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URINARY INCONTINENCE *(SALASAL BAWL)* IN GRECO-ARABIC MEDICINE: A REVIEW

URINARNA INKONTINENCIJA *(SALASAL BAWL)* U GRČKO-ARAPSKOJ MEDICINI: PREGLED

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Summary

Introduction: *Greco-Arabic Medicine imparts vast knowledge regarding diseases afflicting different systems. Urinary incontinence (UI) is involuntary leakage of urine. It is an undiagnosed, under-reported, and frequently untreated medical condition that greatlyaffects the quality of life of women in any age. Therefore, a literary search in classical literature of Greco-Arabic medicine for UI was explored to implement in current era. Material and Methods: Meticulous literature search was carried out to comprehend the concept of urinary incontinence described in ancient Unani literature. The classical Greco-Arabic medicine texts were searched. Further, browsing of PubMed/Google Scholar and other websites was carried by searching complementary and alternative treatment for urinary incontinence and herbal remedies useful in urinary incontinence.*

Results: *The causes of urinary incontinence described in Greco-Arabic texts are abnormal temperament of body or bladder, dislocation of vertebrae, pregnancy, diuretic, laxity of musculature of bladder, diseases of surrounding structure such as uterine inflammation, omphalitis, constipation, etc. The principle treatment is treating the cause viz., the temperament is corrected by diet and herbs in abnormal temperament, and elimination of morbid humour*

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is required in dominance of humour. Further, web search showed that herbs are useful in Urinary diseases. However, evidences are weak. Conclusion: The classical Greco-Arabic texts are enriched with important information. Thus documentation and preservation of the traditional knowledge is required so that it can still be conserved for future research in pharmaceuticals and drug discovery.

Key Words: *Urinary incontinence; Greco-Arabic medicine; Unani medicine; humour; Salasalbawl.*

Introduction

Urinary continence (salasal bawl) is the capability to hold urine within the bladder around the clock except during micturition. The continence mechanism comprises a sophisticatedly organized series of nerves, muscles, and connective tissue that dynamically influence bladder control. This arrangement allows timely and complete bladder emptying and also maintains continence during remarkable increases in abdominal pressure [1]. On the contrary; urinary incontinence is defined as the complaint of any involuntary loss of urine. Both continence and micturition depend upon a lower urinary tract, consisting of the bladder and urethra, which is structurally and functionally normal [2]. Urinary incontinence (UI) is an under-reported, undiagnosed, and often untreated medical condition that highly impacts the quality of life for women at any age [3,4]. In conventional medicine, various treatment modalities for urinary incontinence range from medical management, Kegel's exercises, biofeedback, electrical stimulation, pharmacotherapy and surgical intervention.

There has been a growing reappearance and resurgence of interest in indigenous systems of medicine and traditional herbal remedies, which are regarded as quite safe with minimal or no side effects, cost effective, readily available and easily affordable [5]. Because of prompt and positive effect of herbal treatment they have strong faith and people are returning back towards traditional medicine. Hence, a literary search in classical literature of Greco-Arabic medicine for urinary incontinence was appraised to implement in existing era. Further, websites were also searched to collect evidences regarding usefulness of herbal medicine in urinary incontinence.

Meticulous literature search was carried out to comprehend the concept of urinary incontinence described in ancient Greco-Arabic (Unani) literature. The classical Unani texts viz., Al Qanoon fit Tibb (Canon of Medicine), Al Hawi (Continens Liber), Zakheera Kharzam Shahi, Firdousul Hikmat (Paradise of Wisdom), Tarjuma Kamilus Sana, Tibbe Akbar, Kitabul

Mukhtarat fit Tibb, Akseer Azam, Kitabul Kulliyat etc were referred. These classical texts were referred for anatomy, physiology, causes, symptoms, types and management of urinary incontinence in the perspective of Unani system of medicine. Further, browsing of PubMed/Google Scholar and other websites was carried by searching complementary and alternative treatment for urinary incontinence, herbal remedies useful in urinary incontinence and herbs and urinary symptoms. The inclusion criteria were above terms and full length free accessible articles and exclusion were abstracts. Very few articles full length were available on browsing with above terms and these have been added.

Greco-Arabic (Unani) system of medicine is one of the few among ancient systems of medicines existing today that still retains its classical essence. Its principles and postulates are as related today as they were in ancient times. The name 'Unani Tibb' or 'Unani Medicine' has a medical tradition and a history, embraced and shaped by people of different cultures over a thousand years stretching from the Eastern Mediterranean and West Asia to North Africa, Hispano-Arabia and Western Europe in the west, to Central, South and South-East Asia to the east.

