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International Journal of Current Research
Vol. 7, Issue, 12, pp.24785-24788, December, 2015

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

CONCEPT OF CHRONIC KIDNEY DISEASE AND ITS MANAGEMENT IN UNANI MEDICINE- A REVIEW

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ARTICLE INFO

Article History:
Received 08th September, 2015
Received in revised form
10th October, 2015
Accepted 15th November, 2015
Published online 30th December, 2015

Key words:

Chronic kidney disease,
Zauf-e-kuliya,
Unani Medicine.

ABSTRACT

Chronic diseases have become a major public health problem accounting for 60% of all deaths worldwide. In India, the projected number of deaths due to chronic disease was around 5.21 million in 2008 and is expected to rise to 7.63 million in 2020 (66.7% of all deaths). Globally, chronic kidney disease (CKD) is the 12th cause of death and the 17th cause of disability, respectively. Unani medicine is an ancient system of medicine which advocates the treatment of chronic disease with drugs of natural origin. Ancient Unani physician Hippocrates (460-375BC) recognized for the first time kidney as a vital organ responsible for urine formation [3]. Unani literature described kidney disease in detail based on ancient pathology of disease along with complete management which is still in practice. As per Unani concept kidney has been provided by four ordinary powers viz. *Quwwate Jazibah* (absorptive power), *Quwwate Hazimah* (digestive power), *Quwwate Masikah* (retentive power) *and Quwwate Dafiah* (power of expulsion) and one unique power i.e. *Quwwate Momaiyazah* (power of discrimination) upon which normal functioning of kidney is based. Also, there are four types of abnormalities that take place in kidney viz. *Amraz Sue Mizaj, Amraz Sue Tarkeeb, Amraz Sudda* and *Amraze Tafarruque Ittesal* which forms the basis of all renal diseases. The term Zauf-e-kuliya is used to describe deranged kidney functions resulting into bol-e-ghussali (proteinuria). This paper is an attempt of understanding the ancient Unani patho-physiological concept of chronic kidney disease for finding an alternative solution of the problem.

Citation: Shah Alam, Mohammad Akhtar Siddiqui and Mohammad Maaz, 2015. "Concept of chronic kidney disease and its management in Unani medicine- A review", *International Journal of Current Research,* 7, (12), 24785-24788.

INTRODUCTION

Chronic diseases are a leading cause of morbidity and mortality in India and other low- and middle-income countries. The chronic diseases account for 60% of all deaths worldwide. Eighty percentage of chronic disease deaths worldwide occur in low- and middle-income countries (WHO, 2005). In India, the projected number of deaths due to chronic disease was around 5.21 million in 2008 and is expected to rise to 7.63 million in 2020 i.e. 66.7% of all deaths (Anonymous, 2010). Chronic kidney disease (CKD) is a worldwide public health problem characterized by a gradual loss of kidney function over a period of time (for more than 3 months to years). Globally, CKD is the 12th cause of death and the 17th cause of disability, respectively. The high risk groups are patients with diabetes mellitus, hypertension, elderly people and blood relatives of CKD. Approximately 30% of patients with diabetes mellitus have diabetic nephropathy and with the growing number of diabetic patients and aging population there is likely a parallel increase in CKD incidence (Sicree *et al.,* 2006). CKD has no specific symptoms initially and may present with a general unwell feeling accompanied with reduced appetite. It is often diagnosed while screening of high risk group people with hypertension or diabetes or family history or when it leads to one of its recognized complications, such as cardiovascular disease or anaemia. Loss of kidney function is generally detected as an increase in the serum creatinine or protein in the urine. Early diagnosis and treatment can often keep CKD from getting worse. If kidney disease progresses, it may eventually lead to kidney failure, which requires dialysis or a kidney transplant to save life (https://en.wikipedia.org/wiki/ ; https://www.kidney.org/).

Unani concept

Unani physician Hippocrates (460-375BC) was skilled in diagnosis through microscopic detail of urine analysis. Artaeus of Cappadoicia (30-90AD) and Galen (130-200AD) recognized kidney as the vital organ responsible for urine formation (Brenner, 2000). Urine formation starts from the

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liver which is considered as "Kitchen house" for the body. In the process of digestion liver facilitates the conversion of chyme into blood with the help of water. After the completion of Nuzj (Metabolism) of chyme three types of fuzlat (metabolic wastes) viz. Raghwah (foam), Talchhat (argols) and Bol (urine) are produced. Kidney harvests nutrition from the blood coming down from liver and absorb water leaving behind urine for excretion (Maseehi, YNA; Jurjani, 2010). Kidney being a vital organ has been supplied by five natural powers; four ordinary and one unique power for effective normal functioning. These natural powers are as follows:

