

## “GARLIC” A SIMPLE WAY TO CONTROL HYPERTENSION: A CASE STUDY

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### ABSTRACT

Hypertension (Unani = *Fisharuddam Qawwi*) is defined as a systolic blood pressure of 140 mmHg or more and diastolic blood pressure of 90 mmHg or more. Hypertension is one of the most important causes of premature deaths worldwide. It has been estimated that in 2025 about 1.56 billion adults will be living with hypertension. It kills nearly 8 million people every year in the South East Asian region. As per WHO, a more suitable long-acting antihypertensive medication without side effects, that can also reverse complications of hypertension, is still needed. Treasure of literature supports the use of garlic in cardiovascular diseases like lowering blood pressure, prevention of atherosclerosis, reduction of cholesterol and triglycerides, inhibition of platelet aggregation and increasing

fibrinolytic activity. Various experiments reveal that garlic is effective in lowering blood pressure and cholesterol level. Current study is to validate and support the use of garlic as an effective and safe alternative management for hypertension.

**KEY WORDS:** Hypertension, *Fisharuddam Qawwi*, Garlic, Unani, Alternative management of Hypertension.

## INTRODUCTION

Hypertension (Unani = *Fisharuddam Qawwi*) is a condition in which blood vessels have persistently raised pressure.<sup>[1]</sup> Hypertension is defined as a systolic blood pressure of 140 mmHg or more and diastolic blood pressure of 90 mmHg or more. Based on recommendations of seventh report of the joint national committee on prevention, detection and treatment of high blood pressure the classification of BP for adults aged 18 years or older has been as follows<sup>[2]</sup>:

1. Normal BP: Systolic < 120mmHg and Diastolic <80 mmHg.
2. Pre hypertension: Systolic 120 – 139 mmHg and Diastolic 80 - 89 mmHg.
3. Stage 1 hypertension: Systolic 140 – 159 mmHg and Diastolic 90 – 99 mmHg.
4. Stage 2 hypertension: Systolic 160 mmHg or greater and Diastolic 100 mmHg or greater.

An elevated arterial pressure is most important public health problem in developed countries. It is often asymptomatic but readily detectable and easily treatable, and may lead to lethal complications if left untreated. Patients having raised blood pressure with no known cause is said to be essential hypertension, while as elevated blood pressure with a well known cause and secondary to any other disease is said to be secondary hypertension. Nearly all the secondary forms of hypertension are related to an alteration in hormonal or renal functions.<sup>[3]</sup>

Hypertension is one of the most important causes of premature death worldwide. It has been estimated that in 2025 about 1.56 billion adults will be living with hypertension. It kills nearly 8 million people every year in the South East Asian region.<sup>[4]</sup> Hypertension affects approximately 86 million adults (>20years) in the US. In India prevalence of hypertension increased from 1980-2015 in men from 24% to 28% and in women from 22% to 27%.<sup>[5]</sup> It is a major risk factor for stroke, myocardial infarction, vascular disease and chronic kidney disease.

Despite its high prevalence, a real cure of disease has yet to be discovered. All currently available allopathic antihypertensive medications control blood pressure only for a limited period of time, never exceeding a single day. Since these medications are also associated with side effects and increased costs for the patients. In view of this world health organization (WHO) stated that currently, a more suitable long-acting antihypertensive medication without side effects, that can also reverse complications of hypertension, is still needed. Unani medicines are acting as better alternatives for hypertension. There are a number of single as well as compound drugs in unani system of medicine that have been validated. Such drugs

not only controls high blood pressure but are also body friendly with no or negligible side effects. These drugs include *Asrol (Raulfia Serpentina)*, *Fulfil-siyah* (black pepper), etc. *Hijama bil shurt* (wet cupping) has also been found to be very effective in lowering blood pressure, which was observed by a research conducted at King Abdul Aziz University Jeddah, Saudi Arabia, between May 2013 and February 2014.<sup>[6]</sup> Likewise garlic has been found to be effective in lowering the blood pressure and cholesterol level.<sup>[7]</sup>

