



## *Achillea millefolium* L. as a Recommendation for the Management of Hysteria

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Received: 19 Dec 2019

Revised: 3 Jan 2020

Accepted: 10 Jan 2020

### Abstract

Hysteria is an intricate disorder which the exact reason has not yet been determined. Sensory-motor symptoms such as falling down, aphonia and jerky movements are common and similar to seizure-like disorders, except that the patient remembers everything after waking up. Non-organic reasons are the most prominent explanations for this situation. Many treatments are offered for hysteria but patients still wander between psychiatrists and neurologists and suffer therapeutic failures, relapses and burden of disease. Persian medicine as an old medical school has clear definitions about the physiopathology and experienced therapeutic suggestions for hysteria. Since this situation can influence patient quality of life, it is worthwhile to find a solution for this debilitating disorder.

**Keywords:** Hysteria; Conversion disorder; Yarrow; Herbal medicine; Persian medicine

**Citation:** Zakeri S. *Achillea millefolium* L. as a Recommendation for the Management of Hysteria. Trad Integr Med 2020; 5(1): 19-25.

### Introduction

Hysteria is a complex obscure syndrome with different names during medical history include pithiatism, conversion neurosis and today is known as functional neurological disorder [1]. However it is relatively an uncommon condition [2] but some studies have estimated the prevalence of conversion disorder up to 32% [3]. The incidence of hysteria is ten times more common

between women than men, so it was considered a female reproductive organ related disorder [4]. According to diagnostic and statistical manual of mental diseases criteria (DSM-IV), conversion disorder (modern name for hysteria) is characterized by involuntary and unfeigned symptoms by affecting motor or sensory functions similar to neurological or medical disease and also classified as a somatoform disorder [5].

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Blindness, psychogenic non-epileptic seizures, paralyses, unresponsiveness, anesthesia, aphonia (not able to say utter a word) and abnormal gait are common symptoms [6].

Managing of hysteria is difficult and cooperation between neurologists, psychiatrists, psychologists and physiotherapists is required because of complexity and challenging diagnosis however there are no specific pharmacological or psychological treatments for hysteria [6,7]. Frequent hospitalization, distress and disability are other common concerns about hysteria [7]. Some traditional medical schools such as Persian medicine (PM) have special approaches and treatments for hysteria [8]. The aim of this study is to present an effective remedy for hysteria based on its pathophysiology from the perspective of Persian medicine.

## Methods

This study was carried out by investigating medical text books of PM including the *Canon of Medicine* [9], *Kitab al-hawi fi al-Tibb* [10], *Kholaseh Al tajareb* [11], *Hedayat al-mota'allemin fi al-tibb* [12], *Zakhire Kharazmshahi* [13], *Makhzan-ol-Adviyah* [14], *Teb e Akbari* [15], *Exir Azam* [16] and *Qarabadin-e-Kabir* [17] with keywords related to the hysteria including *ekhtenagh-e-rahem* and *khafaghan-e-rehem*. Definition of hysteria and common useful herbs for treatment of this disorder were extracted; then PubMed, Scopus and ScienceDirect were searched with these key-words: hysteria, conversion disorder, yarrow and *Achillea millefolium*. Finally, proper findings including review articles, clinical trial, animal or in vitro evidence of the pharmacological mechanisms of yarrow and content related to explanation of hysteria are categorized and presented.

## Findings

### *Historical background of hysteria*

There have been controversial opinions about the

mechanism of hysteria as a mysterious ailment throughout medical history. The term hysteria comes from a Greek word "hystera" that means uterus [18]. *Hippocrates* described hysteria to be an organic more than psychological disease and considered its feminine sexual character [19]. In the middle ages from the 13th century onwards, hysteria was known as a situation under the domination of Devil, witches and magic forces so the European churches applied exorcism to punish the hysterical women as insane demons [20].

To repressed ancient ideas, the term "conversion" was first used by *Freud* and *Breuer* for hysteria that means psychological gains convert to somatic symptoms. Other opinions about hysteria was psychoanalytic theories, learning theory and the sociocultural hypothesis [2].

