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Treatment of two cases of chronic kidney disease with dietotherapy (*ilaj-bil-ghiza*), regimenal therapy (*bukhoor aam*) and Unani drugs without dialysis

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ABSTRACT

Background: Chronic kidney disease (CKD) is affective a large portion of the world population prompting the need for extensive healthcare resources such as lifelong dialysis or kidney transplantation. The beneficial effect of conventional therapy in controlling the CKD progression remains a challenge due to their relative efficacy, safety, and accessibility. On the other hand, Unani medicine provides a therapeutic regimen that consists of a combination of treatment from rehabilitation to herbal pharmacotherapy. **Methods:** Two cases of chronic kidney disease were treated with dietotherapy, regimenal therapy ('*bukhoor aam*') and oral herbal drugs for 2-3 weeks. Endpoints of evaluation were symptoms and signs of the CKD, kidney function test, urine albumin, urine RBC, hemoglobin and liver function test. **Result:** Notable improvement was observed in the endpoints. **Conclusion:** Unani treatment was observed preliminarily beneficial in the treatment of chronic kidney disease. Rigorous pharmacological and clinical studies should be performed to warrant their efficacy and safety in CKD individuals.

Keywords Chronic kidney disease, Unani medicine, nephropathy, *ilaj bil tadbeer*, *bukhoor*, dietotherapy, *ilaj bil ghiza*, dialysis, regimenal therapy

1. INTRODUCTION

Chronic kidney disease (CKD) is a major health problem due to its high prevalence, morbidity, and mortality in both developing and developed countries. As per the WHO's data, 1.2 million people died from kidney failure since 2015, an increase of 32% was observed since 2005. In 2010, an estimated 2.3–7.1 million people with end-stage kidney disease died without access to chronic dialysis. It is also estimated that 5–10 million people die annually from CKD. (Luyckx VA *et al.*, 2018)

CKD is a complex disease with the lasting presence of kidney damage, manifested by abnormal albumin excretion or decreased kidney function that persists for more than three months. It is detected through measured or estimated glomerular filtration rate (GFR) (less than 60 mL/min/1.73 m2), urine albumin and serum creatinine. (Thomas R *et al.*, 2008) CKD is associated with an increased risk of cardiovascular disease and end-stage renal disease (ESRD). High-risk groups include those with diabetes, hypertension and family history of kidney failure. Hypertension causes CKD and CKD also leads to hypertension. (Anonymous, 2019)

Conventional treatment abides by lifestyle modifications, limitation of salt and protein, stabilization of blood pressure (preferably with renin-angiotensin-aldosterone system antihypertensive agents), control of diabetes, and lipids lowering agent in dyslipidemia patients. (Gosmanov AR *et al.*, 2014) Although, dissatisfaction arises due to their limited clinical efficacy in prevention and control of ESRD, adverse effects and inefficiency in relieving symptoms related to the disease. The lack of therapeutic options has prompted the usage of traditional healthcare. (Zhong Y *et al.*, 2013) Unani medicine utilizes a set of treatments to treat every aspect of the chronic kidney disease (CKD) under the principles of 'warme kuliya muzmin' and 'za'ufe kuliya' which includes dietotherapy (alteration in the diet), regimenal therapy ('usage of *bukhoor aam*') and oral administration of Unani herbal drugs. Dietotherapy includes reduction of salt and fat intake, avoidance of meat, encouraging diets such as barley water, oatmeal, pomegranate juice, etc. '*Bukhoor aam*' (generalized steam therapy) is one of the regimenal therapy indicated for patients of CKD. It is a method of sweating through the application of steam. It consist of a small sitting chamber with an open neck area (Figure 1). In CKD, diseased kidneys are unable to excrete toxic products from the blood which could be a life-threatening condition. Thus, in Unani medicine evacuation of these toxic nitrogenous products is facilitated toward skin via sweat to decrease the load on diseased kidneys and to prevent further damage. (Sina I, 2010)

Usage of oral herbal drugs intends to correct the underlying cause of CKD such as hypertension, diabetes, dyslipidemia, etc., and to control and prevent the kidney damage through beneficial single and compound Unani herbal preparations. Most of these herbs have been substantiated for their potential anti-

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inflammatory, antioxidant, immunomodulatory, anti-fibrotic, anti-coagulation and anti-dyslipidemic activity. (Wojcikowski K *et al.*, 2006)

In the present case study, informed consent was taken and abiding under the declaration of Helsinki (1964), two cases of CKD were treated with Unani line of treatment and investigated for the beneficial outcomes.

