EARLY CLINICAL AND DIAGNOSTIC CRITERIA FOR RENAL DYSFUNCTION IN ARTERIAL HYPERTENSION

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ABSTRACT

Arterial hypertension (AH) is a widespread and significant risk factor for cardiovascular and renal diseases. Chronic hypertension can lead to progressive renal dysfunction, which often goes undiagnosed until irreversible damage has occurred. The early detection of renal dysfunction in hypertensive patients is critical for preventing further deterioration of kidney function and improving patient outcomes. This study focuses on evaluating the clinical and diagnostic criteria for the early identification of renal dysfunction in patients with arterial hypertension.

Introduction

Arterial hypertension (AH) is a widespread and significant risk factor for cardiovascular and renal diseases. Chronic hypertension can lead to progressive renal dysfunction, which often goes undiagnosed until irreversible damage has occurred. The early detection of renal dysfunction in hypertensive patients is critical for preventing further deterioration of kidney function and improving patient outcomes. This study focuses on evaluating the clinical and diagnostic criteria for the early identification of renal dysfunction in patients with arterial hypertension.

Aim

The primary objective of this study is to define the clinical and diagnostic criteria for early renal dysfunction in patients with arterial hypertension, with an emphasis on non-invasive methods, biochemical markers, and their role in preventing kidney damage and improving management strategies in hypertensive individuals.

Materials and Methods

The study cohort consisted of 50 patients aged 45–70 years diagnosed with essential hypertension (confirmed by ambulatory blood pressure monitoring and medical history). The patients were screened for renal dysfunction through clinical evaluation, laboratory tests (serum creatinine, eGFR, urinary albumin-to-creatinine ratio), and non-invasive imaging

techniques (Doppler ultrasound and renal scintigraphy). The clinical diagnosis of renal dysfunction was based on the following criteria:

Serum creatinine levels: Elevated above the normal range (≥1.2 mg/dL).

eGFR: Decrease in estimated glomerular filtration rate (<60 mL/min/1.73 m^2).

Urinary markers: Persistent proteinuria or microalbuminuria.

Imaging: Evidence of renal structural changes on Doppler ultrasound or scintigraphy.

Blood pressure control was assessed before and after initiating pharmacological therapy with ACE inhibitors or angiotensin receptor blockers (ARBs), with particular attention to changes in renal function post-treatment.

Results

Of the 50 hypertensive patients studied, 18 (36%) were found to have evidence of early renal dysfunction. Among these, 10 (55.6%) had proteinuria and 12 (66.7%) had an eGFR < 60 mL/min/1.73 m^2. Patients with early renal dysfunction demonstrated significant associations with poorly controlled hypertension, elevated serum creatinine, and reduced eGFR. Notably, 8 (44%) of the patients showed a paradoxical rise in serum creatinine after ACE inhibitor therapy, indicating hemodynamically significant renal dysfunction.

Discussion

This study underscores the importance of early detection of renal dysfunction in patients with arterial hypertension. The results suggest that routine screening for renal markers, such as serum creatinine, eGFR, and urinary protein levels, can aid in identifying kidney damage in hypertensive individuals before it becomes irreversible. The role of non-invasive imaging, particularly Doppler ultrasound, remains crucial in detecting structural renal changes and assessing renal perfusion. Furthermore, the study highlights that ACE inhibitors or ARBs can provide functional assessment of renal dysfunction, as indicated by changes in serum creatinine post-treatment.

Additionally, the activation of the renin-angiotensin-aldosterone system (RAAS) in hypertension plays a pivotal role in the progression of renal damage. Early intervention through RAAS blockade may mitigate further damage and prevent the need for more invasive treatments.

Conclusion

Early identification of renal dysfunction in patients with arterial hypertension is essential for optimizing treatment and preventing kidney failure. Routine screening for renal dysfunction, utilizing clinical biomarkers and non-invasive imaging methods, should be incorporated into clinical practice.

Pharmacological interventions, especially RAAS blockers, should be employed early in the management of hypertensive patients to preserve renal function and reduce the risk of cardiovascular and renal complications

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