In PM as an old medical school, hysteria was called "*ekhtenagh-e-rahem*" which means suffocation, strangulation or compaction of uterus [8]. Uterus as a nerve-rich tissue contributed the participatory relationship to the brain. It means that uterus affects and emerge its clinical manifestations in the brain [9,10]. Hysterical episodes arise from abnormal uterine contractions that triggered from retention of some materials such as menses blood or female semen which should be repelled from the uterine [9,11,21].

In PM, some uterine disorders such as inflammation, ulcer, deviation, uterine dystemperament (*Su-e-Mizaj*) and other conditions included excessive obesity can result in amenorrhea. Also each situation which stimulates semen production but incomplete purgation from the body such as long time widowhood or being far from intercourse, result in its accumulation. So this conditions lead to semen or menses blood corruption to decayed materials which uterus attempts to escape from by untimely contractions. Another justification for hysterical attacks was the rising of vapors from the uterine accumulated materials to the brain. If there is a functional or structural weakness in the brain, some cerebral functions

may be disrupted by vapors, so involuntary neurological symptoms appears [9,10,12,15,16]. Based on PM foundations, vapors rising to brain is responsible for some diseases that manifests itself with neurological symptoms such as nightmare (sleep paralysis) [22], some types of headache [23] and hysteric attacks [8]. The mentioned uterus-brain participation provides conditions for the transmission of uterine troublesome to the brain, so especial sensory-motor symptoms such as falling down, being mute, jerky movements in extremities, weakness feeling in one or both legs, rubbing teeth together and epigastric bloating appears. Woman loses her consciousness but she can remember her episode and explain what happens, additionally unlike seizure, hysterical episodes has no foamy mouth discharge [10,15,16]. *Rhazes* (865-925 AD) one of the most outstanding Persian scientists stated that when a midwife examines the uterus of a hysterical woman by her finger, she can find a painful consolidation and firm texture with an upward stretching of womb. Sometime the afflicted women are in trouble and have distorted gaits in the foot that is in parallel to the involved side of womb. The episodes are

repeated alternately like epilepsy [10].

*Management of hysteria in PM*

PM physicians cured hysterical women by using aromatic herbal medicines to facilitate menstrual blood flow or repel seminal discharges between episodes of hysteria to prevent unpredictable attacks [9,10,14,17]. *Rhazes* expressed an event about the treatment of hysteria in his book: “A midwife imbrued her finger by the warm extract of some herbs, insert it to the vagina and stimulate the cervix so she found that some thick particle exited out of the womb and afflicted woman healed from hysterical episodes”[10]. In PM references there were many herbs for hysteria and it seems more beneficial to prescribe remedies which can effect on uterus to quench the symptoms of hysteria.

*Yarrow as an experienced remedy for hysteria in PM*

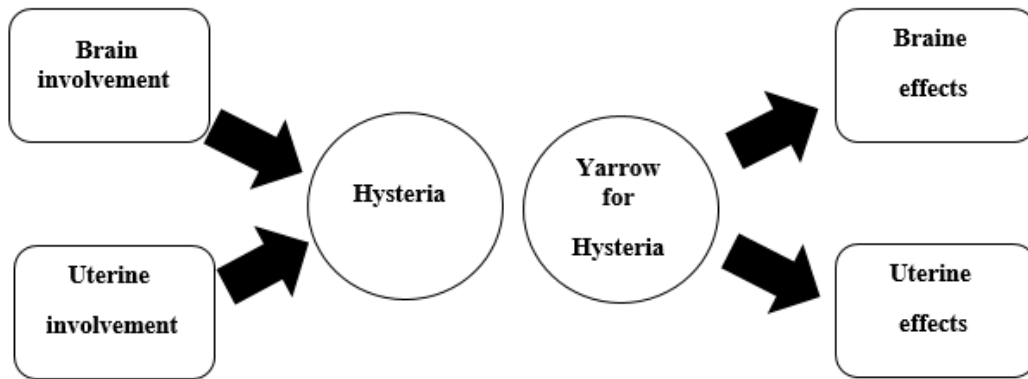
Yarrow (*Achillea millefolium*) known as Biranjasif in PM was one of the most wildly used medicinal herbs in gynecological field in PM especially for hysterical women (Table 1) [9,10, 13,14,16,24]