The literary search in classical texts showed that urinary incontinence is recognized since antiquity [6]. The oldest medical prescription comes to us from Mesopotamia dating back to 2100 B.C. Egyptian manuscripts the Papyrus Smith and the Papyrus Ebers from the 2000 B.C. are the first sources briefly dealing with urinary incontinence [7]. In the Egyptian Edwin Smith papyrus and in the writings of Hippocrates urinary symptoms are discussed in spinal injuries [6].The Egyptian Ebers Papyrus dated c. 1550 B.C. consists of a collection of about 900 to 1000 medical recipes[6,7]. Among them one can find remedies "To remove the urine which runs to often" and "to remove constant running of the urine" [8]. Juniper berries, cypress and beer were recommended for the treatment of incontinence and if child cried opiates were recommended [6]. Furthermore, these Egyptian sources already mentioned devices for the collection of urine in males and also pessaries for women [7].

Urinary incontinence in Greco-Arabic medicine

Greek medicine was dominated by the outstanding work of Hippocrates (460-377 B.C.)] who has written extensively about the diseases of the urinary tract. Despite his discussion on perineal lithotomy he also dealt with the management of urinary incontinence. Claudius Galen (129-201 AD)

undertook physiological experiment on the lower urinary tract and put forward that micturition is conducted by contraction of the abdominal muscles [7]. He also carried out extensive investigations in his experiment involving section of the spinal cord. He showed that in diseases of the spinal cord there was atony of the bladder. He also demonstrated in animal experiments the valvular action of the bladder neck [6]. Concerning the causes of urinary retention he differentiated clinically between paralysis of the bladder after spinal injury and sub vesical obstruction due to bladder stone [9]. Aetius (mid-5th to mid-6th century) wrote in his treatise that incontinence in children is differentiated as either continual and dribbling or occasional and nocturnal, and the former was attributed to paralysis of the sphincter of the bladder [6].

The Islamic physicians made detailed studies of the urine and described many of the urinary diseases [6]. Zakariya Razi, Al Majoosi, Ibn Sina, Ismail Jurjani, Akbar Arzani, Azam Khan etc wrote specifically on UI. For example, Muhadhdhab al Deen Al Baghdadi (1117-1213 AD) described that the bladder wall consists of two layers, contrary to Galen (130- 200AD) who described that the bladder wall is formed only of one layer. The anti reflux and micturition mechanisms, was also contrary to Galen view but conformed well to contemporary understanding [10]. Further details are summarized as follows

UI in classical texts is defined as involuntary loss of urine [11-18] and unable to control urine [14].

Anatomy and physiology

Ibn Rushd (Averroes) writes that bladder is located between pubis and rectum. Bladder is formed by two layers and its neck is formed by muscles. The urine from the kidney flows into the bladder through ureters. The ureters traverse obliquely and enter into the bladder. The opening of the ureters in the bladder is covered by valves, which prevents backward flow of urine [19]. Ali ibn Rabban Al Tabari described that the bladder is made of thin nerves and coldness (buroodat) is less in it. It is located below the kidney and consists of orifice from which urine flow and it is called as bladder neck. Urine from the kidney flows through thin vessels towards the bladder [20].

Avicenna quoted that "in the bladder neck, there is a fleshy and sensitive material which is adjacent to the muscles related to the bladder." He mentioned in Canon of medicine that "the bladder has 2 layers: the internal and external layers. The internal layer is undercoat of the bladder and its power and firmness is twice as much as the external layer, because the internal layer

has to being touch with the astringent urine." As discussed in contemporary medicine, the bladder has 3 layers: the first layer is the urothelium, which is in contact with the urine. This layer, because of tight junctions between its adjacent apical cells, is impermeable to water. The middle layer is muscular and the external layer is adventitia, whereas the second and third layers of bladder have been discussed as one layer by Avicenna. When the ureters reach the bladder, the bladder opens its two layers and includes the ureters in it. First, these tubes pass the hiatus of the first layer, and then, they pass between the two layers at the necessary distance. Then, they perforate the lining under coat layer and reach the depth and the cavity of the bladder. Removable and useless liquid (urine) pours intothe bladder until the bladder become full. The internal layer adheres to the external layer and these two layers are in contact together as if they are united originally and there is no pore and passage between them. Because of this unity and adherence, the retained urine in the bladder has no retrograde pathway to the ureters. In contemporary medicine, it is described that two ureters laterally descend from the kidneys towards the bladder, and then, the urine produced in the kidneys pours into the bladder, being ready to be expelled during urination through the urethra. Anatomically, the ureteral pathway in the bladder wall is very interesting. The ureters first pass through the ureteral hiatus, and then, the seromuscular layers of the bladder (external and middle layers). After reaching the suburothelium, they traverse about 1 cm in the submucosa [21]. Muhadhdhab al Deen Al Baghdadi (1117-1213 AD) described that the ureters, first pierces its (the bladder) external layer and independently passes in between the two layers until it reaches its neck then pierces through the internal layer to its lumen. Therefore, the more urine is contained in it, the more the internal layer comes closer to the external until the maximum amount of urine is reached causing tight adjoining of the two layers and the two holes lying in the external and internal layers become, thus, blocked. Then there is no remaining chance for the urine to return back to where it came from, but then it stimulates the volition to let it out. And on its neck (around the bladder neck) there is a muscle that contracts and keeps the urine retained until it is let go by volition when it opens up for the urine to come out [10].

