortality or stroke during long-term follow-up. Another study¹² found no short-term benefit associated with achieving systolic blood pressure ≤ 160 mmHg at discharge among patients with severe hypertension without acute target-organ damage. Taken together, these findings do not support aggressive blood pressure reduction as an isolated therapeutic goal in patients without hypertensive emergency.

In the third axis, studies^{9,13} reinforce the prognostic relevance of the acute episode. Hypertensive emergency was associated with greater cardiovascular morbidity and mortality during follow-up, whereas an emergency department visit for hypertensive urgency followed by discharge home was associated with a

transient increase in the risk of major adverse cardiovascular events (MACE), particularly during the first week. These findings support careful risk stratification, counseling regarding warning signs, and organization of post-discharge follow-up, without equating future risk with an automatic indication for immediate and intensive blood pressure reduction.

Additional evidence shows that patients with acute blood pressure elevation without hypertensive emergency constitute a heterogeneous group in terms of clinical characteristics, behaviors before arriving at the emergency service, and need for hospitalization. This heterogeneity reinforces the importance of individualized decision-making to avoid both underestimating markedly elevated blood pressure and using disproportionate interventions in patients without evidence of acute target-organ damage.¹⁴

DISCUSSION

This integrative review shows that marked blood pressure elevations in urgent and emergency care settings are clinically relevant cardiovascular risk markers, both in the immediate period and during medium-term follow-up.

This revised review indicates that the management of hypertensive crises in urgent and emergency care services should be organized around a fundamental clinical distinction: evidence or lack of acute target-organ damage. This approach is consistent with contemporary documents from the American Heart Association, the 2025 Brazilian Guideline on Arterial Hypertension, and European guidelines. It reduces the risk of decisions based solely on blood pressure thresholds and directs treatment according to the actual severity of the clinical condition.¹⁻³

Among patients without acute target-organ damage, the available evidence is predominantly observational and does not show a consistent benefit of rapid blood pressure reduction on major cardiovascular outcomes. Chaudhry et al.¹² found no lower risk of MACE associated with an SBP ≤ 160 mmHg at discharge, whereas Lin et al.¹⁰ found an association between pharmacological treatment in the emergency department and lower short-term health care utilization, but not with reduced cardiovascular mortality or stroke. Taken together, these findings support a cautious strategy: confirm blood pressure measurements, investigate acute damage signs, treat precipitating conditions, and review the antihypertensive regimen when indicated, without making immediate blood pressure normalization an isolated therapeutic goal.

The lack of an indication for aggressive blood pressure reduction does not mean that the finding should be disregarded. A study⁸ showed a strong relationship between elevated blood pressure in the emergency department and persistent hypertension over the following year, particularly among individuals without a previous diagnosis. Although the work found no independent association with cardiovascular outcomes after adjustment for confounders, it showed that an emergency department visit may provide an important

opportunity to identify previously unrecognized hypertension and refer patients for longitudinal follow-up¹¹.

Prognosis is also heterogeneous. The cohort study by Paini et al.⁹ showed higher morbidity and mortality among patients with hypertensive emergency, confirming that acute target-organ damage identifies a higher-risk group. Among patients discharged after hypertensive urgency, Liberman et al.¹³ identified a transient increase in the risk of MACE during the subsequent weeks, which was most pronounced in the first week. Although the case-crossover design and use of administrative data preclude simple causal inferences, the findings suggest that the post-discharge period warrants structured follow-up, particularly for individuals with preexisting cardiovascular disease, multiple risk factors, or irregular access to care.

The summary also highlights a care gap: few studies have evaluated structured care-transition interventions, communication between emergency departments and primary care, treatment adherence, or the optimal timing of reassessment. Care continuity, therefore, emerges as a clinically plausible dimension recommended by current guidelines, but it remains insufficiently tested in comparative studies. This limitation should be made explicit to avoid presenting organizational recommendations with the same degree of certainty as findings derived from large cohort studies.

