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Research Article

Clinical Characteristics of Patients with Arterial Hypertension with Various Tumors of the Adrenal Glands

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Abstract

Purpose of the study: to study the clinical characteristics of patients with arterial hypertension with various tumors of the adrenal glands.

Material and research methods: The material for the study was the analysis of 89 cases of hypertension of adrenal origin according to retrospective data for 2 years (from 2021 to 2024) in the clinic of the Russian Scientific and Medical Center of Endocrinology of the Ministry of Health of the Republic of Uzbekistan in various departments: neuroendocrinology, endocrine surgery. The following groups of patients were formed:1 gr. – patients with corticosteroma (13 patients), 2 g. – patients with aldosteroma (8 patients), 3 g. – patients with pheochromocytoma (21 patients), 4 gr. – adrenal incidentaloma (17 patients), 5 gr. – patients with adrenal hyperplasia (comparison group - 30 patients).

Research Results: According to the analysis of the study material, the most common localization of the adrenal mass was left-sided (44 (49.4%), on the right - 30 cases (33.7%), bilateral lesions - 15 cases (16.8%). Moreover, in 10 (11.2%) cases there was nodular hyperplasia of the adrenal glands, and in 4 (4.5%) there was suspicion of cancer.

Conclusions: 1. The study obtained new data indicating that severe and malignant forms of arterial hypertension are associated, first of all, with congenital and acquired diseases and lesions of the kidneys, renal vessels, aorta and diabetes mellitus, etc., which can be identified with a comprehensive diagnosis in the vast majority of patients. 2. Most often, severe and malignant hypertension complicates the course of the disease in patients who have two or three reasons for increased blood pressure, most often nephrogenic and renovascular; endocrine, nephrogenic and vascular, etc.

Keywords: Adrenal tumors; Arterial hypertension; Complications

Relevance

The structure of arterial hypertension generally consists of cases of essential hypertension and symptomatic, the latter, according to WHO data, today is about 30% [1-3]. Endocrine hypertension of adrenal origin ranks second in frequency among symptomatic hypertension after renal hypertension and accounts for 6-10% [4-5]. Currently, the diagnosis and treatment of arterial hypertension of adrenal origin continues to be an urgent problem for both therapists and endocrinologist surgeons. This category of patients, along with hormonal disorders, has arterial hypertension, which is not amenable to drug correction, often with a severe clinical course and the development of complications. In the structure of all causes of increased blood pressure, secondary arterial hypertension accounts for up to 20%, of which 15-25% is due to arterial hypertension of adrenal origin [6-8].

To identify most forms of arterial hypertension of adrenal origin, a wide range of laboratory and instrumental studies is required. Improved diagnostic results for this pathology are associated with the introduction of modern imaging methods into clinical practice - ultrasound, CT and MRI [9]. Today, some issues remain unresolved or debatable - the diagnosis of various clinical and morphological forms of arterial hypertension of adrenal origin, the possibilities of instrumental diagnostic methods, as well as assessment of the effectiveness of surgical treatment in the immediate and long-term postoperative period [10]. All of the above was the reason for conducting this study.

Purpose of the Study

To study the clinical characteristics of patients with arterial hypertension with various tumors of the adrenal glands.

Material and Research Methods

The material for the study was the analysis of 89 cases of hypertension of adrenal origin according to retrospective data for 2 years (from 2021 to 2024) in the clinic of the Russian Scientific and Medical Center of Endocrinology of the Ministry of Health of the Republic of Uzbekistan in various departments: neuroendocrinology, endocrine surgery. The following groups of patients were formed:1 gr. – patients with corticosteroma (13 patients), 2 g. – patients with aldosteroma (8 patients), 3 g. – patients with pheochromocytoma (21 patients), 4 gr. – adrenal incidentaloma (17 patients), 5 gr. – patients with adrenal hyperplasia (comparison group - 30 patients).

Research Methods Included

1) general clinical (examination of endocrine and ocular status), 2) instrumental - ECG, CT/MRI of the sella turcica and adrenal glands, 4) Ultrasound of internal and genital organs, etc.), 5) hormonal blood tests (STH, IGF-1, LH, FSH, PRL, TSH, ACTH, prolactin, testosterone, estradiol, progesterone, cortisol (IKLA method) and others. In addition, the postoperative material was subjected to histological diagnosis at the Republican Specialized Medical Center of the Ministry of Health of Uzbekistan named after Academician Y. Kh. Turakulova (histology department, candidate of medical sciences Issaeva S.S.).

