Original Article

Exploring the Lived Experience of Early Hypertension: Insights from Traditional Medicine Perspectives

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ABSTRACT

OBJECTIVE: To elicit symptoms, risk factors, and habits existing before or right after blood pressure elevation in newly diagnosed patients with hypertension from the traditional Persian medicine perspective.

METHODOLOGY: This was a concurrent nested mixed-method study conducted in 2018. We included newly diagnosed cases of hypertension (BP≥140/90 mmHg in two consecutive screenings) in the study. In contrast, those who had a history of hypertension or used anti-hypertension medication were excluded. The participants were surveyed and interviewed to identify their temperament and extract their recent experiences with hypertension. The sampling followed the criterion-based purposive technique, and the sample size was defined based on qualitative data saturation. The recorded interviews were transcribed and coded according to Persian medicine until no new code emerged.

RESULTS: Twenty participants were interviewed, and two themes were extracted: (i) primary or predisposing factors, such as warm temperament, change of residence, improper eating habits, abrupt cessation of exercise, psychological factors, and irregular sleep patterns, and (ii) early symptoms that occur at the first sign of rising blood pressure, including digestive complaints and changes in body excretion, psychological manifestations, and unclassifiable general symptoms.

CONCLUSION: Physicians are advised to pay attention to these items when taking a history from patients to prevent hypertension and treat it at its early stages.

KEYWORDS: Traditional medicine; Persian medicine; Blood pressure; Temperament, Hypertension

INTRODUCTION

Hypertension (HTN), known as the silent killer, is prevalent in 1.13 billion people worldwide[1]. If undiagnosed, the disease can gradually worsen over the years[2,3]. Hence, early detection and elimination of risk factors are crucial; harnessing the potential of traditional medicine, which is now underutilized by both healthcare professionals and the medical community, may be one of the best tactics to control the rapid growth of HTN.

Although HTN is not mentioned in Persian Medicine (PM) textbooks, because the increased intravascular volume is one of the best-known causes of HTN, it can be assumed that this disease is almost synonymous with "Imtila", which is explained in PM as the filling of the body's ducts and spaces with proper or improper humor. Imtila occurs when there is an imbalance between excreta and food and drink intake. Therefore, imtila may be identical to HTN[3,4]. Hence, by extracting imtila symptoms, physicians may identify susceptible individuals even before they encounter high blood pressure (BP).

In this regard, this study aims to elicit the lived experience of patients with early HTN to find symptoms or habits they had immediately before or after they raised their blood pressure. The results may lead to theories about the causative factors and symptoms of HTN that conventional medicine neglects.

METHODOLOGY

This nested mixed-method study was with the main qualitative phase and a small quantitative component. The qualitative part was conducted through interviews, and the quantitative part was conducted through a questionnaire. The study was performed from October to December 2018 within the Iranian Employee Health Cohort Study (EHCSIR) at Iran University of Medical Sciences.

Participants from the Ministry of Health and Medical Education (MoHME) were chosen for the study based on the inclusion criterion. Hence, the inclusion

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doi: 10.22442/jlumhs.2024.01043
Received: 24-05-2023 Revised: 22-12-2023
Accepted: 12-01-2024

criterion was having recent hypertension (BP≥140/90 mmHg in two consecutive screenings). The exclusion criteria were pre-existing hypertension and the use of antihypertensive medication. Eligible participants were contacted for an interview, and the study's purpose, voluntary nature, and privacy considerations were explained during an initial telephone call.

Data collection included quantitative and qualitative sections for any invited participant. The sessions were conducted by two researchers, RG and AA, with expertise in PM and qualitative research methods. The data collection process began with the quantitative section, which asked questions about the participants' demographic characteristics, followed by a survey on temperament or mizaj. The validity and reliability of the standardized temperament questionnaire were confirmed with a kappa coefficient of 0.4 to 0.82 and Cronbach's coefficient of 0.71 in 2014[5]. The resulting score was then categorized into a two-dimensional temperament spectrum (Warm/Cold and Wet/Dry).

In the qualitative part, the participants were asked to describe a typical day, including any symptoms and everyday habits. Additionally, interviewees were asked to express any particular feelings they experienced during the day or night, their mental-emotional experience, and the quality and theme of their dreams, even if they considered them insignificant. Semi-closed questions were utilized to determine if patients experienced symptoms of imtila[3] nearly one month before or right after their BP rose. At the end of each interview, the conversations were summarized to ensure accuracy. Interviews were transcribed in full and continued until data saturation was achieved.

