A Clinical Study on Primary Hypertension (*Zaght al-Dam-Qawi Ibtidai)* and a Comparative Evaluation of *Qurs-e-Dawaushifa* with Amlodipine in its Management

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Abstract

Hypertension the "silent Killer" is considered to be a major health problem throughout the globe. This is due to high prevalence and its association with increased risk of cardiovascular complications. In spite of increasing public awareness and a rapid advancement of anti-hypertensive medications hypertension still remains one of the leading cause of cardiovascular morbidity and mortality.

The term hypertension or *Zaght al-Dam-Qawi* has not been mentioned in any of the classical unani literature. The term hypertension was first used by Harry Gold Ballet in 1934 and the term *Zaght al-Dam-Qawi* was used by Unani scholars contemporary to Indian period. But most of the Unani scholars were familiar to manifestation of hypertension, as they have described most of its symptoms such as headache, palpitation, vertigo and epistaxis, due to *imtala* (repletion). Some of them even described vascular pressure by increased blood volume in lumen of blood vessels.

To evaluate clinical efficacy of drugs in hypertension, *Qurs-e- Dawaushifa* was chosen which contains *Asrol* (*Rauwolfia serpentina* Linn) and *Filfil siyah* (*Piper nigrum* Linn.). This drug for hypertension is proposed keeping in mind the side effects that directly arise after the administration of the drug for relatively longer period. Hence, an attempt has been made to evaluate the efficacy of these drugs on modern parameters in patients with essential hypertension.

The study was concerned with comparison between *Qurs-e-Dawaushifa* and Amlodipine in the treatment of primary hypertension. Hence all the 50 patients were divided into two groups, control and test group. Each group consists of 25 patients. Control group was treated with amlodipine and test group was treated with *Qurs-e-Dawaushifa*. All the results were analysed statistically.

Key Words: *Zaght al-Dam-Qawi*, Hypertension, *Qurs-e-Dawaushifa, Asrol, Filfil Siyah*

Introduction

Hypertension the "silent Killer" is considered to be a major health problem throughout the globe. This is due to high prevalence and its association with increased risk of cardiovascular complications (Fauci *et al*., 2008).

In spite of increasing public awareness and a rapid advancement of anti-hypertensive medications, hypertension still remains one of the leading cause

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of cardiovascular morbidity and mortality. About 95% of cases of hypertension are idiopathic in nature and are labelled as essential or primary hypertension whereas remaining 5% have definite cause of the disease and are called as secondary hypertension (Boon *et al.*, 2006).

The term hypertension or *Zaght al-Dam-Qawi* has not been mentioned in any of the classical unani literature. The term hypertension was first used by Harry Gold Ballet in 1934 and the term *Zaght al-Dam-Qawi* was used by Unani scholars contemporary to Indian period. But most of the Unani scholars were familiar to manifestation of hypertension, as they have described most of its symptoms such as headache, palpitation, vertigo and epistaxis, due to *imtala* (repletion). Some of them even described vascular pressure by increased blood volume in lumen of blood vessels (Kantoori, 1896; Baqar, 1939).

After an in-depth study of Unani literature, one may be reached to the conclusion that hypertension is a manifestation of *Yabust-e-Mizaj* (dryness of temperament) (Ahmad, 1980). As described by various scholars of Unani Medicine, *Yabusat* (dryness) is the main cause of sclerosis. Dryness causes hardening and narrowing of blood vessels (Ahmad, 1983). Hypertension is a condition associated with headache (especially in the morning), palpitation, breathlessness, fatigue (especially in the evening), flushing of the face and sometimes epistaxis. These symptoms may or may not be present in all the cases (Tierrey *et al.*, 2005).

Need for the Study

The management of hypertension is a difficult problem in day to day practice. Western medicine drugs are effective but costly and have various adverse metabolic effects, these drugs when stopped cause rebound hypertension and also have various side effects. The antihypertensive drugs used in Western medicine seem to be good to control blood pressure, but on the other hand they fail to prevent the complications of hypertension and the complications brought out by them. Looking at this, a need was felt to explore the hidden potential of certain Unani medicines used for such conditions, which may prove more effective, safe and with least adverse effects.