- *Quwwate Jazibah* (Absorptive power): This power absorbs *Khilte dam* (blood) and *Maiyat* (water/fluid) towards kidney through natural forces.
- *Quwwate Masikah* (Retentive power): This power holds *Khilte dam* (blood) and *Maiyat* (water/fluid) for a limited time period to facilitate the action of *Quwwate Hazimah*
- *Quwwate Hazimah* (Digestive power): This power enable kidney to take up its nutrition from the enriched blood through *Istahalah* (metabolism).
- *Quwwate Mumaiyyazah* (Discriminative power): This is the unique power of kidney which separates metabolic waste and discriminates between useful and harmful metabolites; holding back useful ones. This power of selective re-absorption may be responsible for ultrafilteration.
- *Quwwate Dafiah* (Expulsive power): This power helps to expel out the metabolic waste (Urine) only, through excretory organs.

When *Quwwate Masikah* gets weak or alter *Khilte dam* (blood) and *Maiyat* (water/fluid) passed as such without getting metabolised as they were not given sufficient time to undergo *Istahalah* (metabolism). Thus, skipping the action of *Quwwate hazimah* takes place. When *Quwwate Hazimah* gets alter or weak kidney could not harvest its nutrition from the blood carrying nutrients alongwith water and waste matter. When *Quwwate Mumaiyyazah* of kidney gets alter or weak, it results in the loss of ability to differentiate between essential and toxic substances of metabolism. This ultimately leads to the excretion of valuable nutrients through urine leaving behind toxic substances in the body (Ibn Rushd, 1982).

Classification of kidney disease

Ancient physicians classified kidney disease into four major categories viz. Amraz-e-Sue Mizaj, Amraz-e-Sue Tarkeeb, Amraz-e-Sudda, Amraz-e-Tafarruq-e-Ittesal.

Amraz-e-Sue Mizaj

Normal *mizaj* (temperament) of kidney is *har ratab* (hot and moist). Any deviation from this innate *mizaj* produces variable pathological conditions based on the type and extent of deviation. These are as follows: (i) *Sue mizaj har* (abnormal hot temperament), implies when temperament of the kidney exceeds its normal hot temperament. (ii) *Sue mizaj barid* (abnormal cold temperament), normally kidney does not have cold temperament, but having comparatively lesser degree of hotness than normal physiological temperament is considered as cold, in certain diseased conditions. (iii) *Sue mizaj ratab* (abnormal moist temperament), normal temperament of kidney is moist also, which when exceeds turn into disease. (iv) S*ue mizaj yabis* (abnormal dry temperament), implies when kidney acquires dryness thereby deviating from its normal moist temperament resulting into pathological state (Ibn Zuhar 1986, Ibn Sina, 2007).

Amraze Sue Tarkeeb

This pathological condition results in the malformation of kidney. It occurs due to three basic abnormalities viz. amraz-e-khalqat [structural anomalies]; amraz-e-miqdar wa adad [deformity in size and number], amraz-e-waza [deformity in arrangement of kidney] (Ibn Sina, 2007).

Amraze Sudda

Sudda is an obstruction, affecting any part of the kidney mostly ducts, tubules and vessels. The narrow path may be occluded due to stone, blood clot, abnormal growth or tumour etc. producing disease in the kidney (Ibn Sina, 2007).

Amraze Tafarruque Ittesal

This is an acquired pathological condition of the kidney arising from a tissue injury following trauma, wound and rupture of blood vessels etc. resulting in loss of continuity of the organ. The deformities sometimes occur in the body of the kidney and sometimes in its tubules (Ibn Sina, 2007).

Zauf-e-kuliya

Zauf-e-kuliya is an important kidney disease mentioned in Unani literature, which occur primarily due to one of the *sue mizaj* mentioned above. The pathology occurs in muscular part of kidney, which is mainly responsible for the absorption and filtration of the blood. The vessels, ducts and pores get dilated due to which reabsorption and filtration of blood doesn't occur properly. The filtrate contains blood stain and nutritious matter, and urine appears like *ghussalah* (wash of meat). *Ghussalah* is the urine containing RBC's, proteins, casts and other abnormal constituents. These constituents cross the filtration barrier, due to the weakness and large sized pores of the kidney vessels. When albumin (ratoobate zullali) doesn't reabsorb or not separated by the kidney, then it starts appearing in the urine and in this condition the body swells up (Ibn Sina, 2007). Majoosi stated that blood stained micturition occur due to the weakness of *quwwate mumaiyyazah*. Sometimes it may be due to the weakness of *quwwate masikah*. Third reason is the expansion of the narrow vessels or dilation of the pores of the barrier, which filter the blood. As a result, large volume of urine passes out mixed with blood. Generally there is no pain while urination but sometimes patient may feel mild pain (Majoosi, 2010). Rhazi states that zauf-e-kuliya is a pathological condition in which kidneys are unable to separate water and other substances from the blood and pass it out as such into the urinary bladder resulting into the excretion of a dilute protein containing urine (Rhazi , 1991). Ibn Sina states that zauf-e-kuliya is a disease in which kidney function either get decreased or collapsed due to which separation of water and other substances from the blood gets affected (Ibn Sina, 2007).