We used a criterion-based purposive sampling technique based on our inclusion and exclusion criteria. The study's sample size was defined based on qualitative data saturation[6] because the central part of data and analysis followed qualitative methods principles. After conducting and analyzing 18 interviews, no new theme or category emerged. Nevertheless, two more interviews were conducted to gain confidence.

The questionnaire-based data were used to identify patients' temperaments based on the answers' scores. Participants with a score of 50 or greater were classified as warm, and those with 49 or less were cold-tempered. The quantitative data were analyzed by summing up the revealed scores. Subsequently, each sum was categorized as either cold or warm temperament. No specific software was used for this stage. The initial coding for the qualitative data involved open coding based on summarizing patient statements. The resulting codes were categorized based on their similarities and the chronological phases of their appearance. The factors and symptoms reported were based on Persian medicine's mechanism for HTN or imtila. The qualitative analysis followed the three phases of grounded theory's open, axial, and selective coding[7]. MAXQDA software was used to facilitate the coding and make the categories and themes.

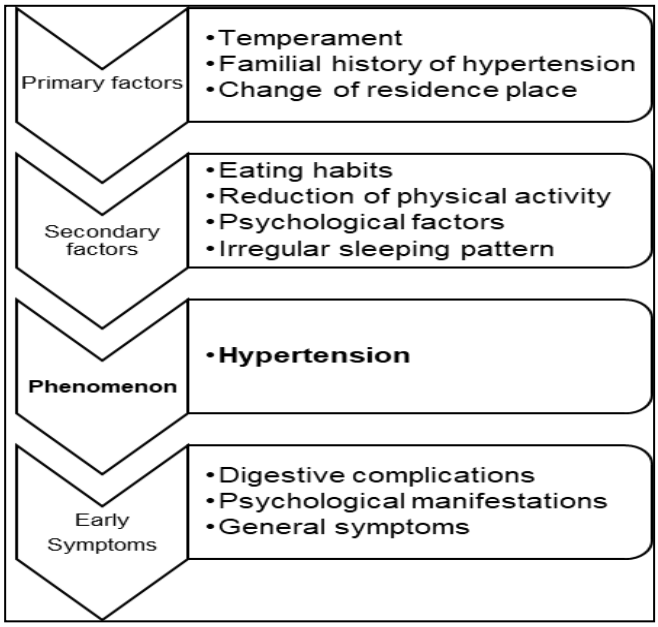
Ethical considerations

All participants provided informed consent, and interviews were recorded only if they agreed; otherwise, notes were taken. Participants' names were coded to maintain anonymity. The National Committee approved the study protocol for Ethics in Biomedical Research with a code number of IR.IUMS.REC.1397.164, and the procedures followed the Helsinki Declaration of 1975, as revised in 2000.

RESULTS

The study included 20 participants, of whom 80% were male. The participants' mean age was 51 years, ranging from 32 to 74 years old. The findings were presented in three main themes: primary factors, secondary factors, and early symptoms, as shown in **Figure I.**

Figure I: A schematic view of the themes extracted in newly diagnosed hypertensive participants from the perspective of PM



Primary factors

These factors, which include demographic characteristics, may increase the risk of developing hypertension from the perspective of PM.

Temperament

The majority of participants exhibited a warm temperament.

Familial history of hypertension

Seventy-five percent of participants reported a history of hypertension in their parents.

Recent change of residence

Twenty percent of participants reported a recent change in residence, resulting in a change in the direction of sunlight in their bedrooms.

Secondary factors

According to the Persian medical point of view, these factors are linked to the failure to adhere to a healthy lifestyle. They can be classified as a type of predisposing factors that are preventable and manageable.

Improper eating habits

Participants reported several eating habits that could lead to increased blood pressure, including overeating, eating new meals before digestion of the previous meal and improper food order. Most participants also reported the intake of liquids between or immediately after meals.

Frequent consumption of dairy products with meals

Daily consumption of dairy products with meals, particularly yogourt and yogourt drinks, was reported by 75% of participants.