In the treatment of hypertension, compound drugs in natural forms are preferred over single drugs. Because a compound formulation produces desired type of effects and cover many complexities of the disease, such as ischaemic heart disease, retinopathy, neuropathy and chronic renal disease. To evaluate clinical efficacy of drugs in hypertension, *Qurs-e- Dawaushifa*

was chosen which contains *Asrol* and *Filfil siyah*. This drug for hypertension is proposed keeping in mind the side effects that directly arise after the administration of the drug for relatively longer period. Hence on the ground of above mentioned properties of these two drugs, an attempt has been made to evaluate the efficacy of these drugs on modern parameters in patients with essential hypertension.

Material and Method

This was single blind non-randomised standard control trial. The aim of this study was to assess the efficacy, safety and tolerability of combination therapy in adults of established hypertension. In this prospective the study was carried out on 50 cases of hypertension of either sex in the Unani OPD and indoor section of Ajmal Khan Tibbiya College Hospital, Aligarh Muslim University, Aligarh. The trial was carried out after approval of departmental ethics committee and informed written consent from the patients between from 2006 to 2008. Only 50 cases that full filled the selection criteria (confirmed on two consecutive visits) between 25 to 75 years of age, were selected.

The study was concerned with comparison between *Qurs-e- Dawaushifa* and Amlodipine in the treatment of primary hypertension. Hence all the 50 patients were divided into two groups, control and test group. Each group consists of 25 patients. Control group was treated with Amlodipine and test group was treated with *Qurs-e-Dawaushifa*.

The patients with established hypertension were included in the study and all antihypertensive drugs were discontinued at least one week before starting the trial. The diagnosis was made on the basis of detailed history, clinical examination and investigations including complete haemogram, random blood sugar level, blood urea, serum creatinine, serum uric acid, serum cholesterol, triglycerides, VLDL, urine analysis and stool examination. The blood pressure was measured in the right arm with an appropriate cuff size. Two readings were taken after 5 minutes rest and higher one considered as hypertensive. Systolic blood pressure was recorded at phase I (appearance of korotkoff sounds) and diastolic blood pressure at phase V (disappearance of korotkoff sounds). Casual blood pressure was recorded in the seated position with a mercury sphygmomanometer. The same technique, but after 5 minutes rest and on subsequent visits, was used to made diagnosis. The cases of grade I hypertension i.e. systolic blood pressure 140-159 mm of Hg and diastolic blood pressure 90-99 mm of Hg (according to British Hypertension Society) were included in the study.

The cases of valvular or primary myocardial disease, cerebro-vascular accidents, Transient neurological deficits, malignant hypertension, renal failure, patient taking oral contraceptive pills (OCPs), hormone replacement therapy (HRT), pregnant women and lactating mothers were excluded from the study. All the signs were recorded on examination before the beginning of the study (0 day) and thereafter subsequently during the follow-up i.e. 7th, 14th, 21st, 28th, 35th and 42 days. Simultaneously, adverse effects of the drugs noted down at regular interval during follow up.

The test drugs used in the study were procured from Dawakhana Tibbiya College, Aligarh and identified them properly while drug of control group was procured from open market keeping in view the same batch and manufacturer. These drugs were given in the following fixed dosage to all 25 cases of test group in the tablet form irrespective of age, sex and severity of disease. Two tablets of *Qurs-e-Dawaushifa* were given twice a day in test group while in control group, Amlodipine (5 mg) once a day was used.

Table 1 : Distribution of patients according to Age and Sex

Total No. of Patients – 50

Age Group (in years)	Number and percentage of males	Number and percentage of females	Total number and percentage
25-35	2(4)	0(0)	2(4)
35-45	8(16)	10(20)	18(36)
45-55	9(18)	12(24)	21(42)
55-65	2(4)	4(8)	6(12)
65-75	1(2)	2(4)	3(06)
Total	22(44)	28(56)	50(100)

Table 2 : Distribution of patients according to occupation

Total No. of Patients – 50

Occupation	Number of patients	Percentage
Service class	10	20
Business class	14	28
House wives	26	52
Total	50	100

Table 3 : Distribution of patients according to food habits

Total No. of Patients – 50

Food habits	Number of patient	Percentage
Vegetarian	10	20
Non-vegetarian	40	80
Total	50	100

Table 4: Distribution of patients according to additional salt intake

Total No. of Patients – 50

History of added salt	Number of patients	Percentage
Present	12	24.00
Absent	38	76.00
Total	50	100