Research Results

Thus, out of 89 patients, 22 (24.7%) were patients aged 13 to 29 years. There were 26 patients (29.2%) aged 30 to 44 years. From 45 to 59 years old – 33 (37.0%), and over 60 – only 8 patients (8.9%). So, among the tumors of the adrenal glands (H) with hypertension, the most common was pheochromocytoma - 21 patients (23.6%), in 2nd place were patients with incidentaloma H - 17 cases (19.0%), in 3rd place in frequency were patients with corticosteroma -13 (14.6%) and in last place were patients with aldosteroma - 8 cases (8.9%). Patients with hyperplasia made up the control group, although their number was dominant - 30 patients (33.7%). According to the analysis of the study material, the most common localization of the adrenal mass was left-sided (44 (49.4%), on the right - 30 cases (33.7%), bilateral lesions - 15 cases (16.8%). Moreover, in 10 (11.2%) cases there was nodular hyperplasia of the adrenal glands, and in 4 (4.5%) there was suspicion of cancer.

Table 1 shows the location of the adrenal tumor surgery by group.

Table 1: Localization of surgery for mass formation of the adrenal gland.

Groups	1 g (n=13)			2 g (n=8)			3 g (n=21)			4 g (n=17)			5 g (n=30)		
Floor	D	S	2	D	S	2	D	S	2	D	S	2	D	S	2
13-15	-	-	-	-	-	-	-	1U!!	-	-	-	-	-	-	-
16 – 17	-	-	-	-	-	-	-	1U	-	-	-	-	-	-	-
18 – 29	-	4U	-	-	1LK	-	1U	1U	-	-	-	-	-	-	-
30-44	-	2U	-	1U	-	-	3U	-	-	1U	-	-	-	3EK	-
45-59	-	2U	-	1U	-	-	U !!	3U!	-	-	-	!!	1U	2EK	-
60-74	-	-	-	-	-	-	! 1U	-	-	-	-	-	-	-	-
75 and >	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total number	-	8	-	2	1	-	6	6	-	1	-	-	1	5	-
Total	thirty														

Note: D – right, S – left, 2 – on both sides, LC – condition after laser coagulation N, U – tumor removal, EC – condition after electro-coagulation N, ! -refusal from surgery!! – sent to the Oncology Center due to growth into the kidney and inferior vena cava or aorta, P – ligation of the central vein of the right N.

As can be seen from Table 1, a total of 30 operations (33.7%) were performed, of which tumor removal N in 24 cases (80% of the number of operations), laser coagulation N in 1 case (3.33%), electrocoagulation N - in 5 (16.6%). In addition, one patient refused surgery, two were referred to the Oncology Center due to suspected metastasis (Table 1).

Table 2 provides characteristics of neuroendocrine and metabolic complications by group (absolute number) As can be seen from Table 2, 67 (75.3%) of 89 patients had arterial hypertension (AH) of various origins, with hypertension of adrenal origin occurring in 30 cases out of 67 (44.7%), symptomatic hypertension - in 21 cases (31.3%), hypertension - in 13 (19.4%). Hypertension of renal origin - in 1 case (1.5%), hypertension of mixed origin - in 1 case (1.5%), and hypertension of hypothalamic origin - in 1 case (1.5%). Thus, hypertension of adrenal origin was the most common – 44.7%. The second most common complication of hypertension was the development of dyscirculatory encephalopathy (DE) - in 31 out of 67 patients with hypertension (46.3%). At the same time, DE was most common in patients of group 5 – in 17 out of 30 (56.7%).

Table 2: Characteristics of neuroendocrine and metabolic complications by groups (absolute number).