In physiology of micturiton, the 2-phase function of the bladder to which Avicenna pointed, has lately been described by Yoshimora and Chancellor as a premise. According to this premise, function of the bladder has 2 separate phases of bladder filling (storage phase) and bladder emptying (voiding, urination, or emptying phase). It is noticeable that Avicenna described this

premise 10 centuries ago. The author discussed that urination is under the control of the brain voluntarily and tendons are made of collagen. Excess collagen decreases elasticity of the bladder and increases intravesical pressure. At the time of Avicenna there was no microscope, and thus, differentiation of the connective tissue from smooth muscles was impossible. Sphincteric compression increases when the bladder volume increases by urinary filling. Vice versa, this sphincter relaxes under the human being's control during voiding, so that urine is expelled out. This striated sphincter is supported by the pelvic floor muscles. An impaired striated sphincter or pelvic floor muscle can lead to urinary incontinence. Ibn Sina accurately gave description of the voluntary striated sphincter of the urethra accords with modern urologic findings [21].

Etiology

Greco-Arabic scholars were well aware of etiology of urinary incontinence. Ali bin Abbas Majoosi (930-994 A.D) in his valuable compilation "Kamilus Sana" (Fig 1) mentioned that laxity of muscular layer of bladder, which surrounds the neck of the bladder or duct causes involuntary loss of urine. Morbid matter in the bladder leads to weakness in retentive power (zoafe quwatemasika), henceforth, UI is frequently seen in children and other causes are dislocation of vertebrae, laxity of ligaments of bladder which also results in loss of control on urine [22]. Ali ibn Sahl Rabban Al Tabari (838–870 A.D) discussed in his treatise "Firdousul Hikmat" that dribbling of urine occurs because of laxity of musculature of bladder and weakness in bladder (zoafe masana) or excessive heat of bladder (hiddate masana) [20]. Ismail Jurjani writes in his treatise "Zakheera Kharzam Shahi" that there are five main causes of incontinence. They are abnormal cold temperament (sue mizaj barid), weakness in the bladder muscles (zoafe azlate masana), alcohol, diuretics and excessive fluid intake, dislocation of vertebrae or injury to bladder musculature, disease of surrounded structure such as uterine inflammation or omphalitis or constipation, and pregnancy [13]. Avicenna (980-1030 AD) describes in his renowned text "Canon of Medicine" (Fig 2) that the causes of UI are laxity of bladder wall or abnormal hot temperament of bladder, inflammation in surrounding structures of bladder and dislocation of the bladder [11]. Akbar Arzani (1721 A.D) in "Tibb Akbar" and "Meezanul Tibb" was of same opinion as Avicenna [17,23]. Ibn Rushd writes in his book "Kitabul Kulliyat" that the cause of urinary incontinence without pain is laxity of muscles of bladder neck [19]. Kabiruddin mentioned that the causes

of incontinence of urine are coldness of bladder, laxity of bladder musculature, excessive cold matter, and weakness of bladder, diuretics, alcohol, and fracture of vertebrae leading to dysfunction of muscles of bladder. Ligaments of bladder are broken leading to displacement of bladder, pressure from surrounding structures as in pregnancy, and inflammation in surrounding structure like uterine inflammation [12]. Muhadhdhab al Deen Al Baghdadi also wrote in "Mukhtarat fit Tibb" that excessive coldness or hotness of bladder, laxity of bladder muscle, dislocation of vertebrae, diabetes, pregnancy, and weakness of bladder musculature are the causes of urinary incontinence [18]. Samarqandi wrote the causes of urinary incontinence are excessive coldness of bladder, dislocation or fracture of vertebrae anteriorly, and other causes. Further he discussed that in coldness of bladder, the cause of UI is excessive cold humour and the muscles of bladder are weakened by the accumulation of morbid matter [12,15]. In dislocation of vertebrae, vertebrae are displaced and the ligaments are torn, which leads to laxity of bladder and it is unable to squeeze itself for urination, thus causing incontinence. Sometimes, the vertebrae are dislocated, and the ligaments are not torn, but the muscles are affected and not able to squeeze bladder musculature properly, leading to retention of urine. In internal dislocation