**Table 1:** Yarrow’s properties on women’ diseases based on PM

<b>Fertility</b>	Facilitating fertility and implantation, Facilitating the exit of placenta and the remnants of pregnancy
<b>Menstruation</b>	Emmenagogues
<b>Organic</b>	Uterine ulcer, uterine infection, uterine inflammation, cervix stenosis, hysteria, uterine tonic

Also traditionally use of yarrow is common among different European countries for obesity, dysmenorrhea, hemorrhoid, wound healing, tuberculosis and anemia [25]. Based on PM opinion, yarrow acts via two main properties: “Taftih” and “Taltif”. Taftih means de-obstructing of an organ and Taltif means attenuation of thick materials [26], Also Yarrow is “Moder Heiz” which refers to emmenagogues effect [27]. Therefore, this herb can facilitate menstrual bleeding, dilute and brings the thick

trapped materials out of the uterus. The best way to get the most benefit from yarrow’s properties for hysteria is in a sitz bath (abzan) form [10], which is a tub filled with either cold or hot plant’s liquid preparations for urogenital diseases [28]. In this method, hysterical woman sits in a basin, which is filled by the boiled yarrow after reaching to a tolerable temperature. This procedure should be used during the intervals between attacks [10]. In addition, PM physicians believed that yarrow has neurolog-



**Figure 1:** The cause of hysteria in PM is the involvement of uterus and brain. Yarrow resolves the problem by fortifying and refining both organs

ical effects. This herb can reinforced the brain and de-obstruct its obstructive conditions, so was prescribed for some brain diseases in fumigation form [14]. (Figure1)

**Discussion**

This study had shown special consideration of PM to hysteria and its therapeutic approach based on the mechanism of diseases in the period during which in other parts of the world magic forces were noticed as the main cause of such disorder [20]. In conventional medicine, there is no clear association between hysteria and body organs. There are some evidences about uterine comorbidity with some psychiatric disorders which may support PM opinion about the role of uterus in hysterical attacks. One theory expresses that somatization disorders such as hysteria, often co-occurred among women with abnormal contractions in pelvic and visceral tissues [29]. It has been declared that hysteria is most likely “endometriosis” as a displaced tissue of uterine, just like the ancient idea about wandering uterus. So researchers hypothesizes the same hormonal changes of endometriosis for hysteria. In this context, elevated levels of oxytocin (OT) as a uterine contraction stimulating hormone, is considered in endometriosis [30]. Since the hypothalamic-pituitary glands (HPG) axis disruptions is assumed as a

reason for endometriosis and bipolar disorder (BD), researchers hypnotize HPG dis-regulations for hysteria [31]. However BD is different from hysteria, but the two phenotypes overlap in mood volatility and higher activity of OT has been recorded among bipolar women. Direction and frequency of uterine contractions depends on distribution and density of OT receptors in uterine tissue. Indeed uterine contractions is stronger and faster in endometriosis and BD [31]. OT is involved in some sexual behaviors, cognition, tolerance and adaptation [32], mediates emotional and social behaviors and impacts on fear [33].

Concerning the relationship between neuronal system and hysteria, some contemporary findings have shown that a cortical and sub-cortical dysfunction of brain may be associated with conversion disorder [2]. In this regard, neuroimaging has shown decrease in cortical activity and increased in limbic function during episodes [34]. Dysfunction of occipital and parietal lobe was found in the electroencephalograms (EEG) of hysterical blindness that gives a new insights into neuronal dysfunction of disease [35]. Decreased blood flow in the contralateral thalamus and basal ganglia and lower activation of contralateral caudate was observed during hysterical sensorimotor episodes. Recovery of this dysfunctions after the hysterical attacks affirms

this fact that disease is more functional than organic [36]. Based on PM theories, along with the main role of uterus in hysterical attacks, a background of brain ailments is necessary [9,10,13,15,16].

