Alzheimers Dement. 2022 Nov;18(11):2308-2326. doi: 10.1002/alz.12707. Epub 2022 Jun 27.

Hypertension and Alzheimer's disease pathology at autopsy: A systematic review

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Abstract

Hypertension is an important risk factor for Alzheimer's disease (AD) and all-cause dementia. The mechanisms underlying this association are unclear. Hypertension may be associated with AD neuropathological changes (ADNC), but reports are sparse and inconsistent. This systematic review included 15 autopsy studies (n = 5879) from observational cohorts. Studies were highly heterogeneous regarding populations, follow-up duration, hypertension operationalization, neuropathological methods, and statistical analyses. Hypertension seems associated with higher plaque and tangle burden, but results are inconsistent. Four studies (n = 3993/5879; 68%), reported clear associations between hypertension and ADNC. Another four suggested that antihypertensive medication may protect against ADNC. Larger studies with longer follow-up reported the strongest relationships. Our findings suggest a positive association between hypertension and ADNC, but effects may be modest, and possibly attenuate with higher hypertension age and antihypertensive medication use. Investigating interactions among plaques, tangles, cerebrovascular pathology, and dementia may be key in better understanding hypertension's role in dementia development.

Keywords: Alzheimer's disease; blood pressure; hypertension; neuritic plaques; neurofibrillary tangles; neuropathology; systematic review.

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Targeting inflammation in hypertension

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Abstract

Purpose of review: Hypertension remains a global health and socioeconomic burden. Immune mechanisms are now recognized as integral part of the multifactorial etiology of hypertension and related organ damage. The present review addresses inflammatory pathways and immune targets in hypertension, which may be important for an immunomodulatory treatment of hypertension aside from lowering arterial pressure.

Recent findings: Anti-inflammatory interventions targeting single interleukins or almost the entire immune system show different beneficial effects. While immunomodulation (targeting specific portion of immune system) shows beneficial outcomes in certain groups of hypertensives, this does not pertain to immunosuppression (targeting entire immune system). Immunomodulatory interventions improve outcomes of hypertension independent of arterial pressure. The studies reveal interleukins, such as interleukin (IL)-1β and IL-17 as targets of immunomodulation. Besides interleukins, targeting αvβ-3 integrin and matrix metalloproteinase-2 or using experimental cell-therapy demonstrate beneficial effects in hypertensive organ damage. The NLR family pyrin domain containing 3 (NLRP3) inflammasome/IL-1β/endothelial cell/T-cell axis seems to be an important mediator in sustained inflammation during hypertension.

Summary: Although immunomodulation may be advantageous as a causal therapy in hypertension, targeting immune networks rather than single interleukins appears of major importance. Further research is required to better identify these networks and their links to human hypertension.

J Hum Hypertens. 2023 Oct;37(10):863-879. doi: 10.1038/s41371-022-00776-9. Epub 2022 Nov 22.

Management of hypertensive crisis: British and Irish Hypertension Society Position document

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Affiliations expand

- PMID: 36418425. PMCID: PMC10539169

Abstract

Patients with hypertensive emergencies, malignant hypertension and acute severe hypertension are managed heterogeneously in clinical practice. Initiating anti-hypertensive therapy and setting BP goal in acute settings requires important considerations which differ slightly across various diagnoses and clinical contexts. This position paper by British and Irish Hypertension Society, aims to provide clinicians a framework for diagnosing, evaluating, and managing patients with hypertensive crisis, based on the critical appraisal of available evidence and expert opinion.

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Revisiting resistant hypertension: a comprehensive review

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Abstract

Resistant hypertension (RHT) is typically defined as blood pressure that remains above guideline-directed targets despite the use of three anti-hypertensives, usually including a diuretic, at optimal or maximally tolerated doses. It is generally estimated to affect 10-30% of those diagnosed with hypertension, though the true incidence might be lower after one factor in the prevalence of non-adherence. Risk factors for its development include diabetes, obesity and other adverse lifestyle factors, and a diagnosis of RHT confers a greater risk of adverse cardiovascular outcomes, such as stroke, heart failure and mortality. It is essential to exclude pseudoresistance and secondary hypertension and to ensure non-pharmacologic management is optimised prior to consideration of fourth-line anti-hypertensive agents or advanced interventions, such as device therapies. In this review, we will cover the different definitions of RHT, along with the importance of careful diagnosis and management strategies, and discuss newer agents and research needs.

Keywords: adherence; blood pressure; hypertension; pharmacotherapy; resistant hypertension.