## LITERATURE REVIEW

Garlic known as *Thoum* in Arabic, *Seer* in Farsi, *Alium Sativum* in Latin, a member of amaryllis family, is a plant root which resembles onion but is smaller in comparison to it and is widely used in cuisines. As per unani system of medicine its temperament is hot and dry in 3<sup>rd</sup> degree, with a lot of medicinal benefits.<sup>[8]</sup> Garlic can be used as prophylactic as well as for medicinal purposes. Earliest references to this medicinal plant were found in Avesta, a collection of Zoroastrian holy writings that were probably compiled during the sixth century BC and were also an important medicine to Sumerian and the ancient Egyptians. Garlic was also used during medieval period in treating different diseases. Avicenna in his book *Alqanoon fittib* (Canon of medicine) has mentioned various treatment benefits of garlic including arthritis, chronic cough, and constipation.<sup>[8]</sup> Ancient Unani physicians believe that garlic cuts bad humors (*Akhlat-e-Galeeza*) and decrease the viscosity of blood. Furthermore it dissolves the tummy fat and help to reduce the abdominal distension.<sup>[9]</sup> Since as per Unani concept lipids (*Shehem*) belong to *Khilt-e-Balgam* (one of the four humors described by Hippocrates).<sup>[10]</sup> When this component of blood is raised, the blood becomes more viscous to which ancient physicians called as *Khilt-e-Galeez* (bad humor). A clear concept is that reducing viscosity has direct relation with reduction of blood pressure.<sup>[11]</sup> As per religious view, eating garlic is not preferred by Prophet of Islam [PBUH], yet has not been forbidden altogether. In fact there is a Hadith (saying of beloved Prophet PBUH) quoted by Hazrat Ali [a.s], “eat garlic, and use it for treatment, because it is cure for seventy diseases” [*Ad-Delmi*].<sup>[12]</sup> Several experimental and clinical investigations suggest many favorable effects of garlic and its preparations. These effects have largely been attributed to 1) reduction of risk factors of cardiovascular disease, 2) reduction of risk of cancer, 3) antioxidant and antimicrobial property, 4) detoxifying and hepatoprotective effect.<sup>[13]</sup> Along with its diuretic property and blood thinning property as mentioned in various classical texts of unani medicine<sup>[7,9,10,12,14]</sup>, it also relaxes smooth muscles and cause vasodilatation because of presence of nitric oxide as one of its constituents<sup>[15]</sup>, thus helps in reducing blood pressure.

Because of its hypocholesterolemic action, German commission ESCOP, WHO, The British Herbal Pharmacopeia mentions eating garlic as useful for lowering lipids in blood, and as a preventive measure for age dependent vascular changes.<sup>[16]</sup> It has been found that garlic has an active ingredient “Alliin” which on eating gets converted into strongly medicinal compound, “Allicin” with the action of enzyme “Allinase”. Allicin breaks down into a number of sulphur compounds including ajoene, vinylidithin, and diallyl disulphide, and trisulphide. Ajoene is responsible for decreasing fat absorption in the gut by inhibiting gastric lipase. Also diallyl tetra, penta, hexa heptasulphides are potent antioxidants and thus preventing free radical formation.<sup>[17]</sup> It is interesting to know that action of enzyme allinase is lost upon heating.<sup>[18]</sup> The various studies showed that garlic reduced systolic blood pressure by an average of 4.6mmHg.<sup>[19]</sup> Throughout history in the Middle East, East Asia, Nepal, garlic has been used to treat bronchitis, hypertension, tuberculosis, liver disorders, dysentery, flatulence, abdominal colic, intestinal worms, rheumatism, diabetes, and fevers.<sup>[20]</sup> Treasure of literature supports the use of garlic in cardiovascular diseases like lowering blood pressure, prevention of atherosclerosis, reduction of cholesterol and triglycerides, inhibition of platelet aggregation and increasing fibrinolytic activity.<sup>[21]</sup> C.P Khare in his book “Indian medicinal plants” has written that garlic (*Allium sativum*) is used as antibiotic, bacteriostatic, fungicide, antihelminthic, antithrombic, hypotensive, hypoglycemic, hypocholesterolemic, and also for upper respiratory tract infections.