Despite all the efforts to explore the real mechanism of hysteria, it remains as an obscure disorder [37]. Anyway it seems that the role of uterine abnormal contractions and brain disorders are more glaring.

A new research has been found that seems to be able light on the relationship between uterus and brain. It has been illustrated that human, mouse and rat's uterus can transcribed, translated and conserved a neuropeptide which named "neurotrophin" as a potent regulator of neuron growth and survival, so its abnormalities has been related to several brain diseases including Alzheimer's, Parkinson's, Huntington's and psychiatric disorders [38]. With these interpretations, the theory of uterus-brain participation can be strengthened.

Regarding to the mentioned effect of yarrow for hysteria, some new studies have been found that can partially substantiate this claim of PM. Flavonoids are the most considerable active component of yarrow with many biological properties that can prevent and treat several diseases. Apigenin and luteolin are two flavonoids in yarrow with vasodilator and antispasmodic properties which can improve the uterus blood flow and relax it, so it can get rid of the uterus from painful contractions [39]. Apigenin activates cell channels such as calcium-activated potassium channels with large and small conductance which leads to extracellular influx of calcium that in turn causes the activation of nitric oxide production as a smooth muscle cells relaxant [40], so it decreases contraction of smooth muscle [41,42]. As well the antispasmodic property of yarrow relates to the anticholinergic effects of flavonoids which block calcium channels so decreases the intracellular calcium

[43]. It has revealed that the calcium channel blocking effect of yarrow is comparable with verapamil [44]. Altogether yarrow is prescribed in the treatment of "Overactive pelvic Floor" by vasodilator and pelvic muscles relaxant effect [45]. Recent researches have revealed that yarrow shows oxytocic property in postpartum women so controls the uterine hemorrhage by regulating contractions [46]. Indeed yarrow tea consumption help uterus to return to the previous size [47]. As well recently it was shown that sub-chronic exposure to aqueous extract of leaves from *Achillea millefolium* can increase the amount of non-enzymatic reduced glutathione (GSH) in uterus up to 73% while in kidneys it was decreased (23%) but can't alter it in liver [48]. Scientifics believe that GSH as an antioxidant, has important function in female reproductive system [49]. The German E commission states that local use of boiled Yarrow can reduce the uterine congestion [50].

Regarding to neurological properties, yarrow has also shown significant protective effects on neurodegenerative disorders such as epilepsy, Alzheimer's, multiple sclerosis, Parkinson's disease and stroke. Flavonoids such as kaempferol, luteolin and apigenin as main constituents of yarrow have been attributed to neuro-protective effects [51]. In this line a new study has confirmed that yarrow has some benefits for multiple sclerosis, so it can diminish disease severity and demyelinating lesions, prevent relapses and suppress behavioral deficits. In fact lutein is responsible for anti-inflammatory effects which leads to decreasing axonal damage [51,52]. Additionally recent studies have revealed that hydro-alcoholic extract of yarrow has anxiolytic, sedative and pre-anesthetic effect which is comparable to diazepam in animal model, it has suggested that apigenin as an active constituent, is responsible for this effects [53,54]. Also a new research has shown that yarrow has anti-convulsant effect and can suppress seizure intensity which is mediated

with lutein that has inhibitory effects on neuronal oxidative stress damages [51]. Therefore, the pathophysiology of hysteria and so considering the effects of yarrow on uterus and brain, it is predicted that use of yarrow might be a novel therapeutic strategy for conversion disorder.

## Conclusion

This study suggests that yarrow might be an effective drug of choice in eliminating episodes of hysterical attacks. Even so it is mentioned that more investigations should be done to reveal organic mechanisms of hysteria and discover more efficacies of yarrow for this disorder.

## Conflict of Interests

None.

## Acknowledgment

None.

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