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## INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/13486  
DOI URL: <http://dx.doi.org/10.21474/IJAR01/13486>



### RESEARCH ARTICLE

#### ROLE OF ILAJ-BIL-GHIZA (DIETOTHERAPY) AS A PREVENTIVE THERAPY IN PREGNANCY INDUCED HYPERTENSION (PIH): A REVIEW

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#### Manuscript Info

##### Manuscript History

Received: 30 July 2021

Final Accepted: 31 August 2021

Published: September 2021

##### Key words:-

Pregnancy Induced Hypertension (PIH),  
Tashannuj wa Tamaddud (convulsions),  
Ilaj-bil-Ghiza (Dietotherapy),  
Antioxidant

#### Abstract

The hypertension that is caused directly by gravid state is known as Pregnancy Induced Hypertension (PIH). It has an association with increased maternal morbidity and mortality. In classical Unani literature, hypertension is referred as 'Hejan' of blood. Ibn-e-Sina (Avicenna) wrote in his book Al-Qanoon Fit Tib (Alcanon) that few times pregnant women may complain Warm-e-Qadam (Pedal Oedema). During labour, Tashannuj wa Tamaddud (Convulsions) may occur. Ilaj-bil-Ghiza (Dietotherapy) is a method of Unani treatment in which a specific diet is given for a specific disease. Dietary supplement of 400 IU Vitamin E and 1000 mg Vitamin C per day as antioxidant resulted in reducing oxidative stress, decreased endothelial activation and reduction in the risk of PIH by 61%. Specific diets mentioned in Unani medicine which contains Vitamin E and Vitamin C can be beneficial in PIH.

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#### Introduction:-

Pregnancy Induced Hypertension (PIH) is a disease with elusive etiology since many centuries. According to some researchers, the discovery of this disease was made in ancient times and they gave credit to Egyptian, Indian and Chinese medicine. Chesley, in his article, mentioned that first documentation of PIH as a separate disease is present in ancient Greek medicine before the time of Hippocrates.<sup>[1]</sup> After that, Hippocrates (460-377 BC) recognized and recorded convulsions during pregnancy (eclampsia) in his practice.<sup>[2]</sup> 'Shine Forth' is a term translated for 'eclampsia' which means sudden development. The albumin present in the urine of eclamptic women was found by Lever of Guy's hospital. Though relation of eclampsia with increased systemic blood pressure was observed after the discovery of sphygmomanometer, and this co-relation became evident after it's widespread use.<sup>[3]</sup> Chesley did an outstanding epidemiological work on PIH. It is a classic masterpiece which was published in 1978.<sup>[4]</sup> Worldwide, it is observed that in every 3 minutes a pregnant woman dies due to PIH, severe pre-eclampsia and eclampsia. Hypertension complicates the pregnancy and it's management has not altered significantly for many years.<sup>[5]</sup> Approximately 4-5% of pregnancies convert in complicated pregnancies due to hypertension. This hypertension in pregnancy causes many maternal and fetal diseases like Intra-Uterine Growth Restriction (IUGR), Oligohydraminos, Placental Abruption, Preterm Labour, Blood Coagulopathy, Still Birth, Seizures, Coma, Renal Failure, Maternal Hepatic Damage and HELLP Syndrome (Haemolysis, Elevated Liver Enzymes, and Low Platelet Count).<sup>[6][7][8][9][10]</sup>

The hypertension that is caused directly by gravid state is known as Pregnancy Induced Hypertension (PIH). It enlists Gestational Hypertension, Pre-Eclampsia and Eclampsia. Gestational hypertension is an elevation in systolic blood pressure of about 30 mm of Hg or diastolic blood pressure of about 15 mm of Hg over the previously monitored normal blood pressure.<sup>[11]</sup> Hypertension in pregnancy has an incidence rate of 5% to 9%. In primigravida,

this incidence rate is 5% to 7% without any history of diabetes mellitus or chronic hypertension. This incidence rate in primigravida is 4-5 times higher than second and third gravid. PIH has an association with increased maternal morbidity and mortality. This association is related to Intra-Uterine Growth Restriction (IUGR), Pre-Natal Asphyxia and Pre-Term Delivery.<sup>[12][13]</sup> Higher incidence of premature delivery and utero-placental insufficiencies increases fetal mortality rate. According to National Centre for Health Statics, pregnancy with hypertension is the most common medical risk factor.<sup>[13][14]</sup>

In classical Unani literature, hypertension is referred as 'Hejan' of blood. The ancient Unani physicians also had the knowledge of Pregnancy Induced Hypertension and Eclampsia which is evident by Unani literature. Ibn-e-Sina (Avicenna) wrote in his book *Al-Qanoon Fit Tib* (Alcanon) that few times pregnant women may complain Warm-e-Qadam (Pedal Oedema). During labour, Tashannuj wa Tamaddud (Convulsions) may occur. In this condition hands and feet become rigid while muscle spasm may also occur. This condition suggests Tashannuj Dauran-e-Dard-e-Zah (Eclampsia).<sup>[15]</sup>

