

Case Report

Psychological Aspects in Apparent Resistant Hypertension: an Emblematic Case

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Abstract

Psychological ill being is often undervalued for the development and retention of hypertension. Frequently patients with insufficient response to multidrug therapy are defined as "true resistant hypertensive patients" without having sufficiently investigated their psychosocial well being which can lead to unnecessary invasive treatments.

In 2011 and 2014 Mrs. C. G. came to our hypertension centre in Turin for renal denervation. Before every hospitalization she was diagnosed at it's home in Sardinia with apparent resistant hypertension and in fact at admission showed elevated office blood pressure values (275/180 mmHg). During the hospitalization in our department instead the blood pressure sufficiently decreased by an oral therapy alone. In 2011 the patient was subjected to a psychological evaluation which showed a high degree of stress and aspects typical for depression correlated with the patient's family situation in Sardinia. In both 2011 and 2014 the patient was discharged from hospital without having been subjected to renal denervation.

In our clinical experience the patient's psychological stress very likely has been crucial for the retention of severe Hypertension and his response to pharmacological therapy. So it is essential to investigate the patient's psychological well being before labeling a patient as "true resistant hypertensive".

ABBREVIATIONS

HNT: Hypertension; BP: Blood Pressure; HR: Heart Rate; ABPM: Arterial Blood Pressure Monitoring; CT: Computed Tomography; TIA: Transient Ischemic Attack

INTRODUCTION

Hypertension (HTN) is one of the major risk factors for the onset of cardiovascular diseases. Despite the development of numerous drugs' classes specifically acting against different pathophysiological mechanisms that sustained the development and the maintenance of HTN, many patients still lack blood pressure (BP) control. A change of life style is a first step in HTN therapy that would be for example a reduction of excess body weight, dietary sodium and alcohol intake, an increase of physical activity and smoking cessation. In the same way psychosocial factors play an important role as demonstrated by some clinical and epidemiological investigations [1-3]. Anger, hostility, anxiety, depression, psychosocial stress and suppressed feelings are frequently associated with the development of HTN [4-6]. So

the psychological ill being would be another risk factor for the onset of HTN and for the poor BP control.

On the other hand some studies have showed that psychological ill being and in particular depression is correlated with poor adherence to antihypertensive treatment [7,8]. Often patients with insufficient response to multidrug therapy are prematurely defined as "true resistant hypertensive patients", before having sufficiently investigated their psychosocial well being and their compliance to medical therapy, two aspects partly related. We observed a case where the psychological stress has been crucial for the retention of severe HTN apparently non-responsive to pharmacological treatment.

CASE PRESENTATION

In November 2011 50 year old Mrs. C. G. came to our hypertension centre in Turin, from Sardinia. Having suffered from arterial HTN since 2001 with rare blood pressure controls since 2004, when she was sent by her doctor for renal denervation.

Upon admission the patient showed already cardiac organ damage as well as kidney and ocular based damage. Her medical history consists of multiple episodes of syncope and angina in conjunction with severe HTN increases and a number of hospital admissions due to hypertensive crises with headache.

The presence of secondary forms of hypertension was excluded. Patient therapy consisted of diuretic, beta-blocker, dihydropyridine calcium channel blocker, ACE inhibitor, alpha-blocker, and clonidine, all at full doses.

The 24-hour BP monitoring couldn't be carried out due to the patients intolerance to the pain caused by the cuff and the appearance of petechiae and edema in the upper arm.

At admission the patient had elevated office BP values (275/180 mmHg, FC 110 bpm). As part of the procedure for renal denervation, the patient was first subjected to a psychological evaluation.

The result of a Rorschach test showed the woman to be in a state of chronic overstimulation as well as having a reduced ability to handle stress. It was also evident that the patient was experiencing a high degree of stress with psychological consequences both on the way of thinking as well as on the emotions.

Finally, the test suggested that the current stress would be connected to a recent development of feelings of guilt and remorse. Additionally aspects typical for depression were highlighted, resulting in low quality of life and low perception of her health state.

The initial treatment consisted of labetalol intravenously. The patient responded immediately and so well that even with a gradual reduction of the dosage, the BP values stayed low. Therefore an oral therapy including diuretic, angiotensin II receptor blocker, dihydropyridine calcium antagonist and beta-blockers was started. In view of achieving the target BP (BP office 127/78 mmHg, HR 56 bpm) values confirmed by 24 ABPM by oral therapy alone, the renal sympathetic denervation was rejected and the patient was discharged and returned in Sardinia.

Over the following years the patient stayed at his home in Sardinia and continued to have very high BP values, rarely controlled by the therapy set at our Centre.

Finally, in January 2014, she was admitted to the General Medicine Hospital of Nuoro, Sardinia, for syncopal episode and mental confusion. The patient was discharged with an indication for a re-evaluation of renal sympathetic denervation at our specialist center.