Fig. 1 *Bukhoor aam* apparatus and method

2. METHODS

2.1. Case 1: A 40 years Indian female admitted in Majeedia Unani hospital, Jamia Hamdard on March 17, 2015 with chief complaints of 1) fever from 15 days 2) vomiting after having meals from 15 days 3) cough with thin whitish sputum since 2 years 4) mild pain in bilateral loin and back since 2 years 5) swelling all over body (on and off) since 2 years and 6) general weakness since 3 years. Patients was a known case of CKD (chronic kidney disease) from 2 years and hypertension from 10 years (taking telmisartan H 40mg). The patient has also given a history of enteric fever and antibiotic treatment from a local hospital 8 days ago. On general examination, mild pallor and pitting pedal edema was present. Blood pressure was 140/90 mmHg, pulse was 90 per minute and temperature was normal. On per-abdominal examination, the liver was just palpable and tenderness was observed in the bilateral lumbar region. Initial investigation revealed mild low Hb 10.1 g%, raised blood urea 128 mg/ dL and serum creatinine 4.0 mg/ dL on March 18, 2015. Serum sodium, potassium, chloride, and calcium were 137, 3.8, 101 and 9 mEq/L respectively. Urine had ++albumin, 8-10/ hpf pus cells, +RBC's and 8-10/ hpf epithelial cells. Serum bilirubin was normal while SGOT and SGPT were 40 and 82 IU/ mL. Serum triglyceride and VLDL were disturbed, 266 mg/dL and 53.2 mg/dL respectively.

Ultrasonography of abdomen (March 18, 2015), revealed right kidney slightly small in size measuring 7.7x3.5 cm, normally sited and increased parenchymal echotexture with loss of corticomedullary differentiation, left kidney normal size and sited with increased parenchymal echotexture and loss of corticomedullary differentiation, and mildly enlarge liver 13.4 cm, grade I fatty changes. In chest X-ray (March 18, 2015), bilateral lung field showed the prominence of BV marking, In-homogenous fluffy opacities were seen in the bilateral mid and lower zone? Linea opacity was observed in the right mid zone? Atelectic, cardiac silhouette appeared borderline, unfolding of aorta was there and both costophrenic angles were obscured. Echocardiography had T-wave inversion in I, II, aVF and decrease progression of R-wave in V1-V6 and tachycardia (mild).

As per the concept of Unani medicine, conservative treatment was given on March 17, 2015 and upgraded to systemic treatment as per the line of treatment of '*warme kuliya muzmin*' and '*zau'fe kuliya*'. Regular and strict monitoring of vitals, weight, abdominal girth and intake output chart was maintained on a daily basis. A specific diet was advised as per the concept of '*ilaj-bil-ghiza*' (dietotherapy) of Unani medicine. '*Bukhoor aam*' (generalized steam therapy) from '*ilaj-bit-tadbeer*' (regimenal therapy) was also performed on alternative days.

Diet recommendation: Minimal salt intake; non-oily/ fatty and non-spicy diet; barley and oatmeal in the morning; coconut water; home-prepared pomegranate juice; avoidance of non-veg; and intake of water was managed as per urine output of patient.

Regimenal therapy ('*ilaj-bit-tadbeer*'): '*Bukhoor aam*' (generalized steam therapy) was performed starting from March 18, 2015 till April 5, 2015 on every alternative day (10 sittings). Light walk was also advised. Legs were advised to be elevated. The patient was advised to avoid cold and exertion.

Pharmacotherapy: Following compound Unani drugs were administered orally.

a) Arq makoh 50mL+ Arq Kasini 50mL+ Arq Biranjasif 50 mL, twice daily (morning & evening)
b) Qurse Zulali 2 tablets, thrice daily (morning, afternoon & night)
c) Jawarish Zarooni 7g, twice daily (morning & evening)
d) Qurse kuliya 2 tablets, thrice daily (morning, evening & night)
e) Habbe hilteet, 3 pills, twice daily after meals (afternoon and night)
f) Ajmaloon 2 tablets, before sleep (an antihypertensive, since blood pressure was not controlled with telmisartan-H)
g) Majoon dabidul ward 7g, twice daily after meals (afternoon and night)
h) Sharabtei Anareen, 25mL, twice daily (morning and evening)

Investigation: Repeated analysis of KFT, serum electrolytes, and urine routine and microscopic examination was done on March 20, 2015, March 22, 2015, March 25, 2015, March 30, 2015 and April 7, 2015. Repeat complete blood count (CBC), LFT and serum albumin was performed on April 7, 2015.

