Journal of Herbal Medicine 8 (2017) 1–7

Contents lists available at ScienceDirect

Journal of Herbal Medicine

journal homepage: www.elsevier.com/locate/hermed

Review article

Scientific appraisal of urolithiasis and its remedial measures in Unani medicine

Shaikh Ajij Ahmed Makbul[a,*], Abdul Wadud[b], Nasreen Jahan[b], Ghulamuddin Sofi[b], Mohd. Imran Khan[b]

[a] Dept. of Ilmul Advia (Pharmacology), Dr. Abdul Haq Unani Medical College and Hospital, Kurnool, Andhra Pradesh, India
[b] Dept. of Ilmul Advia (Pharmacology), National Institute of Unani Medicine, Bangalore, India

ARTICLE INFO

Article history:
Received 12 December 2015
Received in revised form 18 October 2016
Accepted 24 January 2017
Available online 25 January 2017

Keywords:
Unani medicine
Urolithiasis
Calculi
Kidney stones
Mufattit
Mudir

ABSTRACT

Unani Medicine, an age old system of medicine which is widely practiced in south Asia, draws on the ancient traditional systems of medicine in China, Egypt, India, Iraq, Persia and Syria. It uses remedies of plant, animal and mineral origin which can treat a number of diseases successfully. These remedies, whose efficacy is evident mainly from observation, have been prized for centuries. Although some of the medicines have been examined to investigate their efficacy and possible mechanism of action, many have not yet been documented. It is therefore timely to look at these unexplored remedies in order to understand and make best use of their acknowledged effects.

Urolithiasis (the development of kidney calculi or stones) is a complex process resulting as a consequence of an imbalance between promoters and inhibitors in the kidney. The etiology is multifactorial, but strongly related to dietary habits and lifestyle. Calculi in the urinary tract have been mentioned in the literature of Unani medicine under the headings *Hasate Kulliyah* (kidney stone), *Hasate Masana* (bladder stone) and *Hasate Kulliya wa Masana* (kidney and bladder stone). The calculi are treated mainly by *Mufattite Hasat* (lithotriptic) and *Mudir* (diuretic) drugs effectively. The etiology, pathogenesis, clinical features and the properties of medications used in the treatment of urolithiasis have been discussed by Unani physicians in a comprehensive manner. A number of remedies used for urolithiasis and studied scientifically in different *in vitro* and *in vivo* models have shown activity against urolithiasis. In this paper, we have attempted to collect and analyze information available on urolithiasis, the medications used in Unani Medicine for treating this disorder, and possible correlation between Unani and modern concepts of urolithiasis, if any.

Contents

* Corresponding author. Permanent Address: H- No. 16-6-427, Osmanpur, Chaderghat, Hyderabad, 500024, India.
E-mail addresses: aziznium@gmail.com, abdullahsyed71@yahoo.in (S.A.A. Makbul), drwadud87@gmail.com (A. Wadud), nasreen2000@yahoo.com (N. Jahan), sofi114@rediffmail.com (G. Sofi), imrannium@gmail.com (M. I. Khan).

http://dx.doi.org/10.1016/j.hermed.2017.01.003
2210-8033/

1. Introduction

Stone formation in the urinary tract is one of the oldest and wide-spread diseases known to man. Remnants of urinary calculi have been found in the tomb of Egyptian mummies dating back to 400 BCE, in the graves of the native North Americans from 1500 to 1000 BC, and reference to stone formation is made in the early Sanskrit documents in India between 3000–2000 BCE (Bahuguna et al., 2009). Urolithiasis is a complex process which results as a consequence of an imbalance between promoters and inhibitors in the kidney (Pareta et al., 2011). The aetiology is multifactorial but strongly associated with dietary habits, and life style (Ahmed et al., 2013). The pathogenesis of calcium oxalate stone is a multi-step process, which includes nucleation, crystal growth, crystal aggregation and crystal retention within the renal tubules (Saha and Verma, 2015). Lithiasis is predominantly a male disorder with a recurrence rate of 70–80% in men, and 47–60% in women (Rathod et al., 2014). Many remedies have been employed throughout the ages to treat urinary stones. Most of these remedies were from plant sources and shown to be useful. Although the rationale behind their use is not well established except for a few plants and some proprietary composite herbal drugs, they are reported to be effective with no side effects (Nandkarni, 1976). Unani Medicine, which is widely practiced in south Asia, draws on the ancient traditional systems of medicine in China, Egypt, India, Iraq, Persia and Syria (Lone et al., 2012). Urolithiasis is discussed in classical Unani literature under the headings of *Hasate Kulliyah* (kidney stone), *Hasate Masana* (bladder stone) or *Hasate Kulliya wa Masana* (kidney and bladder stone) (Razi, 2001; Sina, 2007; Majoosi, 2010; Jurjani, 2010). Herbal medicines can be as efficient and have lesser side effects when compared to conventional medicines. These medicines also reduce the recurrence rate of urinary calculi (Prasad et al., 2007). In Unani Medicine calculi are treated mainly by *Mufattite Hasat* (lithotriptic) and *Mudir* (diuretic) remedies together with supportive therapies. Many Unani drugs have been in use for centuries based on empirical research. It is now time to investigate the efficacy of these drugs on scientific parameters, to examine the claims of Unani physicians. The present paper, therefore, aims to make the Unani concept of urolithiasis clear and explain its use of antiurolithiatic drugs within an integrated approach.