According to Jeelani in zauf-e-kuliya not only the kidney function associated with metabolism and absorption of Maiyat (water or fluid) gets deranged, but also the filtration mechanism as well, resulting into high coloured urine containing protein or albumin [bol-e-ghussali or bol-e-zullali] (Jeelani, YNA). It is evident from above statements that ancient Unani scholars were aware of kidney disease since antiquity. They not only diagnosed the disease but also successfully treated such cases.

Etiological factors

Unani scholars mentioned in great detail several causative and risk factors which are involved in the development of the kidney disease. These are old age, heavy weighting lifting, excessive coitus, excessive fatigue, excess of horse riding, excess of long journey, renal trauma, excessive use of diuretics and more fluid for filtration than handling capacity of kidney (Khan, 2010; Ibn Sina, 2007 ; Jeelani, YNA; Jurjani, 2010; Samarqandi, 2007).

Clinical features

Scanty but frequent micturition, general weakness, loss of appetite, loss of weight, loss of libido, backache, proteinuria or bol-e-ghussali, concentrated urine with rasoobe lehmi, headache, reduced vision, dull complexion, cold lower extremity and back, swelling over face and limbs, indigestion , flatulence, nausea and vomiting (Khan, 2010; Ibn Sina, 2007; Jeelani, YNA; Jurjani, 2010; Samarqandi, 2007).

Unani pathology

Unani scholars attributed following pathological changes in zauf-e-kuliya for the deterioration of renal functions (Ibn Rushd, 1982; Ibn Sina, 2007; Ibn Zuhar, 1986; Jeelani, YNA; Jurjani, 2010; Khan, 2010; Majoosi, 2010; Maseehi, YNA; Rhazi , 1991; Samarqandi, 2007). Sue mizaj har mustehkam (stable & hot derangement in the temperament) of kidney

- Amraz-e-sue tarkeeb (deformity in shape and size) of kidney making it soft or loose in consistency and enlarged in size
- Amraz-e-suddah wa mujari (urinary tract deformity or obstruction) causing dilatation and hypertrophy of renal tubules, vessels and capillaries
- Weakness either in quwwat-e-jazibah, or quwwat-e-masikah, or quwwat-e-hazimah or quwwat-e-mumayyizah of kidney
- Ijtima-e-qiwaam-e-gurda (deposition of renal matrix)

It is noticeable that majority of Unani scholars considered dilatation and hypertrophy of renal tubules and capillaries, deposition of renal matrix, excessive quantity of fluid entering kidney, soft and enlarged kidney mass as principle pathological changes in zauf-e-kuliya. Clearly, these changes are found in accordance with modern pathology viz. glomerular hypertrophy, hyperfiltration and increase of mesangial matrix involved in nephropathy.

Unani principles of treatment

Sue-mizaj har gurda is the most common cause of zauf-e-kuliya which requires

- Ta'deel-e-mizaj with barid advia wa tadabeer (restoration of normal temperament with drugs and procedures having cold properties)
- Muzeeqat wa mugharriyat adviya (constrictive and glutinous drugs)
- Qabiz-habis adviya wa aghzia (astringent, styptic drugs and diet)
- Taqviyat-e-kuliya with muqawwiyat-e-gurda (strengthening of renal power with renal tonics)
- Taqleel-e-harkat-e-badani wa istefragh (reduction in the body movements and evacuation) (Jeelani, YNA; Jurjani, 2010; Khan, 2010; Samarqandi, 2007)

Drugs used in kidney disease

The following Advia-e-Mufrada or single drugs have been used for the treatment of nephropathy by Unani physicians. (Aksarai, YNA; Jurjani, 2010; Khan, 2010; Samarqandi, 2007) Table 1. Following advia-e-murakkaba (compound formulations) have also been used in the treatment of kidney disease Table 2.

Table 1.