2.2. Case 2: A 44 years old Indian male was admitted in IPD of Majeedia Unani hospital, Jamia Hamdard on March 12, 2016 with the chief complaints of 1) headache on and off since 1 year 2) palpitation on and off since 1 year 3) difficulty in walking and standing since 1 year 4) extreme weakness since 2 year 5) swelling all over body since 2 year 6) loss of appetite since 2 years and 7) decrease in urine output since 2years. Patient has given a history of uncontrolled hypertension for 3-4 years and was taking amlodipine 10mg once daily and type II diabetes mellitus (on metformin 500mg before breakfast and before

dinner). He was diagnosed with CKD from 6 months ago and had been treated with dialysis, many times 2 weeks ago. He has been taking biweekly erythropoietin injection and daily calcium and iron supplements. General examination showed mild pallor, pitting pedal edema and puffiness of the face. The patient was afebrile with blood pressure 172/ 112 mmHg and pulse 100/ min. Systemic examination revealed tachycardia. Other systemic examinations were non-significant. Initial investigation (March 13, 2016) revealed Hb 10.9 g%, blood urea 167 mg/ dL, and serum creatinine 6.2 mg/ dL. On urine examination (March 13, 2016), color was yellow, acidic, albumin +++, pus cells 2-4/ hpf, RBC occult, and epithelial cell were 4-6/ hpf. Ultrasound abdomen (March 13, 2016) showed fatty liver grade II and loss of renal echotexture with bilateral chronic kidney disease. Serum sodium, potassium, chloride and calcium were 149, 4.8, 106 and 10 mEq/L respectively. Serum bilirubin was normal while SGOT and SGPT were 127 and 226 IU/ mL. Serum triglyceride and VLDL were disturbed, 212 mg/dL and 35.2 mg/dL respectively.

Systemic treatment as per the line of treatment of '*warme kuliya muzmin*' and '*zau'fe kuliya*' was given. Regular and strict monitoring of vitals, weight, abdominal girth and intake output chart was maintained on a daily basis. A specific diet was advised as per the concept of '*ilaj-bil-ghiza*' (dietotherapy) of Unani medicine. '*Bukhoor aam*' (generalized steam therapy) from '*ilaj-bit-tadbeer*' (regimenal therapy) was also performed on alternative days. An allopathic consultation was also conducted from a specialist in internal medicine from HAHC hospital where the patient was advised to take Telma-H 40mg once daily in the evening. The patient was advised for dialysis by the allopathic doctor but the patient refused. Proper informed consent with additional clauses was taken in this case before the beginning of the Unani treatment.

Diet recommendation: Minimal salt intake; diabetic diet; non-oily/ fatty and non-spicy diet; barley and oatmeal in the morning; coconut water; avoidance of non-veg; and intake of water was managed as per urine output of the patient.

Regimenal therapy ('*ilaj-bit-tadbeer*'): *Bukhoor aam* (generalized steam therapy) was performed starting from March 13, 2016 till March 31, 2016 on every alternative day (10 sittings). Light walk was advised. Elevation of the limbs was advised. The patient was advised to avoid cold and exertion.

Pharmacotherapy: Following compound Unani drugs were administered orally;

a) Arq makoh 50mL+ Arq Kasini 50mL+ Arq Biranjasif 50 mL, twice daily (morning & evening)
b) Qurse Zulali 2 tablets, thrice daily (morning, afternoon & night)
c) Qurse kuliya 2 tablets, thrice daily (morning, evening & night)
d) Habbe hilteet 3 pills, twice daily after meals (afternoon and night)
e) Ajmaloon 2 tablets, twice daily (an antihypertensive, since blood pressure was not controlled with amlodipine) (morning and evening)
f) Ikseere shifa 2 pills, before sleep (as anti-hypertensive and calming agent)
g) Capsule jigreena 2 tablet, twice daily after meals (afternoon and night)
h) Habbe mudir 2 tablet, thrice daily (morning and evening)

Investigation: Repeated analysis of KFT, serum electrolytes, and urine routine and microscopic examination was done on March 15, 2016, March 17, 2016, March 20, 2016, March 25, 2016 and March 30, 2016. Repeat complete blood count (CBC), LFT and serum albumin was performed on March 31, 2015.