Excessive consumption of herbal teas or spices

Fifty percent of participants mentioned using different types of herbal tea, such as borage, mint, and lemon balm tea, to relieve stress and fatigue. Others reported consuming excessive spicy foods like pepper, turmeric, ginger, and curry.

"I have a large pack of tea in my desk drawer, and I brew 4-5 packs of it every day at work. This helps to alleviate my tiredness and allows me to continue working in a stressful office environment."

"*I do not like food without spices. I cannot eat without pepper at all. I spice up all foods with a lot of pepper, which is completely normal. It does not burn my tongue at all. Even my wife, who did not wish for spicy food, now cooks spicy foods*."

Frequent consumption of fast-foods

Nearly fifty percent of interviewees mentioned using fast foods at least once a week. High workload and spending time with family at restaurants were the main reasons for such frequent fast-food consumption.

"*I eat 5-6 servings of fast food every week. I usually get together with my co-workers or family and eat fast food. I prefer burgers and hot sandwiches to the traditional foods outside my office*".

Abrupt cessation of professional sports

Half of the participants reported a significant reduction in physical activity for various reasons, such as increased job responsibilities and a lack of time.

"I used to attend the gym for two years, but I have not been able to go for about four months due to increased job responsibilities. I get home too late, so I have had to give it up."

Psychological factors

Long-term stress due to job stress and depression resulting from the loss of loved ones were factors reported by nearly half of the participants in the months leading up to the interview.

"It has been two months since my wife passed away. I'm not in a good mood after this tragedy."

Irregular sleep patterns

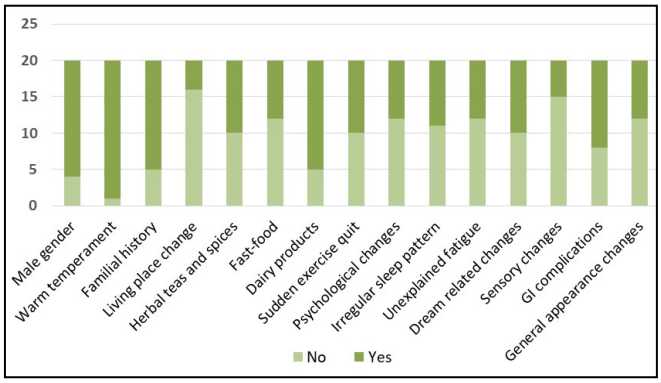
Nearly half of the participants reported experiencing sleep disorders in the last month, with reasons including job changes, childbirth, and insomnia due to mental disorders.

"It has been three months since my son was born. Since then, I have hardly slept at all. In addition to breastfeeding, his colic prevents me from sleeping well and deeply."

Early symptoms

This part includes symptoms that appear in people at the early stages of HTN (i.e. nearly one month before or right after the BP rose) and even before the patient knows that they have HTN. These symptoms are usually not evaluated in modern medicine. If the patient reports that physicians typically do not take them seriously or consider them other diseases, they might refer them to the relevant specialist. These symptoms seem to be very similar to the imtila symptoms. **Figure II** provides a summary of the participants' characteristics and reported symptoms.

Figure II: Characteristics and symptoms reported by patients with early hypertension



Digestive complaints and changes in body excretions

Participants in the study reported a range of digestive discomforts, including fullness, burning sensation in the stomach, reflux, increased gas, and constipation. Sixty percent of participants reported at least one digestive disorder or change in body excretion quality, such as thick urine and colored sweat.

Psychological manifestations

Abnormal changes in mental status, quality of dreams, and sensory reactions and responses were reported in this category.

Changes in the quality of dreams

Fifty percent of participants reported experiencing repeated dreaming with a specific color theme, such as black and white, red, or yellow, dreaming of blurry images, dreaming of falling into a hole or being chased by animals such as snakes or elephants or having nightmares experiences.

"*I dreamed last night that a black snake with small white spots was coming towards me. I had already dreamed of it or similar a lot*."

Abnormal feelings and emotions

These consequences included unusual fear of sounds, excessive, irrational anger caused by unimportant issues, irritability and restlessness, unreasonable sadness, and desire to be alone and

escape from being with others. Thirty percent of people reported such symptoms.

"*I'm getting very angry in the last five or six months, from small and big things. For example, when my child pours water on the table, I get furious and scream. While nothing important has happened, I can no longer eat*".

