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Research Article

**ANALYSIS OF FREQUENCY OF PRIMARY
HYPERALDOSTERONISM IN HYPERTENSIVE PATIENTS**Muhammad Aftab Saleem¹, Najam ul Hassan¹, Asia Zafar¹¹Health Department Punjab.

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Abstract:

Introduction: Primary hyperaldosteronism (Conn's syndrome) has come to be viewed as the most frequent cause of secondary hypertension; according to recent studies it is found in 5% to 12% of patients with high blood pressure.

Aims and objectives: The basic aim of the study is to analyse the frequency of primary hyperaldosteronism in hypertensive patients.

Material and methods: This cross sectional study was conducted in Health care department, Punjab during March 2018 to September 2018. This study was done with the permission of ethical committee of hospital. The data was collected from 100 hypertensive patients. The diagnosis of hypertension was confirmed by ambulatory 24-hour blood pressure measurement or by three high blood pressure records (>140/90). The patients' medical history was recorded, including heredity, current medication, and diseases. A physical examination of the patient was performed by the attending physician.

Results: The data were collected from 100 patients. There were no significant differences in medical history, blood pressure, or measured biochemical variables between patients with a positive or negative fludrocortisone suppression test. Three patients were diagnosed with aldosterone producing adenoma (APA) and eight patients with bilateral adrenal hyperplasia (BAH). Compared with patients with essential hypertension, patients with primary aldosteronism had lower potassium ($p = 0.003$), higher SAC ($p < 0.005$), and lower PRC ($p < 0.001$) on both screening occasions.

Conclusion: It is concluded that the ARR could be used as a screening tool for PA in newly diagnosed patients with hypertension, although the possibility to diagnose patients can be expected to be higher in selected patient groups.

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INTRODUCTION:

Primary hyperaldosteronism (Conn's syndrome) has come to be viewed as the most frequent cause of secondary hypertension; according to recent studies it is found in 5% to 12% of patients with high blood pressure. Over a third of Europeans suffer from arterial hypertension, so around 1.5% to 3.5% of the European population are affected. At a conservative estimate, this corresponds to approximately 1.2 million people in Germany [1].

Aldosterone is thought to play a crucial part in the pathogenesis of cardiovascular diseases. Patients with primary hyperaldosteronism have higher cardiovascular and cerebrovascular morbidity than those with essential hypertension and comparable blood pressure [2]. The principal reason for the increasingly frequent diagnosis of this disease, once viewed as rare, is that normokalemic Conn's syndrome is now recognized as an independent disease entity. It is much more common than the "classic" pattern of primary hyperaldosteronism with hypertension, hypokalemia, and alkalosis [3]. Around two thirds of the patients demonstrate bilateral adrenal hyperplasia requiring lifelong treatment with a mineralocorticoid antagonist. One third of cases involve an aldosterone-producing adenoma that necessitates adrenalectomy [4].

Hypertension affects up to 25% of the adult population in Sweden. Primary aldosteronism (PA) is a common form of secondary hypertension, characterized by excessive aldosterone secretion and renin suppression, followed by hypertension, alkalosis and hypokalemia. The latter is, however, not necessarily an integral element [5]. Resistant hypertension requiring more than three antihypertensive drugs, hypertension diagnosed at a young age, or family history of stroke at a young age are factors that suggest the possibility of PA. PA arises from one or both adrenal glands [6]. The two major subtypes are aldosterone producing adenoma and bilateral adrenal hyperplasia. APA is preferably treated by surgery while BHA is treated

with aldosterone antagonists. The diagnosis thus enables tailored medical therapy or surgical intervention with possible cure [7].

Aims and objectives:

The basic aim of the study is to analyse the frequency of primary hyperaldosteronism in hypertensive patients.

MATERIAL AND METHODS:

This cross sectional study was conducted in Health care department, Punjab during March 2018 to September 2018. This study was done with the permission of ethical committee of hospital. The data was collected from 100 hypertensive patients. The diagnosis of hypertension was confirmed by ambulatory 24-hour blood pressure measurement or by three high blood pressure records ($>140/90$). The patients' medical history was recorded, including heredity, current medication, and diseases. A physical examination of the patient was performed by the attending physician. Blood samples were centrifuged at room temperature. Plasma and serum were frozen at -20°C , with the exception of samples for sodium, potassium, and creatinine, which were analysed the same day on a routine auto-analyzer.

Statistical analysis:

The data were collected and analysed using SPSS version 21.0

RESULTS:

The data were collected from 100 patients. There were no significant differences in medical history, blood pressure, or measured biochemical variables between patients with a positive or negative fludrocortisone suppression test. Three patients were diagnosed with aldosterone producing adenoma (APA) and eight patients with bilateral adrenal hyperplasia (BAH). Compared with patients with essential hypertension, patients with primary aldosteronism had lower potassium ($p = 0.003$), higher SAC ($p < 0.005$), and lower PRC ($p < 0.001$) on both screening occasions.

Table 01: Biochemical variables and analysis of patients

Variables	Positive fludrocortisone suppression test	Negative fludrocortisone suppression test	p-value
Heredity (n)	4 (36%)	7 (44%)	0.67
Systolic BP (mmHg)	165 (28)	160 (20)	0.44
Diastolic BP (mmHg)	100 (8)	92 (12)	0.47
S-K ⁺ (mmol/L)	3.7 (0.5)	3.8 (0.2)	0.32
Creatinine (umol/L)	70 (14)	76 (10)	0.13
Age (years)	46 (22)	58 (7)	0.22
Gender (m/f)	6/5	7/9	0.58

DISCUSSION:

The present high frequency of PA is in accordance with the reported 5–10% prevalence of PA in studies from specialized centres and our earlier study. However, in our previous study the frequency was somewhat higher, i.e. 8.5%, probably because these patients were well-known hypertensives who had been on treatment for several years, which might have biased the result [8]. Nevertheless, PA is one of the most frequent causes of secondary hypertension. Since it is a potentially curable disease and associated with a high rate of cardiovascular complications, it is important not to miss the diagnosis of PA [9]. Removal of an aldosterone producing adenoma (APA) or unilateral autonomous hyperplasia (IHA) corrects hyperaldosteronism and cures or significantly decreases hypertension and cardiovascular alterations. Therefore, early diagnostic efforts are warranted [7].

The prevalence of PH may be as high as 20% in patients with resistant hypertension, and in about half of these patients it may be potentially curable, there being a unilateral aldosterone producing adrenal adenoma [10]. A local study in Hong Kong confirmed that surgical excision of an adrenal adenoma can cure hypokalaemia in all cases and can cure persistent hypertension in 77% of patients. The procedure was also proven to be cost-effective in the long run [11].

CONCLUSION:

It is concluded that the ARR could be used as a screening tool for PA in newly diagnosed patients with hypertension, although the possibility to diagnose patients can be expected to be higher in selected patient groups.

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