

# Prevalence of High Aldosterone-Renin Ratio in Patients With Hypertension in Basrah

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## Abstract

**Background and aim:** Aldosterone-renin ratio (ARR) is an important screening tool for the assessment of primary aldosteronism as a cause of secondary hypertension. This study aimed to measure the prevalence of patients with elevated ARR among samples of Iraqi patients with hypertension.

**Methods:** A retrospective study was conducted at Faiha Specialized Diabetes, Endocrine and Metabolism Center (FDEMC) in Basrah during the period of February 2020 to November 2021. We evaluated the records of patients with hypertension whom were screened for endocrine cause, and an ARR cut-off equal or more than 5.7 was considered elevated.

**Results:** Of the total 150 patients enrolled, 39 (26%) of them had an elevated ARR. No statistically significant association for the elevated ARR with age, gender, BMI, duration of hypertension, systolic and diastolic blood pressure, pulse rate, and presence or absence of diabetes mellitus or lipid profile.

**Conclusion:** High frequency of elevated ARR was seen in 26% of patients with hypertension. More studies need to be conducted in the future taking larger samples.

**Categories:** Endocrinology/Diabetes/Metabolism, Internal Medicine

**Keywords:** iraq, basrah, aldosteronism, hypertension, aldosterone-renin ratio

## Introduction

Primary aldosteronism (PA) is defined as non-suppressible aldosterone secretion causing hypertension, which was regarded as the most common cause of secondary (endocrine) hypertension [1-4]. The classic type of PA showed hypokalemia associated with hypertension, but this form is seldom seen recently [5,6]. PA was first described by Conn in 1956 [7]. The importance of PA lies behind many points like it may be a reversible cause of hypertension and complications of hypertension and that increased aldosterone production prone the person to cardiovascular and renal morbidity and mortality in addition to increased risk of metabolic syndrome and diabetes which can be prevented earlier if PA diagnosed earlier [8-11]. Accordingly, many authorities developed screening criteria for PA. The most common one is the Endocrine Society guidelines in 2016 that stated eight groups of hypertensive patients should be screened for PA by measuring plasma aldosterone-renin ratio (ARR) [6].

Prevalence of elevated ARR varies from region to region, ranging from 1% to 30% in different pieces of literature and this depends on the population being studied, degree of blood pressure elevation, prospective or retrospective data, and type of test used [12-14]. In the Framingham offspring study, 12% of participants with untreated hypertension had elevated ARR [15], while in two german epidemiological studies, up to 7% of hypertensive participants had elevated ARR [16]. Torino's study in Italy used screening ARR and further confirmatory tests and found a prevalence of PA ranging from 3.9% in those with stage I hypertension to 11.8% in those with stage III hypertension [17]. In Middle East, ARR was poorly studied; we found a single study from Turkey-Trabzon where ARR was elevated at 17.4% in a random hypertensive cohort [18]. The present study aimed to determine the frequency of elevated ARR among a sample of Iraqi patients with hypertension in Basrah.

## Materials And Methods

### Study design

A retrospective study was conducted at Faiha Specialized Diabetes, Endocrine and Metabolism Center (FDEMC) in Basrah. We collected data registered from the period of February 2020 to November 2021.

### Data collection

The collected data include recorded ARR of patients with hypertension, and a cut-off equal to or more than

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