The methodological assessment further reinforces the need for caution. All included evidence is observational, with varying risks of residual confounding, selection bias, and limited generalizability. Studies based on electronic health records and administrative databases offer substantial sample sizes but do not always provide detailed information on blood pressure measurement techniques, symptoms, adherence, psychosocial context, or comprehensive assessment of target-organ damage. For this reason, this review prioritizes convergence across studies and guidelines and avoids causal interpretations that are not supported by the available study designs.

Thus, the available evidence indicates that hypertensive crisis, particularly marked blood pressure elevation without acute target-organ damage, is an important cardiovascular risk marker, with greater vulnerability especially during the first weeks after emergency care.

Although immediate antihypertensive treatment may reduce short-term revisits, the available data do not consistently support an association with lower mortality, stroke, or major cardiovascular events among asymptomatic patients.

Consistent with international guidelines and the 2025 Brazilian guideline, the safest and most effective approach should prioritize distinguishing hypertensive emergency from marked blood pressure elevation without target-organ damage, gradual blood pressure reduction, patient education, chronic treatment adjustment, and early follow-up within the health care network. This integration between emergency care and primary care is essential to reduce recurrence, prevent complications, and improve the quality of longitudinal care for arterial hypertension.

Limitations of the review

This review has limitations inherent in the conceptual and methodological heterogeneity of the included studies, the predominance of observational designs, and the diverse definitions adopted for severe hypertension, hypertensive urgency, and hypertensive emergency. Restricting the publication period to 2016-2024 may have excluded relevant landmark studies, and the broad scope of terms related to “elevated blood pressure” may have increased the need for judgment during screening. Moreover, before final submission, the logical accuracy of the search strategies should be verified against the original database search histories or through a documented rerun of the searches to ensure that the record counts remain fully reproducible.

FINAL CONSIDERATIONS

The available evidence indicates that adults receiving care at urgent and emergency care services with markedly elevated blood pressure constitute a heterogeneous population in which the presence of acute target-organ damage is the primary determinant of therapeutic urgency. Hypertensive emergencies require immediate, closely monitored management, whereas cases without acute organ damage call for careful clinical assessment, therapeutic review, and follow-up planning, while avoiding rapid and indiscriminate blood pressure reduction.

The included studies also show that elevated blood pressure in the emergency department may signal persistent hypertension or cardiovascular vulnerability, although its prognostic value varies according to the clinical profile and adjustment for comorbidities. Acute care should, therefore, be considered an opportunity for risk stratification, identification of previously undiagnosed hypertension, patient education, and linkage to longitudinal care.

Important gaps remain regarding the optimal pharmacological strategy for patients without acute target-organ damage, the ideal timing of reassessment, and the effectiveness of structured transition-of-care models between emergency and outpatient settings. Prospective and comparative studies using standardized diagnostic definitions and patient-centered outcomes are needed to strengthen the safety and consistency of clinical recommendations.

REFERENCES

1. Bress AP, et al. The Management of Elevated Blood Pressure in the Acute Setting: A Scientific Statement from the American Heart Association. *Hypertension*. 2024;73(1):e1-e18.
2. Sociedade Brasileira de Cardiologia. VIII Diretriz Brasileira de Hipertensão Arterial. *Arq Bras Cardiol*. 2025.
3. Alley WD a. Hypertensive Emergency. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023. <https://www.ncbi.nlm.nih.gov/books/NBK513351/>