Table 5 : Distribution of patients according to physical inactivity

Total No. of Patients – 50

History of physical inactivity	Number of patients	Percentage
Present	45	90
Absent	05	10
Total	50	100

Table 6 : Distribution of patients according to history of alcoholism, smoking and tobacco chewing

Total No. of Patients – 50

Past history	Number of patients	Percentage
Alcoholism	01	02
Smoking	20	40
Tobacco chewing	13	26
No habit	16	32
Total	50	100

Table 7 : Distribution of patients according to family history of hypertension

Total No. of Patients – 50

Family H/o hypertension	Number of patients	Percentage
Present	32	64
Absent	18	36
Total	50	100

Table 8 : Distribution of patients according to Temperament

Total No. of Patients – 50

Type of Temperament	No. of Males (percentage)	No. of Females (percentage)	Total No. of Patients	Percentage
Sanguinous (Damwi)	20(4)	19(38)	39	78
Bilious (Safravi)	02(40	05(10)	07	14
Phlegmatic (Bhalghami)	00	04(08)	04	08
Melancholic (Saudavi)	00	00	00	00
Total	22(44)	28(56)	50	100

Table 9 : Distribution of patients according to low and high risk BMI

Total No. of Patients – 50

Low risk BMI (kg/m^2)		
BMI	Number of Patients	Percentage
18-20	03	07.5
20-22	07	17.5
22-24	05	12.5
24-26	13	32.5
26-28	12	30.5
Total	40	
High risk BMI (Kg/m^2)		
28-30	06	60
30-32	02	20
32-34	01	10
34-36	01	10
Total	10	

Table 10 : Effect of Drugs in Test group

Total No. of Patients – 25

Follow-up (in days)	Before Treatment	After Treatment					
	0 Day	14th Day		28th Day		42th Day	
Clinical Feature	Total No. of Patients	Total No. of Patients	Improved %	Total No. of Patients	Improved %	Total No. of Patients	Improved %
Headache	23	12	47	06	73	04	82
Palpitation	24	13	45	07	70	03	88
Fatigability	24	10	58	05	79	05	79
Dizziness	25	15	40	07	72	03	88
Dyspnoea on exertion	23	11	52	06	74	04	82
Nocturia	25	08	68	07	72	06	76
Sleeplessness	25	12	52	08	68	04	84
Mental stress	23	09	60	07	69	05	78

Table 11: Effect of Drugs in control group

Total No. of Patients – 25

Follow-up (in days)	Before Treatment	After Treatment					
	0 Day	14th Day		28th Day		42th Day	
Clinical Feature	Total No. of Patients	Total No. of Patients	Improved %	Total No. of Patients	Improved %	Total No. of Patients	Improved %
Headache	25	15	40	06	76	03	88
Palpitation	25	13	48	07	72	04	84
Fatigability	25	12	52	06	76	05	80
Dizziness	25	11	56	08	68	05	80
Dyspnoea on exertion	25	10	60	07	60	04	84
Nocturia	22	09	52	06	72	04	81
Sleeplessness	24	10	58	07	70	05	79
Mental stress	23	11	52	06	73	05	78

Table 12: Effect of drugs on cholesterol in both groups

Control Group N = 25		Test Group N = 25	
0 Day	42th Day	0 Day	42th Day
Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)
208.8 + 27.5	207.8 + 24.7	220.08+ 35.3	212.4 + 28.3

Table 13 : Effect of drugs on Triglycerides in both groups

Control Group N = 25		Test Group N = 25	
0 Day	42th Day	0 Day	42th Day
Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)
136.4 + 31.8	131.6 + 31.6	145.7+ 26.7	131.2 + 29.0

Table 14 : Effect of drugs on Blood Urea in both groups

Control Group N = 25		Test Group N = 25	
0 Day	42th Day	0 Day	42th Day
Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)
23.96 + 4.01	24.56 + 3.8	28.84+ 3.5	26.36 + 3.3

Table 15 : Effect of drugs on Serum Creatinine on both groups

Control Group N = 25		Test Group N = 25	
0 Day	42th Day	0 Day	42th Day
Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)
1.28 + 0.38	1.26 + 0.36	1.37+ 0.4	1.13 + 0.4

Table 16 : Effect of drugs on Serum Bilirubin in both groups

Control Group N = 25		Test Group N = 25	
0 Day	42th Day	0 Day	42th Day
Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)
0.71 + 0.19	0.75 + 0.12	0.79+ 0.14	0.78 + 0.14