Tahaffuzi tib (Preventive Medicine) is the science of self healing. It is the art of personal health maintenance and disease prevention. Unani Medicine is, at its core, basically just an elaborated and sophisticated system of hygiene. In proper tahaffuzi tib practices, Unani Medicine sees the foundation of all good health. In improper or faulty hygiene, Unani Medicine sees the origin of most diseases. The art of Tahaffuzi tib is basically two folds, like the two sides of a coin. On the one side, you must give your body all the good things it needs: a pure, wholesome, nutritious diet; appropriate and adequate physical activity and exercise; sufficient sleep and rest; and a healthy, constructive daily routine and lifestyle. On the other hand, you must remove all the wastes and pathogenic matters from the body which it doesn't need, by keeping it clean, both inside and out. Unani scholars stated that the restoration of equilibrium of various elements and faculties of the human body depends on six essential factors called *Asbab-e-Sitta-Zarooriya*.<sup>[16]</sup>

### Discussion:-

Unani Medicine has identified six basic areas or factors which, if kept in good order, build health and which, if allowed to fall into disorder, lead to illness and disease. They constitute the basis of all health management and disease prevention in Unani Medicine, and are as follows: *Hawa* (Air), *Makool-o-Mashroob* (Food and Drinks), *Harkat-o-Sukoon Badni* (Body Movements and Rest), *Harkat-o-Sukoon Nafsan* (Psychic Movements and Repose), *Naum-o-Yaqza* (Sleep and Wakefulness), and *Ehtebas-o-Istafraqh* (Retention and Evacuation). In *Makool-o-Mashroob*, diet should be selected in accordance with their *Kaifiyat* (Temperamental Quality) and should be free from pathogens and impurities, for the maintenance of health at the optimum level.<sup>[17]</sup> *Ilaj-bil-Ghiza* (Dietotherapy) is a method of Unani treatment in which a specific diet is given for a specific disease. In this method of therapy, restriction or alteration of diet is advised. Proper diet consumption is very important for prevention or treatment of disease. It is because besides having a nutritional value; foods also have few pharmacological actions. In Unani system of medicine, *Ilaj-bil-Ghiza* (Dietotherapy) is preferred before the initiation of *Ilaj-bil-Dawa* (Pharmacotherapy).<sup>[18]</sup>

According to pathophysiology of Pregnancy Induced Hypertension (PIH), endothelial dysfunction plays a significant role in its development while oxygen free radicals are considered as culprit. Major antioxidant enzymes have gain attention as these enzymes protect endothelium by getting damaged. As a hypothesis, it is believed that when antioxidant activity decreases, the risk of PIH increases.<sup>[19]</sup> Some studies support this hypothesis as concentration of lipid peroxide in the blood of PIH patient was found raised and reduced activity of antioxidants was also associated.<sup>[20][21]</sup> Some clinical trials based on dietary influences suggested that from 20<sup>th</sup> week of pregnancy, dietary supplement of 400 IU Vitamin E and 1000 mg Vitamin C per day as antioxidant resulted in reducing oxidative stress, decreased endothelial activation and reduction in the risk of PIH by 61%.<sup>[22]</sup> Maternal dietary intake very much influences the antioxidant levels, so dietary factors could play a significant role in PIH.<sup>[23]</sup> Antioxidants protect cell membrane by counter act free radical disturbance; this disturbance is free radical mediated lipid peroxidation. Increased number of free radicals typically increases utilization of antioxidants.<sup>[24]</sup> In view of potential role of oxidative stress in the etiology of the maternal syndrome of PIH, the role of Vitamin C and Vitamin E supplementation in pregnancy was investigated by some researchers and it was found that Vitamin C (1000 mg) and Vitamin E (400 IU) supplementation reduces the likelihood of developing PIH by at least 50%. In those who took the treatment from the beginning to term, the benefits were greater than 75%.<sup>[25][26]</sup>

An antioxidant is a molecule, capable of inhibiting the oxidation of other molecules. Oxidation is a chemical reaction that transfers electrons from a substance to an oxidizing agent. Oxidation reactions can produce free radicals. In turn, these radicals can start chain reactions, discussed earlier. When the chain reaction occurs in a cell, it can cause damage or death to the cell.<sup>[27]</sup> Antioxidant can be derived endogenously and exogenously both, they can be supplied to the patient as medicine or nutrient. Naturally occurring antioxidants are Vitamin E (Fat Soluble) and Vitamin C (Water Soluble).<sup>[28]</sup> Women with PIH have elevated plasma concentration of markers of lipid peroxidation such as malondialdehyde and 80-epiprostaglandin alpha. Moreover low concentration of antioxidant vitamin in women with PIH provides further support for the concept of increased oxidative stress. The early provision of antioxidants like Vitamin C and Vitamin E to women at high risk of developing PIH has a marked clinical benefit. Vitamins usage was associated with better endothelial function and less placental dysfunction.<sup>[29]</sup> Sources of Vitamin E are egg yolk, butter, vegetable oil, sunflower seed, polyunsaturated fatty acids etc while sources of Vitamin C are guava, orange, lime, cabbage, radish, germinating pulses etc.<sup>[30]</sup>

According to Ibn-e-Rushd, food is an entity which is physiologically absorbed in the body by Tabiyat (physic) and replaces energy.<sup>[31]</sup> There is a wide classification of diets in Unani System of Medicine, and the diets are recommended according to their ranks, in different types of ailments.