2. Methodology

Well known scientific search engines *viz*., PubMed, Medline, Google Scholar, and Science Direct were used to retrieve online literature. All referenced studies published in indexed journals were included. For Unani literature, available classical texts used within undergraduate and postgraduate training were examined (using translations provided by the Central Council for Research in Unani Medicine, supported by the Government of India). The keywords for the search included urolithiasis, etiology of urolithiasis, management of urolithiasis, and antilithiatic drugs. Information regarding urolithiasis was gathered on disease definitions, causes and management. Classical Unani books were used for Unani terms. The literature from Unani medicine is cited as a reference wherever they are quoted. The key words used in classical books for the search of literature related to this study are *Hasate Kulliyah* (kidney stone); *Hasate Masana* (bladder stone) and *Hasate Kulliya wa Masana* (kidney and bladder stone) *Mufattite Hasat* (lithotriptic) and *Mudir* (diuretic) drugs. Glossaries of Indian Medicinal Plants and indexed journals were consulted for botanical and English names.

3. Causes of urolithiasis in unani medicine

Most of the renowned Unani physicians agree that *shadeed hararat* (excessive heat) and *khilte ghaleez* (viscous humour) are two important factors which promote urolithiasis (Majoosi, 2010; Qumri, 2008; Baghdadi, 2005; Razi, 2001). Majoosi, in his book, "*Kmilus Sana*" explains that *ratubat* (moistness) in *khilt* (humour) which is already viscous is dried by excessive heat which over a period of time is then transformed into stone. The narrow lumen of the kidney and urinary tracts further facilitate the formation of stone (Majoosi, 2010). Similarly, Razi (Rhazes) in his book, "*Al Hawi fil Tib*" has stated that excessive body heat evaporates moisture from the *lesdar mawad* (viscous matter) which is entangled within the organ. Its deposition and hardening over a period of time leads to the formation of stones (Razi, 2001). It was further explained by Ibn Hubal (Arab physician and scientist c. 1122–1213) that in the case of gravel, the viscosity of humour is moderately increased; hence gravel formed is not very hard and when it reaches the larger spaces of the kidney, it is excreted slowly from the urinary tract along with urine and forms a residue in the urine. Whereas in stone formation, viscosity of the humour considerably increases, leading to the formation of very hard and larger particles becoming lodged in the small spaces of the kidney and urinary tract (Baghdadi, 2005; Kabeeruddin, 2011). According to Unani concepts, kidney is a *haar uzw* (hot organ); its heat makes the stones harder when they reside in it for a longer period. Over a period of time, the secondary deposition makes the stones larger. The presence of stone in the bladder provokes the formation of kidney stones (Majoosi, 2010; Qumri, 2008).

According to Galen, renal stones are formed when *reeh* (air) is trapped in the kidney spaces and becomes hard. An added cause for renal calculi is ulceration of the kidney, as pus formed due to ulceration is retained and later solidifies to serve as a nidus for stone formation. According to Ibn Sina (Avicenna), bladder and kidneys are both favourable sites for the formation of calculi. He further states that the prolonged stay of morbid matter in the urinary tract is instrumental in stone formation. These morbid matters, which may be *balgham* (phlegm), *dam* (blood) or reeh (gas), are produced due to *ghaleezul kaimoos ghiza* (foods forming viscous chyme) such as thick milk, paneer (fresh cheese common in S.Asia), fried meat, rice, milk, concentrated *falooda*,*roti,* white and sticky flour, *halwa,* hard to digest fruits and foods, and poor quality wine (Kabeeruddin, 2011). A similar view is shared by Ismail Jurjani. In addition, he stated that irregular food habits and abstinence from sex, especially when the liver and gastro intestinal tract are weak, increase excessive heat in the kidney and are responsible for stone formation (Jurjani, 2010).

The explanations given by Ibn Qurrah, Rhazes, Avicenna, and Ibn Zuhr (Avezor) about the formation of stones have much in common as they all thought that heavy foodstuffs, dairy products and poor kidney function may result in stone formation. They also considered outflow obstruction as a cause, and familial tendencies. All these explanations are similar to the modern view (Dajani, 2002).

4. Urolithiasis in different stages of both life and sex

It is mentioned in classical Unani literature that renal calculi are common in middle age, whereas vesicle calculi happen after adolescence. There are two reasons for the formation of renal calculi in middle age. As a person moves into middle age, his body suffers a decrease in its *hararat* (heat) and a predominance of *Khilte balgham* (phlegmatic humour). These factors cause a weakness of the digestive system and narrowing of the lumen of the urinary tract, which allows only smaller particles to pass through the