Fig. 1- Urinary incontinence in Kamilus Sana writen by Al Majoosi (Text in Arabic)

Fig. 2 - Urinary incontinence mentioned in vol 3 of Canon of Medicine writen by Avicena (Text in Arabic)

of vertebrae muscles of the bladder are loosen and unable to contract causing incontinence. Furthermore, the vertebrae compress the bladder and urine gets accumulated in it, excess in quantity, causing urge incontinence [15]. In hotness of bladder, excessive heat causes urethral dilatation and abnormal temperament causes weakness of the bladder [2,15] leading to incontinence of urine. The other causes are inflammation of surrounding structures such as uterine inflammation, inflammation of umbilicus or omphalitis), dislocation of bladder (khale masana), loaded rectum, pregnancy, weakness of bladder in children and excessive use of cold and moist diet [14, 16].

Ajmal Khan discussed that bladder stone or inflammation, diabetes, prolapse and worm infestation in children, sometimes indigestion, weakness, paralysis and spinal cord injury are the causes of urinary incontinence. Moreover, He said that in the elderly urinary incontinence is common [14]. Kauser Chandpuri mentioned that the causes of UI are diuretics such as alcohol, musk melon and chebula; laxity of bladder muscles because of abnormal temperament in the bladder muscle, weakness in absorptive power of bladder muscles or inflammation leads to abnormal temperament and excessive fluid intake, dislocation of vertebrae because of trauma or injury, or disease [24]. Hari Chand Multani described that incontinence of urine is not a disease but symptom of diseases cause because of bladder weakness, kharsh masana, laxity of bladder, paralysis, general debility, worm infestation in children, prolapse and nocturnal enuresis in children [25]. Gulam Jilani was of same opinion as Multani in his compilation "Mikzanul Hikmat" stated that UI is the symptom of various diseases. He said that causes of incontinence are weakness of bladder, laxity of bladder muscles, bladder stone, diabetes, prolapse, worm infestation in children, and indigestion [26].

Types

Ghulam Jilani stated that urinary incontinence is of two types; (1) weakness of bladder or laxity of bladder muscles leads to dribbling of urine in small quantity and patient is unable to control urination (2). In irritation of bladder, involuntary loss of urine occurs during sleep or while sitting [26].

General symptoms

The signs and symptoms of dominance of humour are as follows:

- Dominance of blood (Ghair tabayi khilte dam): Symptoms and signs of dam being dominant are heaviness in the body, especially in the base of the eyes, in the head and the temples. There is necessarily stretching and yawning. Fainting and drowsiness, senses become disturbed and the reasoning are dull. Fatigue occurs even without any preceding exertion. There is a usual sweetness in mouth and the tongue is red. Boils appear frequently in the body and pustules in the mouth. Bleeding occurs from the places which may easily rupture like nostrils, anus and gums.
- Dominance of bile (Ghair tabayi khilte safra): Symptoms and signs of dominance of safra are yellow color of the body and the eyes. Bitter taste in the mouth, rough and dry tongue, dryness of nostrils, excess of thirst, feeling of delight in cool breeze, rapid pulse, weak appetite, nausea, bilious vomiting of green and yellow color, and irritative diarrhoea. The dreams in which fires and yellow flags are seen. Moreover, the things which are not yellow are seen to be yellow and blaze. Heat, as from a (hot) bath and the sun are seen.
- Dominance of phlegm (Ghair tabayi khilte balgham): General symptoms and signs of dominance of phlegm are excessive pallor, flabbiness of body and muscles, cold and moist skin, excessive salivation and viscid saliva, thirst is diminished especially in the elderly persons, a weak digestion with acid eructation, pale urine, excessive sleepiness, mental dullness and soft pulse of slow rate and speed. Age, habits previous treatments, occupation residence etc also help in identifying the predominance of phlegm [27].

