



Review paper

Exploring the Etiopathogenesis of *Dhāt al-ri'a* (Pneumonia): A Review of Insights from Unani Medicine Perspectives

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ARTICLE INFO	ABSTRACT
<p><i>Article history</i></p> <p>Received 26 May 2024 Revised 19 June 2024 Accepted 23 June 2024 Published 29 June 2024</p>	<p>Pneumonia is still an important cause of morbidity and mortality worldwide in young and elderly individuals which is caused by an infection that inflames the lung's air sacs (alveoli). The air sacs may fill up with fluid or pus causing symptoms such as fever, chills, and difficulty in breathing. Unani medicine one of the ancient system of medicine founded by Hippocrates is based on the concept of equilibrium and balance of natural body humours (blood, bile, phlegm, and black bile). When these humours are normal in quantity and quality, human remain healthy. The imbalance and irregular distribution causes disease such as <i>waram</i>(swelling). According to Unani concept, <i>Dhāt al-ri'a</i> (Pneumonia) is a <i>waram</i> that is produced in the lungs due to any kind of humours. Unani scholars combat the disease with a multidirectional approach where they recommended various treatment modalities like '<i>Ilāj bi'l Ghidhā'</i>(Dieto-therapy), '<i>Ilāj bi'l Dawā'</i> (Pharmacotherapy), and '<i>Ilāj bi'l Tadbīr</i> (Regimental therapy) with several preventive measures while the basic treatment is '<i>Ilāj bi'l zid</i> i.e. treatment is in contrast to <i>Mizāj</i> (temperament) of the disease. Despite the use of numerous newer therapeutic regimens, it has to be confronted because of recurrence and resistance. The holistic approach of Unani treatment will have thriving management of diseases with temperamental affiliation. In this article, we have tried to explore the etiopathogenesis of <i>Dhāt al-ri'a</i> described by various Unani scholars, together with its analytical study. It is hoped that the paper will develop a new way of treatment and research of <i>Dhāt al-ri'a</i>.</p>
<p><i>Keywords</i></p> <p><i>Dhāt al-ri'a</i> Pneumonia Etiopathogenesis Unani medicine</p>	

1. Introduction

History of *Dhāt al-ri'a*: Pneumonia has been a common disease throughout human history. The word is from the Greek *pneúmōn* meaning "lung". The symptoms were described by Hippocrates (460–370 BC): "Peripneumonia, and pleuritic affections, are to be thus observed. If the fever is acute, and if there be

pains on either side, or in both, and if expiration be if cough be present, and the sputa expectorated be of a blond or livid color, or likewise thin, frothy, and florid, or having any other character different from the common. When pneumonia is at its height, the case is beyond remedy if he is not purged, and it is bad if he has dyspnea and urine that is thin and acrid, and if



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sweats come out about the neck and head, for such sweats are bad, as proceeding from the choking, rales, and the violence of the disease which is obtaining the upper hand." However, Hippocrates referred to Pneumonia as a disease "Named by the Ancients". He also reported the results of surgical drainage of empyema. Maimonides (1135–1204 AD) observed: "The basic symptoms that occur in pneumonia and that are never lacking are as follows: acute fever, sticking pleuritic pain in the side, short rapid breaths, serrated pulse, and cough". The first descriptions of its clinical and pathological features were made 22 centuries later in 1819 by Laennec and Rokitansky in 1842 was the first to differentiate lobar and bronchopneumonia. Edwin Klebs was the first to observe bacteria in the airways of persons having died of pneumonia in 1875 [1].

Epidemiology: Community-acquired pneumonia (CAP) is one of the most common and morbid conditions encountered in clinical practice. [2-4] In the United States, CAP accounts for over 4.5 million outpatient and emergency room visits annually, corresponding to approximately 0.4 percent of all encounters.[5] Pneumonia continues to be the leading cause of mortality in children worldwide, with India accounting for 20% of those deaths and a higher burden of childhood pneumonia than any other country.[6]

Views of ancient philosophers regarding *Dhāt al-ri'a*: *Dhāt al-ri'a* is one of the disease that has been elaborated thoroughly in the Unani classical literature.