3. RESULTS

3.1. Effect on symptoms and signs: (Table 1) Improvement was observed in headache, vomiting, palpitation, cough, pain in bilateral loin and back, generalized weakness, weight, urine intake/ output, edema, swelling all over body, loss of appetite and blood pressure in both cases.

Table 1. Effect of Unani treatment on symptoms and signs

Case 1	Vomiting	++Present (18/03/2015)	Relived (08/04/2015)
	Cough with sputum	++Present (18/03/2015)	Relived (08/04/2015)
	Pain in bilateral loin and back	+Present (18/03/2015)	Relieved (08/04/2015)
	Generalized weakness	+++Cannot walk after 5 steps (18/03/2015)	+Weakness on long walk (08/04/2015)
	Weight	107 Kg (18/03/2015)	100 Kg (08/04/2015)
	Urine intake/ output	1150/750 mL (18/03/2015)	2000/ 1750 mL (08/04/2015)
	Edema	++ (18/03/2015)	Absent (08/04/2015)
	BP	140/90 mmHg (18/03/2015)	130/ 70 mmHg (08/04/2015)
Case 2	Headache	++Present (13/03/2016)	+Present (31/03/2016)
	Palpitation	+++Present (13/03/2016)	+Present on exertion (31/03/2016)
	Difficulty in walking	+++Present (13/03/2016)	+Present (31/03/2016)
	Extreme weakness	+++Present (13/03/2016)	+Present (31/03/2016)
	Swelling all over body	++Present (13/03/2016)	+Present (31/03/2016)
	Loss of appetite	+++(13/03/2016)	Relieved (31/03/2016)
	Urine intake/ output	900/400 mL (13/03/2016)	1900/1650 mL (31/03/2016)
	Weight	60 Kg (13/03/2016)	57 Kg (31/03/2016)
	BP	172/ 112 mmHg (13/03/2016)	140/ 80 mmHg (31/03/2016)

3.2. Effect on investigation: (Table 2) Levels of blood urea and serum creatinine were decreased in both the cases after Unani treatment. Raised liver enzymes also returned to normal. In both cases, excretion of albumin through urine turned to almost negative after treatment. Patients were tested positive for presence of RBC's in urine which also became negative after Unani treatment.

Table 2. Effect of Unani treatment on investigations

Investigations	Case 1	Case 2
Hb (g%)	10.1 (18/03/2015)	10.9 (13/03/2016)
	10.9 (07/04/2015)	11.9 (30/03/2016)
Blood urea (mg/ dL)	128 (18/03/2015)	167 (13/03/2016)
	118 (20/03/2015)	150 (15/03/2016)
	99.6 (22/03/2015)	109.3 (17/03/2016)
	79.1(25/03/2015)	97 (20/03/2016)
	68 (30/03/2015)	71 (25/03/2016)
	60 (07/04/2015)	67.7 (30/03/2016)
Serum creatinine (mg/ dL)	4.0 (18/03/2015)	6.2 (13/03/2016)
	3.9 (20/03/2015)	6.0 (15/03/2016)
	3.6 (22/03/2015)	5.76 (17/03/2016)
	3.06 (25/03/2015)	4.12 (20/03/2016)
	2.7 (30/03/2015)	3.3 (25/03/2016)
	1.9 (07/04/2015)	2.2 (30/03/2016)
Urine albumin	+ + (18/03/2015)	+++ (13/03/2016)
	Nil (07/04/2015)	Trace (30/03/2016)
Urine RBC	+ (18/03/2015)	Occult (13/03/2016)
	Nil (07/04/2015)	Nil (30/03/2016)
LFT (SGOT)	40 (18/03/2015)	127 (13/03/2016)
	30 (07/04/2015)	23 (30/03/2016)
LFT (SGPT)	82 (18/03/2015)	226 (13/03/2016)
	40 (07/04/2015)	43 (30/03/2016)

4. DISCUSSION

Unani medicine has unique potential in treating chronic systemic diseases including chronic kidney disease (CKD). Lack of uniform therapy for control and prevention of nephropathy in modern medicine demands the involvement of the traditional system of medicine in the treatment. Unani medicine is one of the age-old medical sciences which provides a combination of regimes to reach treatment goals in CKD. Unani medicine suggests a line of treatment in CKD which consist of alteration of the diet, regimenal therapy (usage of '*bukhoor aam*' to expel the toxic nitrogenous substance through skin via sweat), and the oral Unani drugs to treat and prevent nephropathic changes and the root cause of these pathological changes. (Sina I, 2010)

In the present study, both the cases were treated on the same principle of treatment and noteworthy improvement was observed in their symptoms, kidney function test, and urine albumin.