### Some past trials

A trial was done by Duda et al suggests that garlic can be used as tentative treatment for hypertension. In 1994, a meta-analysis assessed the effect of garlic on hypertension, three trials of which showed significant reduction in systolic blood pressure (> 7.7 mmHg), and four trials showed reduction in diastolic blood pressure (> 5mmHg).<sup>[22]</sup> Another meta-analysis done concluded that garlic reduces mean supine systolic blood pressure by 10-12 mmHg, and diastolic blood pressure by 6-9 mmHg.<sup>[23]</sup>

### METHODOLOGY

The case study consists of a health promotion intervention involving therapeutic intervention of garlic in a dosage of 1000 mg thrice a day. The study began with a blood pressure of 150/96 mmHg, and extended over a period of two months. A contracted minimum number of 30 BP recording sessions, taken in the morning and in the evenings, was deemed minimal for optimizing and evaluating intervention effectiveness.

### Participant

We conducted a case study on a male patient, code name; Arshid Ahmad Wagay, 35 years shopkeeper by occupation, was married having three children, and was a cigarette smoker, presented with complaints of head ache and vertigo, with a history of persistent raised blood pressure. As per past reports patient was diagnosed in a tertiary centre with hypertension and was taking amlodipine 5 mg regularly for the same. Due to some fear of side effects and mere relief of symptoms and BP despite taking the medicine, he stopped the same. Afterwards patient admitted that he was taking the medicine irregularly with no complete relief. There was no history of other diseases in the past, however patient's father was also hypertensive. During examination of the patient following details were conducted;

Height: 5 feet and 4 inches, weight: 75 kg, heart rate 78 regular bpm, respiratory rate: 14/min, afebrile, chest: clear, no added sounds, heart beats with regular rhythm, Abdomen: soft, non tender, not distended, and no organomegaly was found. Patient was suffering from grade 1 hypertension for one year. A diagnosis was confirmed by multiple BP measurements, although the patient was already diagnosed in a tertiary allopathic health centre before coming to us for the management of the same in a natural way.

**Clinical management and treatment decision:** taking into account the history, chief complaints and to take immediate action to lower the BP, his regime was changed with our trial drug.

We advised the patient to take raw garlic 1 gm after every 8 hours, for 2 months. Patient was advised to visit for Bp monitoring on daily basis initially in first week followed by alternate day visit in next three weeks and then weekly visits were advised. On every visit patients BP was measured through electronic automatic blood pressure monitor. Viz-a- viz patient was advised for the routine morning walk, restriction of sodium intake, low fat diet, and avoidance of smoking. After two months trial patients BP remain controlled.

### RESULT

Before and after, results were compared and a significant reduction in BP and associated complaints was observed. Effect was more prominent on systolic BP than on diastolic BP. It was found that systolic BP was reduced from 150 mmHg to 140 mmHg and diastolic reduced from 96 mmHg to 90 mmHg. We also checked the patient's lipid profile by serum

examination in a biochemistry lab. The results were amazing to see a definite reduction in cholesterol and VLDL as well.

### JUSTIFICATION

Based on severity of disease patient was suffering from grade 1 hypertension for one year, he was of young age and wanted to get rid of burden of allopathic medicines. We initially advised the garlic for only 1 week under strict observation by monitoring blood pressure regularly. After observing a positive response to the natural treatment we continued the same for 1 month, and advised the patient for regular visits at alternate days. Getting better results we extend the treatment for next month and got our final results after completing the 2 months trial.

### CONCLUSION

After surveying the role of garlic in managing hypertension in different literary sources, finding astonishing results in our case study and keeping in view the trials conducted by others we conclude that garlic has potential effect and can be the simple and cheap way for preventing and treating cardiovascular diseases like hypertension and hypercholesterolemia. However a thorough and compact research is yet to be needed for the same along with its safety and efficacy.

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