Changing sensory functions

This includes the slow response of the five senses (sight, hearing, taste, smell, and touch) and the decreased memory of the affected ones. Twenty-five per cent of interviewees reported different degrees of slowness of mind or senses.

"*I had a top sense of smell in my family. I always noticed if the food was burning on the stove, but now I do not sense the smell of food. I don't know if it is normal, but my sense of taste has also weakened, and I do not feel the taste of food, too*".

Feeling tired with no reason

Forty percent of the participants reported various symptoms of limb heaviness, lethargy, constant drowsiness, a tendency to body stretch or weakness in their daily lives.

"*I feel heaviness behind my head. It is as if a weight is attached to the back of my head and pulls it from behind"*.

Unclassifiable general symptoms

Redness of the skin, especially on the face, redness and sometimes protrusion of the eyes, bulging arteries, and pulse fullness were present during the examination of forty percent of the interviewees. A feeling of stretching in the skin, frequent bleeding nose, gums, or anus, and weight gain (especially the accumulation of fat in the abdomen) were reported by thirty-five percent of the interviewees.

DISCUSSION

The study suggests that while hypertension is usually asymptomatic in conventional medicine, there are still some features in PM that can indicate hypertension even before it becomes symptomatic. The study aimed to explore the experiences of patients with early hypertension to identify symptoms or habits that existed nearly one month before or right after an increase in blood pressure. Two themes were identified, including primary or predisposing factors such as warm temperament, improper eating habits, irregular sleep patterns, and early symptoms, including digestive complaints, psychological manifestations, and unclassifiable general symptoms.

The study found that participants with a warm temperament were more likely to experience increased BP due to increased heart pump activity, followed by increased cardiac output or heart rate[3]. This finding was similar to our previous review study[8].

The study also identified new symptoms such as unexplained fatigue, unusual fear, irritability and restlessness, dreaming with blurred images, falling into a hole or being chased by animals, slowness of the six senses, reflux, flatulence, thick urine, colored sweat, redness of facial skin, vascular protrusion and pulse fullness, and accumulation of fat in the abdomen that should be considered seriously before developing hypertension.

The majority of participants had a positive family history of hypertension. Similar findings were reported in another study conducted in Iran in 2019. That study showed that compared to those without a family history of hypertension, individuals with a positive history of hypertension in second-degree relatives had a 1.3-fold increase in the odds of hypertension. In contrast, those with a positive history of first-degree relatives had a 2.2-fold increase[9].

The study found that some participants had changed their place of residence in the six months before their hypertension diagnosis. Climate change has been suggested as a possible factor in hypertension, with one study showing an inverse relationship between air temperature and 24-hour systolic BP and daily BP[10]. However, another study found that severe climate change did not significantly affect BP in hypertensive individuals. Still, the mortality rate was higher among hypertensive patients whose BP was sensitive to climate change[11].

In his valuable reference book for imtila titled "Tashil al-Elaj va Resale-e Hafez al-Sehheh," Hakim Mohammad Taqi Khan Shirazi (18th Century) stated that overeating can hinder proper digestion in the stomach, leading to undigested food travelling through the arteries. He believes that vascular digestion is slower and weaker than gastric digestion, and undigested food in the stomach cannot be fully digested in the arteries, leading to symptoms such as heaviness, nausea, and yawning[12]. In more severe cases, an excessive buildup of waste products in the arteries can stretch and tear them. Some studies support this theory that digestive problems such as constipation are among the essential causes of hypertension[13-15].

The regular consumption of dairy products, particularly yogurt drinks, even without added salt, may increase the risk of developing hypertension. According to PM, consuming yogourt drinks with meals can interfere with proper digestion and absorption of food by cooling the stomach space needed for digestion, producing improper humor and increasing blood pressure[3].

Many participants had a habit of consuming spices and herbal teas without regulation. Spices with hot temperaments, such as mint and lemon balm, can raise blood pressure by generating heat in the body and increasing heart pump activity, particularly in individuals with a warm temperament. Continuous consumption of herbal teas, such as borage, may also similarly affect blood pressure[16].

Restaurant meals, particularly fast food, may increase the risk of hypertension as they contain unsuitable and high amounts of oils, use excessive salt, and employ unhealthy raw materials. These meals may also contain spicy spices that can produce abnormal

heat, increasing heart pump activity and raising hypertension risk[17,18].