Table 17 : Effect of drugs on SGOT in both groups

Control Group N = 25		Test Group N = 25	
0 Day	42th Day	0 Day	42th Day
Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)
27.4 + 9.81	26.04 + 9.4	27.52+ 9.7	26.96 + 10.0

Table 18 : Effect of drugs on SGPT in both groups

Control Group N = 25		Test Group N = 25	
0 Day	42th Day	0 Day	42th Day
Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)	Mean + S.D. (mg/dl)
29.84 + 8.08	30.8 + 7.7	31.28+ 6.8	30.6 + 7.7

Table 19 : Effect of drugs on Systolic Blood Pressure in both groups

Control Group N = 25		Test Group N = 25	
0 Day	42th Day	0 Day	42th Day
Mean + S.D. (mm of Hg)	Mean + S.D. (mm of Hg)	Mean + S.D. (mm of Hg)	Mean + S.D. (mm of Hg)
156.8 + 15.7	125.8 + 10.9	151.5+ 9.5	123.8 + 6.0

Table 20 : Effect of drugs on Diastolic Blood Pressure in both groups

Control Group N = 25		Test Group N = 25	
0 Day	42th Day	0 Day	42th Day
Mean + S.D. (mm of Hg)	Mean + S.D. (mm of Hg)	Mean + S.D. (mm of Hg)	Mean + S.D. (mm of Hg)
97.4 + 2.9	81.7 + 4.6	93.32+ 2.5	82.6 + 3.1

Results and Discussion

Due to shortage of space, we are discussing the finding of tests group only as observations of the group are given tabulated form. During the course of study, it was observed that maximum number of cases i.e. 21 cases (42.00%) belonged to age group 45-55 years. Among the total patients 22 cases (44.00%) were males, while 28 cases (56.00%) were females (Table 1).

In present study, house wives were more than service class and business class persons. Business class subjects have more mental stress. Apart from that women do also suffer from life stress. Women are often victims of domestic violence exacerbate vulnerability to anxiety. Service class also have mental stress but less than business class (Table 2).

Majority of patients were non-vegetarian or with mixed diet habit (Table 3). Recent evidences suggest that saturated fat increases blood pressure as well as serum cholesterol. High fat intake (i.e. dietary fat representing 40% or over of the energy supply and containing a high proportion of saturated fats) has been identified as a major risk factor (Kumar *et al.*, 1990). Fish oil is a main source of omega-3 fatty acids and vegetable oil (eg. Sunflower oil) lowers STG, LDL and total cholesterol level and the blood pressure possibly through generation of nitric oxide (vasodilator) and reduces the risk of CHD. Green leafy vegetables due to its fibre content increases the bowel motility and reduces re-absorption of bile salts. Vegetables also contain plant sterol (sitosterol) which decreases the absorption of cholesterol. So that diet advised was effective in reducing blood pressure.

About 24% patients of total 50 cases took added salt in our study and patients had physical inactivity except routine physical work (Table 4 & 5). Studies suggested that such moderate physical activity may lower SBP by 9 to 11 mm of Hg (Schmotz *et al.*, 2008). Additional benefits of regular physical exercise including weight loss enhanced sense of well being, improved functional health status and reduced risk of cardiovascular disease and mortality from all causes.

From the opinion of Unani scholars we deduced that environmental factors implicated in the causation of hypertension include *umoor-e*-nafsaniyah (Tabri, 1995) (stress, anger and anxiety), obesity, excessive consumption of alcohol, physical inactivity, lack of exercise and evacuation. In fact, lack of exercise may cause *imtela or imtialee marz* (congestive disease) like hypertension. Exercise helps to excrete deranged matter without any harm to the body. Regular isotonic exercises produce modest drop in blood pressure in mild to moderate hypertensive subjects.

In our study 40% and 26% patients were smokers and tobacco chewers respectively (Table 6). There is evident that the influence of smoking is not only independent of but also addition with other risk factor such as family history of hypertension, physical inactivity, added salt intake, saturated fat intake, mental stress, smokers have more atherosclerosis than non-smokers, particularly in the aorta (Dey *et al.*, 1980).

