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Etiological Diagnosis of a Case of Hypertension

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ABSTRACT. *The purpose of this study is to better understand the differential diagnosis of essential hypertension and symptomatic hypertension,as well as the etiology classification and treatment methods of various symptomatic hypertension through the treatment and etiological diagnosis of a patient whose main manifestation is hypertension,so as to improve the treatment effect and prognosis;*

KEYWORDS: *Essential hypertension, Symptomatic hypertension, Etiological diagnosis*

1. Introduction

Hypertension is one of the most common cardiovascular diseases in clinic, while itse lf and its complications seriously threaten human health and life safety. The rise of blood pressure is also an important risk factor of common diseases such as stroke, coronary heart disease and so on. With the bad diet and living habits, the prevalence of hypertension in the world is increasing year by year. According to statistics, there is one hypertension patient in every five adults, majority of whom are patients with essential hypertension. After diet management, healthy exercise and reasonable application of antihypertensive drugs, most patients' blood pressure can be controlled in a stable state. In addition to essential hypertension, symptomatic hypertension is often overlooked by clinicians and patients due to its low proportion of causes and atypical symptoms, resulting in inaccurate diagnosis and untimely treatment. In this paper, a case of symptomatic hypertension misdiagnosed as essential hypertension is listed as follows.

2. Medical Records.

The female patient,53 years old, was admitted to the emergency room of our hospital from 120 for half an hour due to sudden dizziness, palpitation, nausea and vomiting, without other concomitant symptoms such as syncope, chest pain and back pain, dyspnea, hematemesis and black stool, abdominal pain, diarrhea and fever. She had a history of hypertension and denied the history of coronary heart disease, diabetes and cerebrovascular accident. Before the onset of the disease, the

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patient quarreled with her neighbors leading to emotional excitement. Physical examination: blood pressure value 175/100mmhg, clear mind, flush face, slightly faster breathing, heart rate value 96bpm, regular rhythm, no pathological murmur in each heart valve area, thick breath sound in both lungs, no obvious dry and wet rale, flat and soft abdomen without tenderness and rebound pain, normal bowel sounds, the muscle tension and strength of both limbs were normal and the pathological reflex was not elicited. The patient's blood pressure increased so much that we had to firstly watch out for potential cerebrovascular accidents such as cerebral hemorrhage, subarachnoid hemorrhage and cerebral infarction. Through CT examination, we found that the above diseases could be excluded. Meanwhile, the ECG examinationto indicated" sinus rhythm, ST-T change", venous blood test indicated that the white blood cells slightly increased, implying bacterial infection, and electrolyte potassium index was 3.4mmol/l which was slightly lower than the standard value, the rest indexes of the liver and kidney function, blood amylase, blood glucose, myocardial enzyme spectrum, troponin etc. were all normal. After oxygen inhalation and intravenous drip of nitroglycerin, the patient's symptoms were relieved. By continuing to collect medical history, we learned that her blood pressure had increased for 4 years, showing the systolic blood pressure fluctuating between 130-150mmhg and diastolic blood pressure fluctuating between 80-95mmhg.The diagnosis of hypertension was considered in another hospital by paramedics [1],but the treatment was not regular. The patient has family history of hypertension (her grandfather, father and mother), and she did't pay attention to the low-salt diet and drank alcohol frequently. She doesn't like sports either, the biggest hobby of whom is playing cards with friends for hours. Amlodipine besylate tablets were taken 2 years ago while Indapamide tablets were added due to poor blood pressure control after one year. Based on the analysis of the above medical history characteristics, I thought there were three irrationalities in the diagnosis and treatment of this female patient. First, when the patient found that her blood pressure increased, it could't be directly identified as essential hypertension without improving the relevant auxiliary examination. Second, since her long-term blood pressure control was not ideal, it was more important to think about whether there was a deviation in the diagnosis other than took the continuous change and optimization of the treatment plan. Third, the auxiliary examination of the patient suggested that the blood potassium was low. Although it might be caused by nausea and vomiting leading to electrolyte disorder or long-term use of Indapamide tablets, which belonged to a diuretic for reducing blood potassium, it also provided a very important clue: high blood pressure combined with hypokalemia, so we doctors should think of a unique disease: primary aldosteronism. Consequently I improved the detection of plasma aldosterone and renin [2],adrenal ultrasound and adrenal CT, which finally identified the cause of the disease, then the endocrinologists and surgeons consulted and discussed whether surgery was needed. After the resection of unilateral hyperplastic adrenalectomy, the blood pressure of this patient was normal without taking any antihypertensive drugs. So we continued to charge her to strengthen the low-salt and low-fat diet control, actively participate in physical exercise, maintain an optimistic and relaxed attitude, avoid fatigue and emotional excitement, control weight, measure blood pressure regularly at home and visit the hospital regularly. We

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believed that after education, this female patient's blood pressure will be controlled at a stable level through the change of her own eating habits and living habits.