Many participants had a habit of abruptly stopping exercise, which can lead to the accumulation of waste materials in the body. Sweating during exercise is a natural way to remove waste. Still, if exercise is suddenly halted, the body may no longer be able to eliminate waste effectively, resulting in waste accumulation and, ultimately, hypertension. Avicenna (980-1037 CE), in his "The Canon of Medicine", stated that the most recommended form of exercise is mild to moderate, not excessive. He noted that proper and healthy exercise could mildly increase breathing and pulse rate, make the cheeks turn pink in color, induce sweating, and make a person feel energetic in their body rather than exhausted. Avicenna emphasized that the intensity and duration should be at a level that brings about these effects but does not leave one feeling depleted[19].

Frequent reports of inconsistent sleep patterns were observed among participants, particularly in those who work rotating shifts[20-22]. PM scholars emphasized the importance of sufficient sleep for proper digestion and maturation of components needed to generate healthy blood from food. Excessive wakefulness can lead to weakness and produce black bile humor[23], particularly if coupled with stress, job dissatisfaction, grief, and depression, especially in stressful careers like those of doctors, nurses, and emergency personnel[18,19]. Improper humor accumulation can lead to changes in hemorheology and blood quality, contributing to hypertension. Black bile and phlegm accumulation can increase blood density and viscosity, ultimately increasing blood pressure[18].

PM defines a typical bowel movement as occurring 1 to 3 times daily with a soft consistency and no pressure, which differs from Western definitions of constipation. Constipation and waste buildup can lead to imtila and hypertension. Recent studies suggest that alterations in intestinal microbiota caused by constipation may also contribute to hypertension[14].

PM suggests that the excretion of thick and dense urine or colored sweat is a sign of overeating and waste accumulation in the body. A mismatch between food consumption and excretion, mainly if bodily fluids are not shed through exercise or sweating, can cause fluid retention and increase preload and subsequent cardiac output, leading to increased blood pressure. In conventional medicine, hematuria is a sign of vascular involvement due to hypertension[18].

Participants reported having "imtila dreams," which are nightmares about being unable to perform essential actions or carry a heavy load, indicating the accumulation of waste products in the body[19,24].

According to PM, weakness of one or multiple senses is typically caused by weakness of innate heat due to an additional load on the body's nature. This can result in the mind lacking the necessary sharpness to respond to environmental stimuli, leading to fatigue even after light activity[12,19].

The main limitation of this study was the lack of spontaneous reporting of imtila symptoms by patients. They did not realize that changes in the quality of their dreams, for example, could be a warning sign for the onset of hypertension. This limitation prevented us from conducting a phenomenological study using only open-ended questions.

CONCLUSION

The main objective of this study was to identify predisposing factors and early warning symptoms for developing hypertension that are often ignored by conventional medicine. The next step in further research is to test the hypothesis and connection between early hypertension and these factors, requiring quantitative studies with large sample sizes. Future investigations should aim to support or disprove the concepts presented in this study.

ACKNOWLEDGMENT

We thank the Employees' Health Cohort Study of Iran (EHCSIR) group for collaborating in identifying new patients with early hypertension and inviting them to join our project. We are grateful for their help and support. We thank all the patients and staff from the Ministry of Health and Medical Education (MoHME) and Iran University of Medical Sciences (IUMS) units who participated in the study.

Ethical permission: Iran University of Medical Sciences, Iran, ERC letter No. IR.IUMS.REC. 1397.164.

Conflict of Interest: The authors have no conflict of interest to declare

Financial Disclosure / Grant Approval: Financial support for this study was provided by the Iran University of Medical Sciences with grant number 97-02-116-33721 and is paid to the corresponding author. The funding source had no role in data collection and interpretation.

Data Sharing Statement: The corresponding author can provide the data proving the findings of this study on request. Privacy or ethical restrictions bound us from sharing the data publically.

AUTHOR CONTRIBUTION

Aryankhesal A: Study design, contributed to the intervention and collection of data, drafted the manuscript and critically revised it

Ghods R: Study design, contributed to the intervention and collection of data, drafted the manuscript and critically revised it

Shojaii A: drafted the manuscript and critically revised it

All authors read and approved the final manuscript.

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