Sticking the patients to a diet regime has remarkably helped the patient in lowering their blood pressure. Advisable diets such as oatmeal and barley water are considered as anti-inflammatory diets with additional benefits of their protein content, helpful especially for albuminuria condition. (Rasane P *et al*., 2010; Hokazono H *et al*., 2010; Cremer L *et al*., 1998)

Application of regimenal therapy is an important part of treatment strategy in the management of diseases in Unani medicine. Unani medicine theorized to maintain the homeostasis of the body in disease condition by applying treatment through counteraction ('*Ilaj-bil-zid'*) i.e. evacuation of the toxic material should be performed in case of its retention. If the primary organ for its excretion is in a diseased situation, evacuation should be aided through a complementary organ. (Sina I, 2010; Hamdani KH, 2011)

'*Bukhoor aam*' is one the regime in *'Ilaj-bit-tadbeer'* to facilitate sweat production to achieve numerous benefits. It is also admissible in the treatment of CKD to evacuate the toxic nitrogenous bi-products via sweat. (Hamdani KH, 2011) The apparatus of '*bukhoor aam*' consists of a chamber where a patient can sit comfortability in a chair with an opening for the neck. The face remains outside of the chamber, thereby left to be free from steam. The temperature of the steam can be made favorable as per the tolerance of the skin and the body of the patient to allow sweating of the whole body. The core concept of using '*bukhoor aam*' is to divert the culprit toxic products to another excretory area (*'imal-e-mawad'*). In chronic kidney disease patients, afflicted kidneys are unable to process and excrete toxic nitrogenous products from blood through urine. Unani fundamentals promote the diversion of these toxic products of blood from the kidneys to their complementary excretory organs such as skin and excrete them in the form of sweat to maintain homeostasis. The partial or impartial diversion of the toxic products from the diseased kidneys decrease the workload and recover the injury and further functioning of the kidneys. (Sina I, 2010; Hamdani KH, 2011)

The '*bukhoor aam*' chamber is more tolerated than hammam chambers (Turkish bath) to the patient with cardiorespiratory issues as the head remains away from steam (since many patients including systemic disease patients complain palpitation and breathlessness inside hammam chambers). (Hamdani KH, 2011) Unani drugs used in the cases such as arq makoh (*Solanum nigrum*) and arq kasini (*Cichorium intybus*) (distilled water of the respective leaves) are a potential anti-inflammatory, diuretic and antioxidant agent which may have to recover the diseased kidneys. (Salama AM *et al.*, 2016; Wang Y *et al.*, 2019; Amin KMY *et al.*, 1994; Zaman R *et al.*, 2017; Jainu M *et al.*, 2004) Similarly *'qurse zulali'*, '*habbe mudir'*, *'qurse kuliya'* and *'jawarish zarooni'* are potent diuretics and nephroprotective in Unani medicine and have been used in every prescription of kidney diseases. Scientific shred of evidence in favor of their beneficial role in CKD also promote their usage. (Afzal M eta al., 2003; Khaliq T *et al*., 2013; Alam A *et al*., 2016) '*Majoon dabidul-ward'* is compound semisolid sugary preparation consists of a combination of the herbs in different proportions. It is used as a tonic in chronic kidney disease. The main constituent is rose *(Rosa damascence)* which has been evidenced as an antioxidant, anti-inflammatory and diuretic agent in various studies. (Alam A *et al.*, 2016; Bozorgi M, 2017; Patil PS *et al.*, 2015) The usage of 'sharbate anareen' is well justified to be used in CKD due to its diuretic and anti-inflammatory actions as well as helpful in raising hemoglobin in anemic CKD patients. (Sina I, 2010) Quality of life (Qol) was also improved in both cases.

Walking and self-care became easier to them. However, formulized Qol assessment was not done in the present cases.

5. CONCLUSION

A combination of therapies of Unani medicine was observed beneficial in chronic kidney disease patients with additional relief in symptoms. Further multicentric clinical study should be performed on a larger population for their add-on or individual effect in CKD.

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CONFLICT OF INTEREST

None

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