4. Mancia G, et al. 2023 ESH Guidelines for the management of arterial hypertension. *J Hypertens*. 2023;41(12):1874-2071.
5. Goniewicz M, et al. Prehospital management of hypertension by emergency medical teams: A retrospective analysis. *Signa Vitae*. 2024;19(1):1-8.
6. Cláudio Borges da Silva Filho J, José da Silva C, Tavares Barbosa A. Estratificação de risco cardiovascular em hipertensos e diabéticos aplicada por uma equipe da estratégia de saúde da família em Fortaleza - Ceará. *Cadernos ESP [Internet]*. 4º de outubro de 2019 [citado 10º de julho de 2026];12(1):57-68. Disponível em: <https://cadernos.esp.ce.gov.br/index.php/cadernos/article/view/131>
7. Goniewicz M, et al. Prehospital management of hypertension by emergency medical teams: A retrospective analysis. *Signa Vitae*. 2024;19(1):1-8.
8. Adistie, F., Neilson, S., Shaw, K.L. et al. The elements of end-of-life care provision in paediatric intensive care units: a systematic integrative review. *BMC Palliat Care* 23, 184 (2024). <https://doi.org.ez76.periodicos.capes.gov.br/10.1186/s12904-024-01512-5>
9. Souza MT, Silva MD, Carvalho R. Revisão integrativa: o que é e como fazer. *Einstein (São Paulo)*. 2010;8(1):102-6.
10. The Joanna Briggs Institute. *JBIManual for Evidence Synthesis*. Adelaide: JBI; 2022.
11. Santos CM da C, Pimenta CA de M, Nobre MRC. The PICO strategy for the research question construction and evidence search. *Rev Latino-am Enfermagem* 2007;15:508-11. <https://doi.org/10.1590/S0104-11692007000300023>.
12. Torraco RJ. Writing integrative literature reviews: using the past and present to explore the future. *Hum Resour Dev Rev*. 2016;15(4):404-28.
13. Whittemore R, Knafl K. The integrative review: updated methodology. *J Adv Nurs*. 2005;52(5):546-53.
14. Brasil. Ministério da Saúde. Conselho Nacional de Saúde. Resolução nº 510, de 7 de abril de 2016. *Diário Oficial da União*. 2016 mai 24;Seção 1:44-6.
15. Liberman AL, Razzak J, Lappin RI, Navi BB, Bruce SS, Liao V, et al. Risk of Major Adverse Cardiovascular Events After Emergency Department Visits for Hypertensive Urgency. *Hypertension*. 2024;81(7):1592-1598.
16. Chaudhry F, Small E, Korzeniewski SJ, Benyas D, Ross L, Hill AB, et al. Emergency Department Blood Pressure Treatment and Outcomes in Adults Presenting with Severe Hypertension. *West J Emerg Med*. 2024;25(5):680-689.

Corresponding Author

Sandra Machado Lira
sandra_liram@yahoo.com.br

Associate Editors

Genilton da Silva Faheina Junior, Janaildo Soares de Sousa, Kamila Maria Oliveira Sales e Sofia de Moraes Arnaldo

Author Contributions

Formal analysis: EFC, LQO, SCP, JMS, MAGG, VVS, JDRPA, YTL, GLML, RDMB, SML;
Conceptualization: EFC, LQO, PACV, SCP, JMS, MAGG, VVS, JDRPA, YTL, GLML, RDMB, SML;
Methodology: EFC, SCP, JMS, MAGG, VVS, JDRPA, YTL, GLML, RDMB, SML; **Writing – review and editing:** EFC, LQO, PACV, SCP, JMS, MAGG, VVS; **Writing – original draft:** EFC, LQO, PACV, SCP, JMS, MAGG, VVS, JDRPA, YTL, GLML, SML; **Supervision:** EFC, SCP, JMS, MAGG, VVS, JDRPA, YTL, GLML, RDMB, SML;
Validation: EFC, LQO, SCP, JMS, MAGG, VVS, JDRPA, YTL, GLML, RDMB, SML; **Visualization:** EFC, PACV, SCP, JMSM, MAGG, VVS, JDRPA, YTL, GLML, RDMB, SML.

Conflicts of Interest

There are no conflicts of interest.

Funding

Self-funded.

How to cite

Corpes EF, Oliveira LQ, Valdivia PAC, Pedrosa SC, Santana JM, Giesta MAG, Sousa VV, Andrade JDR, Lima YT, Luna GLM, Barakat RDM, Lira SM. Hypertensive Crisis in Urgent and Emergent Settings: Scientific Evidence. Cadernos ESP. 2832;20:e2832.

Received: July 10, 2026

Published: September 17, 2026