Specific symptoms

- Coldness of bladder (Buroodate masana): Akbar Arzani mentioned that in dominance of coldness and moistness the clinical features of UI are urine is white without burning micturition. Moreover, other symptoms of abnormal cold temperament are present and this condition is seen after cold and moist diseases [16, 23].
- Laxity of bladder muscles: White urine without burning micturition, spasm and other symptoms of cold temperament of body or organ are present [16].

– Dislocation of vertebrae: Diagnosis is made by clinical examination [15]. The clinical features are urine is white with other symptoms of abnormal cold temperament and it is not associated with burning micturition [23].
– Hotness of bladder: Symptoms of excessive heat such sas unable to bear hot foods, urine is high colored [15,16] and taking hot things are harmful [23].

According to Ajmal Khan other symptoms are enuresis, frequency of micturition, excessive sleep. Gulam Jilani mentioned that all symptoms of weakness of bladder are present. Other symptoms are indigestion, general weakness, and fatigue [25].

Management of UI in Greco-Arabic medicine:

Principles of treatment

The main principle of treatment in Greco-Arabic system of medicine is treating the cause. Astringent (qabiz), analgesic (musakhin) and bladder tonic drugs (muqawwie masana advia) are useful [18]. Treating the cause of warame naf, khale masana or pregnancy will alleviate UI [12,28]. In dominance of coldness (galbae buroodat), masikul bawl advia are useful [18].

– Diet (Ghiza): Soup of goat meat, green gram with chapati is advised as diet.[15] Meat with coriander leaf is useful in cold temperament [24].
– Advice: Advice to stay in warm place, [14] avoid lying in supine position,avoid cold and moist items such as water, ice, rice, curd, butter milk, etc [15]. Avoid strenuous exercises, intercourse [29], diuretics such as alcohol [23], Cucumis melo seed, if they are the cause of involuntary loss of urine [12, 17, 23].
– Regimenal therapy (Ilaj bil Tadbeer): Dry cupping (Hijamah bila shart) or zamad zaft is applied in inward dislocation of vertebrae cause by trauma and if dislocation is outside manipulation is done [12,16,17,28,30]. There is no treatment for the incontinence that occurs because of torn ligaments [16,17].
– Single drugs (Ilaj bil Mufreda): Ruta graveolence (suddab) fresh or dry, orally is useful in controlling urinary incontinence. Nardostachis jatamansi root (sumbhul tib roomi) or Apiumgraveolence seed (tukhme karafs) powder or kali tulsi extract orally is useful in UI [31]. Locally, peel of watermelon 170 or 100g is dried and pounded and local application is useful in UI.

– Locally: Application of sima'q (fine powder) on genital organs, from suprapubic till umbilicus is useful to control UI. Nardostachis jatamansi root (sumbhul tib roomi) or Apiumgraveolence seed (tukhme karafs) powder or kali tulsi extract on suprapubic area is also useful in UI [31].

Compound formulation (Murakkabat)

Unani treatment according to causes is mentioned in table 1.

Table 1: Unani Medicine According to causes of Urinary incontinence

Causes	Unani medicine useful in UI
Masikul bawl Advia	Quercus incana fruit (baloot), tukhme mulib, Alpinia galanga (kulanjan), Acorus calamus (vaj), rasan khushk (equal quantity) are pounded to make powder, and orally, 10.5g, twice daily is advised to control urinary incontinence [13].
Zoafe masana (Weakness of bladder)	Majoon kundur, Majoon rasheedin, majoon jaweedi or masikulbawl har [12]. In weakness of bladder tablets of fine powder of Cinnamomumzylenicum bark (darchini) with sugar, 2g daily at night is useful in UI [12,28]. Likewise 4.5g of kundur at night is also beneficial [11, 12, 28]. Kundur 2 surkh, mastagi 2 surkh, zaranbad, powder with gulkhand asli, or jawarish Jalinoos7g or jawarish mastagie is advised orally in the morning [15,29] majoon kkundur 7g or majoon falasafa 7g or jawarish zarooni 7g or majoon masikul bawl 7g with arq badiyan150g is given orally in the evening [15]. Majoon luooob [12,28] or safoof khurfa or dawae motadil are useful in UI caused by zoafe masana.
Galbae buroodat and rutoobat	Hot drugs like Boswellia serrata (kundur) [16, 23,24], Pistacia lentiscus (mastagi)[16], Alpinia galanga (kulanjan)[16, 23], Sassurea lappa (qust) [16], Cyperus scariosus (nagarmotha) [15,16, 24] long, Lavandula stoechas (ustokhuddoos), Cuminum cymimum seed (zeera)[24] etc are useful as they increase heat in the organ and qabiz drugs like Quercus incana fruit (baloot), Myrtus communis fruit (habbul aas), Punica granatum flower (gulnar) etc are also useful in urinary incontinence. Locally, mishk, jundbadastar mixed in oil is applied. Itrafeel Kabir and sager are useful however, it is mixed with ghee and fried [15,23]. Majoon baloot, majoon gulnar, majoon falasafa are useful in urinary incontinence caused by buroodate masana [28].