Unani scholars asserted that *imtela-e-urooq* occurs due to increased amount of blood which increases the tension in the vessels. Due to atherosclerosis (*salabat-e-sharaeen*) in old patients which reduces arterial compliance that's also increases *imtela* and produces features of *imtela* or hypertension (Ahmad, 1980; Ahmad, 1983). We can deduce that from above account hypertension is a sanguineous temperament in our study. It is proved that hypertension is *damvi marz* (Table 8).

In our study patients were divided into two groups' i.e. low risk BMI and high risk BMI. 32.5% patients fell into BMI group 24-26 kg/m^2 and 30.5% laid down in BMI 26-28 kg/m^2 in low risk BMI. While in high risk BMI, 60% patients fell into BMI group 28-30 kg/m^2, 20% patients in 30-32 kg/m^2, 10% in 32-34 kg/m^2 and 10% in 34-36% BMI group respectively (Table 9).

Symptomatic improvement is always difficult to be evaluated in hypertensive patients. Test drugs have definite sedative effect (Chopra *et al.*, 1956). The combination therapy subside the clinical features of hypertension. Headache, palpitation, fatigability, dizziness, sleeplessness, mental stress, dyspnoea on exertion and nocturia improved in 82%, 88%, 79%, 88%, 84%, 78%, 88% and 76% cases respectively (Table 10).

In the present study, all patients' pursued life style modification with concomitant drugs used. Patients followed this line of treatment. They used low fat diet, especially cessation of saturated fat, increased physical activity and low sodium intake. It revealed significantly the reduction in total cholesterol and serum triglyceride from 220.08 $\pm$ 35.3 to 212.4 $\pm$ 28.3 and 145.7 $\pm$ 26.7 to 131.2 $\pm$ 29.0 respectively (Table 12 & 13). On the other hand recommended high fibre diet also reduces cholesterol level, because it contains sitosterol, which reduces the absorption of cholesterol and it also improves bowel motility. Thus, decrease re-absorption of bile salts.

It was revealed that there is no deviation from the normal limits at the end of study but improved as compared to previous reading. On applying paired t test it was found that blood urea decreases significantly from 28.84 $\pm$ 3.5 to 26.36 $\pm$ 3.3 while reduction in serum creatinine was significant from 1.37 $\pm$ 0.4 to 1.13 $\pm$ 0.4 at the end of study (Table 14 & 15). It showed that range remained within the normal limits but improved from previous reading. Likewise, serum bilirubin, SGPT, SGOT was estimated before and after the study. It was observed that serum bilirubin, SGOT and SGPT reduced insignificantly at the end of the study (Table 16, 17 & 18). It revealed that the test drugs have no adverse effects on liver and kidney rather it may have improved the function of these organs.

At the end of clinical trial, it was found that systolic and diastolic blood pressure reduces significantly from 151.5± 9.5 to 123.8± 6.0 and 93.32 ± 2.5 to 82.6 ± 3.1 respectively (Table 19 & 20). This highly significant result may be most likely because of the following reasons:

1. *Asrol* has sedative, tranquilising, anaesthetic, antiarrythmic, haemostatic, blood purifier effect (Chopra *et al.,* 1958; Kritkar *et al.*, 1996; Baitar, 1999).

2. *Filfil Siyah* has diuretic (*mudir-e-baul*), digestive, resolvent (*muhilal-e-warm*), nervine tonic (*muqqavi asab*), local anaesthetic (*mukhadir*) and bioavailability enhancer of the drug (Kritkar *et al.*, 1996; Khan, ynm; Hakim, 1991).

The test drugs have good effect because Asrol is *triyaq-e-samoom* (antidote), *musaffi-e-dam* (blood purifier), *habis dam* (haemostatic). Symptoms produced due to deranged humor, results imtila-bi-hasbil quwa relieved by *Asrol* because of above cited properties.While *Filfil Siyah* has *mudir-e-baul* (diuretic) action, which reduce *imtala* thus, it is suitable for hypertension.

Conclusion

To conclude, it may be deduced that the effect of the drugs on various clinical and biochemical parameters was highly significant statistically. The drugs were well tolerated and have no serious ill effect. Further advanced studies and research for better drugs combination need to be carried out in this field.

Summarising the above finding, a highly significant reduction in high blood pressure as well as in atherogenic lipid fraction i.e. total cholesterol and serum triglycerides is due to effective drug combination. This underlines the importance of an effective antihypertensive treatment to prevent cardiovascular complications associated with hypertension. Drug treatment as well as life style modification recommendations should be emphasised upon.

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