Unani name	Botanical name
Aalu balu	*Prunus cerasus*
Anabussaalab (Mako)	*Solanum nigrum*
Afyoon	*Papaver somniferum*
Ajwain khurasani	*Hyoscyamus niger*
Badiyan	*Foeniculum vulgare*
Behman surkh	*Salvia haematodes*
Behman safaid	*Centaurea behen*
Bekh-e-Anjbaar	*Polygonum bistorta*
Behidana	*Cydonia oblonga*
Chaksu	*Cassia absus*
Dar chini	*Cinnamomum zeylinicum*
Duku	*Peucedamum grande*
Dam-al-Akhwain	*Pterocarpus marsupium*
Filfil siyah	*Piper nigrum*
Gul-e-Surkh	*Rosa Damascus*
Gul-e-Tesu	*Butea frundousa*
Gulnar	*Punica granatum*
Habb-ul-Qilt	*Dolichos biflorus*
Hilteet	*Ferula foetida*
Isapghol	*Plantago ovate*
Juft-e-Baloot	*Quercus incana*
Kafoor	*Cinamomum camphora*
Kaknaj	*Physalis alkekengi*
Kundur	*Boswellia serrata*
Maghz-e-Badam	*Prunus amygdalus*
Maghz-e-Chilghoza	*Pinus gerardiana*
Maghz-e-Pambadana	*Gossypium herbaceum*
Maghz-e-Pista	*Pistacia vera*
Maghz-e-Tukhm-e-Kaddu	*Cucurbita moschata*
Maghz-e- Tukhm-e-Tarbooz	*Citrullus vulgaris*
Maghz-e- Tukhm-e-Kharpaza	*Cucumis melo*
Parsioshan	*Adiantum capillus*
Revand chini	*Rheum aemodi*
Samagh-e-Arabi	*Acacia Arabica*
Salajeet	*Black asphalt*
Sandal safaid	*Santalum album*
Sat-e-Gilo	*Tinospora cordifolia*
Shib-e-Yamani	*Aluminum sulphate*
Tukhm-e-Hulba	*Trigonella foenum graecum*
Tukhm-e-Kahu	*Lactuca sativa*
Tukhm-e-Karafs	*Apium graveolens*
Tukhm-e-Kasni	*Cichorium intybus*
Tukhm-e-Kasoos	*Cuscuta reflexa*
Tukhm-e-Katan	*Linum usitatissimum*
Tukhm-e-Khurfa	*Portulaca oleracea*
Unnab	*Zizyphus vulgaris*
Zard chob	*Curcuma longa*
Zanjabeel	*Zingiber officinale*

Table 2.

Formulation	Ingredients
Jawarish Zarooni	Tukhm-e-gazar, Tukhm-e-karafs, Nankhuah, Badyaan, Maghz tukhm-e-kharpazah, Maghz tukhm-e-khayarain, Baikh-e-karafs, Aqarqarha, Taj qalmi, Zafran, Mastaghi, Ood kham, Bisbasah, Qaranfal, Kebab chini, Filfil siyah
Majoon Falasfa	Tukhm-e-baboona, Zanjbeel, Filfil siyah, Filfil daraz, Amla, Halelah, Shaitaraj hindi, Zarawand mudharraj, Khusia-tus-salab, Baikh baboona, Maghz-e-chilghoza, Narjeel, Maweez munaqqa, Shahed khalis
Majoon Laboob	Maghz-e-badam, Maghz-e-akhrot, Maghz-e-chilghoza, Maghz-e-qilqil, Maghz-e-pista,Narjeel, Khashkhaash safaid, Tudri surkh, Tudri zard, Behman surkh, Behman safaid, Qaranfal, Dar filfil, Zanjbeel, Aqarqarha, Kabab chini, Dar chini, Shaqaqil misri, Khulanjaan, Tukhm-e-jarjir, Tukhm-e-piyaz Tukhm-e-shalgham, Tukhm-e-halyoon, Shahed khalis
Habb-e-Azraqi	Kuchla mudabbar, Dar chini, Joz bawa, Bisbasah, Ood saleeb, Qaranfal
Qurs-e-Gulnar	Gulnar, Samagh-e-Arabi, Gil-e-Armani, Gul-e-Surkh, Kateera
Kushta Baiz Murgh	Post baiz-e-murgh, Sheer-e-Aakh
Kushta Faulad	Burada faulad, Arq leemu kaghazi,
Jawarish Jalinoos	Balchhar, Darchini, Ilaichi, Khulanjaan, Taj qalmi, Qaranfal, Sad kufi, Zanjbeel, Filfil siyah, Qust sheerin, Ood balsan, Asaroon, Chiraita, Zafran, Mastagi

Conclusion

It is evident from the review of ancient Unani literature of kidney disease that there is enough resemblance between pathological changes described by ancient scholars and the pathology at present. Therefore, the management employed in the ancient times must be explored further for its validity in the current scenario thereby finding an alternative solution of the problem.

Acknowledgement

I am thankful to Dr. Mohd. Akhtar Siddiqui for his cooperation and guidance during this study. Also, I am thankful to faculty of Unani medicine and Majeedia Unani Hospital, Jamia Hamdard for providing necessary facilities in bringing out this work.

Competing interests

The authors declare no conflict of interest.

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