Causes	Unani medicine useful in UI
Galbae burood-at masana	Locally, warm oil of Rosa damascena (roghan gul) can be applied [24]. Application of Matricaria chamomile flower oil (roghan baboon) wa nargis on suprapubic is useful[16, 28].
Galbae hara-rat masana	Tabasheer, gulnar, Arminium bole (gile armani), Portulaca oleracea seed (tukhme khurfa), Lactuca sativa seed (tukhme kahu) are useful to control involuntary loss of urine [23]. Avicenna mentioned that cold (barid) and astringent (qabiz) herbs such as kishneez, Rosa damascena flower (gule surkh), Cuminum cymimum seed (zeera) 50g, tabasheer, 10g and Lactuca sativa seed, Arminium bole 50g, Punica granatum granatum flower 10g, Cinnamomum camphora extract (kafoor) 5g, Acacia arabica gum (samagh arabi) 20g, water of sour Punica grantum or Vateria indica (kehruba), Arminium bole, Terminelia chebula unripe fruit (haleela siyah) , Quercus incana fruit, aadas 20g, coriander (kishneez) fried soaked in vinegar (sirka)10g and sharbat10g is useful in ziabeteshar [30]. Gule surkh, tabasheer, tukhme khurfa each 17g soaked in sirka, kish-neez khushk, juft baloot, habul aas, gulnar, gile armani, samaghe arabi each 7g, tukhme khurfa 3.5g, kafoor 2g to make tablets. This tablet is given with a'b anar tursh, and Plantago lanceolata water (a'b bartang). Locally, paste of gile armani, Santalum album (sandal), Acacia arabica extract of pods (aqaqia) with a'b simaq is applied on pelvis and back [18].

- Razi mentioned that masikul bawl advia are useful in patients with involuntary loss of urine without excessive thirst and loss of weight [29]. The compound formulation of baloot 175g, kundur 105g, kishneez kushk, gile armani, samagh arabi each 35g is powdered and orally 10.5g is administered twice daily. Qurs tabasheer is also useful in involuntary of loss of urine [12].
- Sesamum indicum seed (kunjad siyah) mixed with jaggery (20g) one tab twice daily is useful in incontinence [14,15]. According to Ajmal khan powder of mastagi roomi 4mg (4 ratti) mixed with gulkhand asli 10g is advised orally in involuntary loss of urine [14].
- Age: In children, orally, ravdri and ghaz is useful to control involuntary loss of urine [14, 15]. In young and elderly, kushtae baize murgh

1tab with majoon falasafa 7g orally or kushtae qurs faulad, kushtae zamarud 1tab with jawarish zarooni 7g orally is useful in urinary incontinence. In elderly, orally, powder of Sesamum indicum seed (kunjad siyah) and ajwain seed (Carum capticum) (equal quantity) with desi qand siyah (quantity equal to both drugs) is useful to control incontinence of urine[14].

- Powder of mastagi 1g, kundur1g, and jufte baloot 1g with jawarish mastagi 7g is given orally for the treatment of urinary incontinence [14].
- kushtae qurs faulad,1tab or kushtae qurs khabsul hadeed, 1tab or kushtae poste baize murgh 1tab, jawarish Jalinoos 7g, orally is also useful in urinary incontinence [14].
- Post anar (3 g) powder at night is useful in control of urination [25]. Equal quantity of singada and sugar, 6 g orally, twice daily is also useful in urinary incontinence [25].
- Majoon kundur 7g or majoon masikul bawl 7g or laboobe kabir 5g[14]. Majoon falasafa 7 g along with extract of Foeniculum vulgare seed (arq badiyan) 60 g, and Solanum nigrum fruit (arq mako) 60 g is given orally in the morning or jawarish Jalinoos7 g to 10g along with extract of leaves of Borage officinalis (arq goazaban) or arq badiyan 120 g is useful in UI. Orally, Mastagi roomi and kundur each 1 g is used with itrefeel 10 g and arq goazaban 130 g in the morning is useful in this condition [31].
- Jawarish zarooni (7-9g) with arq badiyan 120g, orally in the morning is useful in UI. Majoon jufate baloot 6–10g or majoon qust 6-10g or majoon khubsul hadeed 7-9g is useful in UI. Majoon kundur 5g or jawarish mastagi 9g with arq badiyan 120g orally is useful in UI [31].
- Majoon Kalkalanaj [16], Majoon kundur 5g or jawarish Jalinoos 6g along with arq saunf 80 g orally is useful in incontinence of urine in adults [25]. Safoof masikul bawl 6 g in adults and 2g in young children is advised in urinary incontinence [19].