According to the duration and ability of digestion.

1. Ghiza e lateef
2. Ghiza e kaseef
3. Ghiza e motadil

According to the formation of kaimus (fluid in process of digestion).

1. Jaiyad ul kaimus (sauleh ul kaimus)
2. Raddi ul kaimus (fasid ul kaimus)

According to the nutritional values.

1. Qaleel ut taghziya
2. Kaseer ut taghziya
3. Mutawassat ut taghziya

On the basis of above mentioned classification, there are 18 types of Ghiza (Diet)

1. Ghiza e lateef sauleh ul kaimus kaseer ut taghziya
2. Ghiza e lateef sauleh ul kaimus qaleel ut taghziya
3. Ghiza e lateef sauleh ul kaimus mutawassat ut taghziya
4. Ghiza e lateef fasid ul kaimus kaseer ut taghziya
5. Ghiza e lateef fasid ul kaimus qaleel ut taghziya
6. Ghiza e lateef fasid ul kaimus Mutawassat ut taghziya
7. Ghiza e kaseef sauleh ul kaimus kaseer ut taghziya
8. Ghiza e kaseef sauleh ul kaimus qaleel ut taghziya
9. Ghiza e kaseef sauleh ul kaimus mutawassat ut taghziya
10. Ghiza e kaseef fasid ul kaimus kaseer ut taghziya
11. Ghiza e kaseef fasid ul kaimus qaleel ut taghziya
12. Ghiza e kaseef fasid ul kaimus mutawassat ut taghziya
13. Ghiza e motadil sauleh ul kaimus kaseer ut taghziya
14. Ghiza e motadil sauleh ul kaimus qaleel ut taghziya
15. Ghiza e motadil sauleh ul kaimus mutawassat ut taghziya
16. Ghiza e motadil fasid ul kaimus kaseer ut taghziya
17. Ghiza e motadil fasid ul kaimus qaleel ut taghziya
18. Ghiza e motadil fasid ul kaimus mutawassat ut taghziya

From the Unani Diet Classification, following types can be beneficial in Pregnancy Induced Hypertension (PIH) as they are rich source of Vitamin E and Vitamin C:

Ghizaelateefsaulehulkaimuskaseeruttaghziya e.g. egg yolk

Ghiza e lateef sauleh ul kaimus qaleel ut taghziya e.g. lime, orange

Ghiza e lateef sauleh ul kaimus mutawassat ut taghziya e.g. wheat, germinating pulse

Ghiza e kaseef sauleh ul kaimus kaseer ut taghziya e.g. boiled egg  
 Ghiza e motadil sauleh ul kaimus qaleel ut taghziya e.g. radish  
 Ghiza e motadil raddi ul kaimus qaleel ut taghziya e.g. cabbage <sup>[30][32][33]</sup>

Milk is also an important diet for health. A 100 g of buffalo milk contains 210 mg of calcium while a 100 g of cow milk contains 120 mg of calcium.<sup>[34]</sup> Milk is beneficial for heart and liver; it also reduces Safrā (Bile).<sup>[35]</sup> Calcium supplementation during pregnancy is associated with a reduction in risk of gestational hypertension, pre-eclampsia, neonatal mortality and pre-term birth in developing countries.<sup>[36]</sup> The review by Hofmeyr et al included studies from both developed and developing countries and their pooled estimate had shown that calcium supplementation during pregnancy significantly reduced occurrence of gestational hypertension and pre-eclampsia.<sup>[37][38]</sup>

### Conclusion:-

Pregnancy Induced Hypertension (PIH) is a serious condition which still causes maternal and fetal morbidity as well as mortality. Oxidative stress is included in PIH pathophysiology therefore as a hypothesis, it can be predicted that this condition can be prevented by antioxidants like vitamin E, vitamin C and calcium. In Unani System of Medicine, Ilaj-bil-Ghiza (Dietotherapy) is a specific therapy which deals with preventive as well as curative treatment of diseases. By reviewing different studies and ancient Unani literature we can conclude that specific diets containing Vitamin E, Vitamin C and Calcium can prevent PIH (Pregnancy Induced Hypertension) up to great extent which can be beneficial for maternal as well as fetal health. However, there is still a vast area for research on PIH and Dietotherapy (Ilaj-bil-Ghiza). Further studies in Unani System of Medicine and other systems of medicine are always required.

### Acknowledgment:-

We express our sincere gratitude to all our teachers who inspired us to view classical Unani System of Medicine with the vision of advanced research and technologies.

### Conflict of interest

None.

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