Violations	1 g (n=13)		2 g (n=8)		3 g (n=21)		4 g (n=17)		5 g (n=30)	
Floor	m	and	m	and	m	and	m	and	m	and
Acute MI	-	1	-	-	-	-	-	-	-	-
CH	-	-	-	-	1	-	-	-	-	-
PEAKS	-	-	-	-	-	-	-	-	3	1
AG NG syndrome	1	6	2	4	2	5	5		5	5
AG syndrome	-	-	-	-	-	-	-	-	1	-
AG PG syndrome	-	-	-	-	-	-	-	-	1	-
GB	-	1	-	-	2	2	2	1	5	-
Symptomatic hypertension	-	4	1	-	3	3	1	1	6	2
AG GG	-	-	-	-	-	-	-	-	1	-
BEFORE	1	2	-	-	-	-	-	-	-	1
OP	-	1	-	-	-	-	-	-	-	-
Primary infertility	-	1	-	-	-	-	-	-	-	-
DE	-	3	1	3	4	1	2	-	10	7
Obesity	-	-	-	-	-	1	3	-	-	1
NPNMK	-	-	-	-	-	-	1	-	1	1
Spontaneous hypothyroidism	-	2	-	-	-	-	-	-	-	-
Dyslipidemia	-	-	1	1	-	-	3	1	-	2
TIA	-	-	-	-	-	-	-	-	1	-
Osteopenia	-	1	-	-	-	-	1	-	-	1
Amenorrhea 2	-	1	-	-	-	-	-	-	-	-
Consequence of stroke	-	-	-	-	-	-	1	-	1	1
Consequence of stroke P	-	-	-	-	-	-	1	-	-	-
Stagnation of the MN disc	-	-	-	-	-	-	-	-	1	2
Atrophy of the optic nerve	-	-	-	-	-	-	-	-	1	-
Hemiparesis	-	-	-	-	1	-	1	-	1	-
Subaortic sclerosis	-	-	-	-	-	-	-	-	1	-
Hypertensive AS	-	1	1	1	1	-	-	-	2	-
NTG	-	-	1	-	-	-	-	-	-	-
chronic renal failure	-	-	-	-	-	-	-	-	1	-
Lactorrhea	-	-	-	-	-	1	-	-	-	-

Note: AG Syndrome NG - arterial hypertension (AH) of H genesis, AG Syndrome SG - AG of mixed origin, AG Syndrome PG - AG of renal origin, AG GG - AG of hypothalamic origin, HT - hypertension, HF - heart failure, DO - diffuse osteoporosis, OP - osteoporosis of the spine, DE - discirculatory encephalopathy, NPNMC - initial manifestations of cerebrovascular insufficiency, MI - myocardial infarction, PICS - post-infarction cardiosclerosis, TIA - transient ischemic attack, chronic renal failure, CORN - postoperative acute adrenal insufficiency, AS – retinal angiopathy, IGT – impaired glucose tolerance.

The next most common metabolic disorder was dyslipidemia, which was observed in 8 patients (8.9%) of the total number of patients, most often in patients of group 4 - 4 cases out of 8 (50%). In 4th place was a complication such as hypertensive angiopathy of the retinal vessels (6 patients out of 67 with hypertension).

In 1st place among concomitant diseases was coronary heart disease (CHD) - 18 observations out of 89 (20.2%). In 2nd place was chronic pyelonephritis - 16 cases (17.9%). In 3rd place is chronic hepatitis - 11 observations (12.4%). In 4th place is chronic cholecystitis - 8 patients (8.9%). In addition, there were such pathologies as polycystic kidney disease - 3 (3.4%) cases, a consequence of stroke - 3 (3.4%) cases, polycystic liver disease - 2 (2.2%), etc. It should be emphasized that these congenital and acquired diseases of the kidneys, heart and blood vessels significantly aggravate the course of hypertension.

Thus, In total, over the period 2023-2024, 89 patients with hypertension and adrenal diseases were hospitalized at the Republican Scientific and Practical Medical Center of the Ministry of Health of the Republic of Uzbekistan. Of these, 30 patients received surgical treatment, and the remaining 59 received conservative treatment (antihypertensive drugs, etc.). It should be noted that in the immediate and long-term periods there was no relapse of the disease in patients subjected to surgical radiation. Thus, many complex issues of diagnosing adrenal tumors, and consequently, treatment tactics and management of such patients remain far from a final solution and require improvement.

Conclusion

1. The study obtained new data indicating that severe and malignant forms of arterial hypertension are associated, first of all, with congenital and acquired diseases and lesions of the kidneys, renal vessels, aorta and diabetes mellitus, etc., which can be identified with a comprehensive diagnosis in the vast majority of patients.

2. Most often, severe and malignant hypertension complicates the course of the disease in patients who have two or three reasons for increased blood pressure, most often nephrogenic and renovascular: endocrine, nephrogenic and vascular, etc.

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Conflict of interest

No conflict of interest.

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