3. Discussion.

1) Hypertension is a clinical syndrome characterized by the increase of blood pressure (including systolic blood pressure and diastolic blood pressure) of systemic circulation artery [3],which can be accompanied by the functional or organic damage of heart, brain, kidney and other organs. We need to monitor the mean value of blood pressure measured three or more times in different days in the state of people without antihypertensive drugs as the basis. If systolic blood pressure $\geqslant$ 140mmHg or diastolic blood pressure$\geqslant$90mmHg, the diagnosis can be clear. As the incidence rate of hypertension is increasing and the age of onset is gradually younger, hypertension has been receiving more and more attention. However, its pathogenesis is still not fully understood. At present, it is considered to be related to genetic factors, mental factors, imbalance of RAA system, excessive sodium and water, obesity, insulin resistance and other factors, and the important pathological change is arterioles. The most common clinical type is essential hypertension, accounting for more than 90% of high blood pressure population, while the other is symptomatic hypertension, accounting for about 5% of all patients, among whom hypertension is only one of the clinical manifestations of this kind of disease. The common causes of symptomatic hypertension are renal artery stenosis, pheochromocytoma, primary aldosteronism, hypercortisolism etc. The clinical manifestations of them are diverse and the treatment plans are also quite different from the essential hypertension. Through the treatment of primary diseases, symptomatic hypertension can often be cured.

2) Primary aldosteronism, also known as Conn syndrome, is a clinical syndrome characterized by high blood pressure with or without hypokalemia, hyperaldosteronemia and hyporeninemia, which is caused by the excessive secretion of aldosterone in the glomerular zone of the adrenal cortex.The peak age of onset of the disease is 30-50 years old and women are more common than men [4].Typical symptoms are a series of clinical manifestations caused by high blood pressure and low blood potassium. For example, high blood pressure can cause dizziness and headache, blurred vision, low blood potassium can cause muscle weakness and periodic quadriplegia, meanwhile the ECG can show the figure of low blood potassium. The diagnosis and classification can be confirmed by laboratory examination and imaging examination, which can be further determined whether it needs endocrine medicine treatment or urology surgery treatment. The drug treatment includes spironolactone, eplerenone, glucocorticoid etc and the laparoscopic unilateral adrenalectomy is the first choice for the surgical treatment. After the operation, the patient's cure rate is high and the blood pressure often returns to normal and stable control. If the blood pressure still increases, it should be considered relating to the combination of essential hypertension, atherosclerosis or renal target organ damage.

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3) In clinical treatment, when our doctors find out that a patient's blood pressure increases, we can’t make a diagnosis of essential hypertension immediately, although its incidence is much higher than symptomatic hypertension. Medical diagnosis is a rigorous and realistic process, as wrong diagnosis often affects the follow-up treatments and even causes serious irreversible consequences. We can make a differential diagnosis and finally determine the cause of the disease by asking the history in detail, making a careful physical examination and taking targeted auxiliary examination. If the female patient in this paper don’t complete the detection of plasma aldosterone and renin, adrenal ultrasound and adrenal CT, it is impossible to determine the real cause of high blood pressure, which leads to a wrong diagnosis of essential hypertension and the wrong treatments for a long time. After abundant clinical practices, the author has found that the regularity and degree of blood pressure rise often bring clues to our inference. For example, we need to consider the possibility of pheochromocytoma when meeting the person with obvious fluctuation and sudden increase of blood pressure accompanied by tachycardia, palpitation, cold sweat and other symptoms, we should also consider the possibility of primary aldosteronism in the patient whose blood pressure rises gently but stubbornly with or without hypokalemia. Furthermore, when someone's blood pressure suddenly rises, especially in the case of moderate or severe diastolic pressure rise,we can't forget the possibility of renal artery stenosis, and so on. Only by accumulating experience conscientiously, having solid theoretical knowledge and open logical thinking, can clinicians make the most accurate diagnosis and provide the most reasonable treatment plan, so that patients can recover health as soon as possible.

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