Non-evidence and Evidence based search on Website:

Certain natural remedies for incontinence are herbal Medicine, acupuncture, yoga, meditation, dietary changes, pelvic exercises and biofeedback.

Christofi and Hextall carried out an evidence-based approach to lifestyle interventions in urogynaecology. They reported that urinary incontinence, overactive bladder symptoms, urgency, urinary tract infections and cystitis were common conditions that troublesome and effect on physical, social and

mental wellbeing. They review examined the effect on these symptoms of lifestyle factors (such as fluid intake, dietary components, weight, smoking, exercise and bowel habit), complementary therapies (such as herbal remedies, acupuncture and hypnotherapy), behavioral therapies (bladder training and timed and prompted voiding), pelvic floor muscle training and some over-the-counter preparations. They found that many of them, however, lack a solid evidence base with regard to their efficacy and a small number of trials have been subjected to robust randomized trials. They concluded that it is broadly recognized that there necessitate for further prospective interventional studies of all lifestyle interventions to appraise the effects of modifying these factors on lower urinary tract symptoms [32].

Jackson et al., investigated the qualitative analysis of the use of complementary and alternative remedies to treat urinary symptoms and discovered findings that broaden beyond what has been learned from other studies. Majority complementary and alternative medicine (CAM) users did not anticipate their allopathic providers to have much knowledge regarding CAM, and they had also sought care from these providers. African-American men were the highest users of CAM (44%), and use was more common for all users of higher socioeconomic status. Study participants reported a variety of remedies used to treat urinary symptoms, from well- known products, such as saw palmetto, to less commonly known remedies, such as moabi. Participants learned about remedies through social networks. Using CAM to prevent the onset of illness is very different than using CAM to treat a health problem rather than from their primary care provider [33].

Diet and Herbal remedies

Commonly used herbal remedies are:

- Gosha-jinki-gan: Gosha-jinki-gan (polyherbal formulation) is one of the best-studied herbal remedies for bladder problems. Studies conducted in Japan found that gosha-jinki-gan improved frequency, urinary urgency, nighttime urination, and quality of life in both men and women with overactive bladder. Based on animal studies, researchers believe this herbal supplement increases bladder capacity and reduces the number of bladder contractions via its effects on the nervous system.
- Buchu (Barosma betulina): South Africans have used preparations made from the buchu plant to treat a number of different ailments,

including bladder and kidney infections. This medicinal plant is having anti-inflammatory, antibacterial, and diuretic properties. Buchu remedies may act like tonics to improve the overall health of the urinary system, according to Espinosa. "They nourish the bladder tissue - make it healthier, more supple,"

- Cleavers: Cleavers is an ingredient in herbal remedies for treating urinary problems, in part because of its diuretic effect. It also acts as a soothing coating along the inside of the bladder wall that may protect against irritation.
- Cornsilk: Cornsilk has been a remedy for urinary infections for so long that even the ancient Incas once used it. Cornsilk may have a soothing effect on the urinary tract.
- Horsetail: Horsetail acts as a diuretic, anti-inflammatory, and antioxidant. It has been used to treat kidney and bladder stones, urinary tract infections, and incontinence, although there isn't much research to prove its effectiveness in humans.
- Saw palmetto: Several studies have focused on saw palmetto for urinary symptoms, particularly in men who have an enlarged prostate gland. It has anti-inflammatory as well as its effects on testosterone levels (which affect prostate growth) [34].
- Chinese herbs such as A. Oxyphyllae fructus, Radix linderae (Lauraceae) and Dioscorea opposite (Dioscoreaceae) are useful in urinary incontinence [35].
- Diet: Even your diet can be a natural remedy for incontinence, but dietary changes are just as much about what you don't consume as what you do. Caffeinated beverages, alcohol, spicy foods, citrus fruits, dairy products, sweeteners (even natural ones like sugar and honey) are to be avoided. Foods and drinks to include: whole grains, vegetables, non-citrus fruits and legumes. Fruit juices are another great addition, particularly cranberry, grape, and apple juices. Avoid drinks with added sugar and dilute apple and grape juices with water, since these juices are naturally high in sugar. Too little water can be just as bad as too much, since dehydration will cause the urine to become more concentrated with toxins. This could irritate the bladder even more and increase the risk of developing a urinary tract infection [36].