Therefore, in March 2014 the patient again was admitted at our centre; initial BP measurements were 260/190 mmHg in the supine position. A new infusion therapy with labetalol low doses (0,3 mg/Kg/hour) led to relative hypotension on the first day (office BP 130/90 mmHg) with the onset of expressive aphasia and right arm hyposthenia. A neurological examination and a brain CT found a probable TIA/minor stroke based on hemodynamics. The intravenous labetalol therapy was immediately cancelled and substituted by an oral therapy with angiotensin II receptor

blocker, dihydropyridine calcium channel blocker, loop diuretic, potassium-sparing diuretic and beta-blocker like on the first admission. In the subsequent days the neurological symptoms diminished and proper office BP values (PAO 150-100 mmHg) as well as proper 24-hour BP monitoring values (158/95 mmHg) were obtained. Again the renal sympathetic denervation was rejected and the patient was discharged in good general condition, without any focal neurological deficit and with complete recovery of vigilance, ability of speech and cognitive-analytical skills.

DISCUSSION

The correlation between the psychological ill being and the risk of cardiovascular disease has been demonstrated clearly by different clinical studies [9,10]; instead findings about hypertension and the psychological ill being are mixed [11,12]. In a recent prospective study the correlation of two measures of the psychological well being with the risk of development hypertension [13] has been analyzed. The results showed that on one hand high emotional vitality was correlated with a lower risk of hypertension; on the other hand optimism wasn't significantly correlated with hypertension. The linkage between elevated anxiety, elevated anger intensity, and suppressed expression of anger with the risk of hypertension was examined in another previous study [14]. Results showed that only middle-aged men's anxiety intensity is related to the onset of hypertension.

In a recent review have been analyzed the most significant studies of the past five years about the connection between depression, stress, posttraumatic stress disorder, anxiety and increased cardiovascular risk [15]. As the main factor of cardiovascular risk is the presence of high BP values, it is possible that the intermediate connecting step between stress and increased cardiovascular risk is the lack of blood pressure control. More studies are needed that link stress and hypertension, but for now we believe that a close connection and interdependence is very likely. In fact, other studies have observed changes in the cardiovascular system that occurs in patients with post-traumatic stress disorder. Though the post-traumatic stress disorder is more serious and complex than simple chronic stress, both share the same pathophysiological mechanisms. Among them are the increase in cardiovascular reactivity which results in increased blood pressure, endothelial dysfunction, sympathetic hyperactivity and alterations in the hypothalamic-pituitary-adrenal axis with increased cortisol and growth Hormone secretion [16].

In this case study having observed the difference between the patient's home BP values and the values registered during the hospitalization in our centre, and also in regard of the Rorschach's test results, we interrogated the patient and her family. We discovered the presence of an important stress in the patient's family during several years. The long persistence of this stressor is revealed by the effects of post labetalol hypotension that caused a cerebral hypoperfusion probably related to a persistent, long term blood pressure elevation with a shift to the right of the cerebral blood flow autoregulation that may not be explained only by a total drug non adherence.

Moving away the patient from her family and the social

stressor, her BP values returned to be controllable with adequate oral antihypertensive drugs, as demonstrated not only by the office BP values but also by the 24-hours BP monitoring.

Therefore our clinical experience was that the patient's social and family situation and the stress derived from them are tightly correlated with her BP values and her compliance with the drug therapy.

In a study [17] was demonstrated a correlation between depression and poor adherence to the therapy of hypertensive patients. So also depression has to be considered as a risk factor for BP control results.

It was also observed that both depression [18] as well as poor therapeutic adherence [19] double the risk of stroke; Omission of anti-hypertensive drugs, due to depressive illness, cause poor blood pressure control and consequently an increased risk of cardiovascular events.

Certainly a single case cannot be sufficient to establish a definite correlation between psychological distress and high blood pressure, but it can help us to reflect about similar cases although less evident. In fact at our Hypertension Center every day patients arrive who are wrongly labeled as resistant hypertensive, which when interrogated more accurately, in some cases reveal a history of psychological ill being mostly related to work stress or family problems. Never like today where there is new invasive treatment of resistant hypertension, a correct diagnosis of this clinical picture is essential.

Therefore it's essential to investigate not only the patient's life style, but also his psychological well being, stress level, social and family situation and a possible suffering of anxiety and depression before labeling a patient as "resistant hypertensive" and including in an invasive treatment protocol. Indeed all these psychological aspects may contribute to the poor response to medical treatment and the retention of high BP values. These conditions are also not unchangeable as the life style can be changed too. In the presence of bad psychological conditions the treatment of hypertension should include a possible improvement of those aspects.

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