Other complementary and alternative treatments

- Acupuncture: From the studies in 2005 and 2009, women participating in acupuncture treatments reported significant improvements in bladder control and reduced daytime accidents. The study in 2009, women who were given a placebo treatment instead of acupuncture reported similar results [36].
- Yoga for incontinence: Regular performance of the Utkatasana (Chair Pose) and unpopular exercise known as Mula Bandha (sometimes spelled Moola Bandha). Yoga Exercises have reported improvements in bladder control. Similar to Kegel exercises, these movements help to strengthen and thicken the muscles of the pelvic floor which provides increased urinary control [36].
- Meditation for incontinence: Researchers at Loyola University (2009) conducted a study where women with UI performed audio meditation exercises twice per week. It was reported that without any guided poses...simply listening to audio recordings and performing the relaxation and visualization exercises resulted in a reduction of urinary accidents: from an average of 38 times per week to an average of 12 times per week [36].
- Exercise for incontinence: Urinating is a muscular action. UI results when the pelvic floor muscles become too thin and weak to control the bladder. The muscles responsible for bladder control must be specifically targeted and strengthened to achieve long-term relief from urinary incontinence. Exercise is essential to overcome incontinence, performing Kegels and other abdominal and back exercises [36].
- The ayurvedic remedies useful for inability to hold back the urination are consumption of two teaspoons of honey before bedtime or one teaspoon of dry jamun seeds powder twice a day or 15-20 each of raisin and walnut for two weeks [37]. Utarbasti [38] and prosteez tablets are useful in urinary disorders [39].

Discussion and Conclusion

Currently, the traditional health care system that was once used to be the salvation of the people appears to be in the verge of extinction. The wealth of information conserved as an unwritten medicinal knowledge amongst the ethnic communities and texts seems to be gradually vanishing and the oral tradition of passing on knowledge from generation to generation is waning. Thus documentation and preservation of the traditional knowledge are the great challenges of the hour, so that the vast knowledge residing in classical texts can still be conserved for future research in pharmaceuticals and drug discovery. Further, there haven't been many scientific studies to test effectiveness of herbal remedies used Greco-Arabic medicine and other traditional system of medicine. However, many modern, anecdotal reports combined with centuries of traditional use would indicate that natural remedies like herbal medicine have been effective in reducing urinary incontinence for many people.

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Sažetak

Uvod: Grčko-arapska medicina objedinjuje znanje koje se odnosi na bolesti različitih organskih sustava. Urinarna inkontinencija nevoljno je curenje urina. To je nedijagnosticirano, rijetko prijavljeno te često neliječeno zdravstveno stanje koje znatno utječe na kvalitetu života žena svih dobi. Stoga je provedeno istraživanje UI u literaturi klasične grčko-arapske medicine kako bi se primijenilo u današnje doba. Materijali i metode: Proveden je minuciozan pregled literature kako bi se razumio koncept urinarne inkontinencije opisan u antičkoj literaturi Unani-medicine. Osim toga pretražen je PubMed/Google Scholar i druge mrežne stranice kako bi se pronašlo komplementarno i alternativno liječenje urinarne inkontinencije te biljna sredstva koja su se koristila pri njenu liječenju. Rezultati: Uzroci urinarne inkontinencije opisani u tekstovima grčko-arapske medicine neuobičajena su stanja tijela ili mokraćnog mjehura, dislokacija kralježnice, trudnoća, diuretik, slabost muskulature mokraćnog mjehura, bolesti okolnih struktura, primjerice upala maternice, omfalitis, konstipacija itd. Osnovni je princip liječenja liječenje uzroka, naime neuobičajena stanja korigirana su prehranom i biljem, a pri prevagi tjelesne tekućine potrebno ju je ukloniti. Pregled dostupnih izvora na internetu ukazao je da bi bilje bilo korisno u liječenju urinarnih bolesti. Međutim dokazi su slabi. Zaključak: Klasični tekstovi grčko-arapske medicine obogaćeni su važnim informacijama. Potrebno je dakle dokumentirati i očuvati tradicionalna znanja kako bi bila pohranjena za buduća farmaceutska istraživanja te istraživanja lijekova.

Ključne riječi: *urinarna inkontinecija; grčko-arapska medicina; Unani-medicina; tjelesne tekućine; Salasal bawl.*