- In Kitāb al-Fakhr, Zakariyya Razi (850-923 AD) stated that- *Dhāt al-ri'a* is a *waram* of *Ri'a* (lungs) which is mostly *balghamī* (phlegmatic) type sometimes it is also *damwī* (sanguineous) and rarely *ṣafrāwī* (bilious).[7]
- In the view of Majusi (930-994AD)- *Dhāt al-ri'a* is a *waram ḥārr* (hot swelling/inflammation) of lungs and such *waram* is sometimes caused by *khilṭ dam* and sometimes by *khilṭ ṣafrā'* that drains towards lungs.[8]
- According to Ibn Sina (980-1037AD) and Akbar Arzani (d-1721AD)- *Dhāt al-ri'a* is a *waram ḥārr* which develops in the lungs, sometimes it originates in the lungs and sometimes it is caused by *nazla* (catarrh) that falls on the lungs or matter of *khunāq* (diphtheria) transferred to lungs even when the matter of *dhāt al-janb* (pleurisy) passes

to the lungs and the patient dies on the seventh day of illness from such *intiqāl raddiya* (unhealthy transfer).[9,10]

- Hakeem Azam Khan (b-1902 AD) stated that- *Dhāt al-ri'a* is a serious disorder that causes various ailments and kills the patient between the third and seventh days.[11]
- In the view of Hakeem Rizwan, *Dhāt al-ri'a* is a kind of pain caused by a hot matter in the lungs, whether the matter itself is hot or has become hot due to the putrefaction.[12]

2. Types *Dhāt al-ri'a*

According to Ṭabri- there are five types of *dhāt al-ri'a* based on their cause:[13]

1. *Dhāt al-ri'a* due to *sū'-i-mizaj bārid sāda* of lungs
2. *Dhāt al-ri'a* due to *sū'-i-mizaj ḥārr sāda* of lungs
3. *Dhāt al-ri'a* due to *sū'-i-mizaj bārid māddī* of lungs
4. *Dhāt al-ri'a* due to *sū'-i-mizaj ḥārr māddī* of lungs
5. *Dhāt al-ri'a* due to *waram* which is caused by matter reaching the lungs from the lower body.

3. Etiology

- *Sū'-i-mizaj sāda* and *māddī* (abnormal temperament without involvement of substance and abnormal substantial temperament) of lungs.
- *Khilṭ balgham shor* (saline phlegm) which becomes putrefy [14]
- *Khilṭ dam*
- *Khilṭ ṣafrā'*
- *Dhāt al-janb*
- *Khunāq*
- *Nazla ḥārr/ bārid/muzmin* (hot or acute cold or chronic catarrh) [9,10,12,15,16]
- *Rabw* (bronchial asthma) [7]

According to Ibn Zuhr, *dhāt al-ri'a damwī* is more common and *dhāt al-ri'a ṣafrāwī* and *balghamī* are rare while *dhāt al-ri'a sawdawī* (melancholic) is rarest. [17]

4. Pathogenesis

Lungs are very noble, delicate, and soft organs. They accept matter quickly due to their constant mobility and permeability (since the lung is a porous organ), as well as their lower sensitivity and proximity to the heart in which *laṭīf akhlāṭ* (light or subtle) i.e. *dam* and *ṣafrā'* does not stay even dissolve and flow easily but accepting *ghalīz akhlāṭ* (thick/coarse/condensed) i.e. *balgham* such in after the flow of matter of *nazla*

from brain or morbid matter of diphtheria, flow toward the lungs and accumulates, causes *waram* [7,12,15,18].

5. Signs and symptoms

1. Fever is persistent because there is no visceral *awrām* without fever. The fever is mild at first and varies in nature, but as the *waram* and heat increase in the matter, the fever becomes severe. So, if the matter is *balghamī* and thin, the fever is soft and mild and if the *balgham* is thin and discharge is not copious, the fever does not appear, and the patient's hands and feet remain cold. [15]
2. There is severe shortness of breath, such as in a diphtheria patient, [3,19] where the patient is unable to breathe without straightening up because the airways are narrowing due to *waram*. [9]
3. Both cheeks remain red, especially during fever. [9,15,19] Because the flesh of both cheeks is porous and rapidly absorbs hot vapors that emerge from the lungs to the face. [9,15]
4. *Tamaddud* (tension) and *Tahabbuj* (swelling) appear on the face and eyes.
5. The eye moves very slowly, and the veins are frequently dilated, due to the abundance of vapors that build there. [15]
6. There will be a cough with frothy and yellow sputum. [20]
7. The tongue is red at first, but it soon turns black, and if he touches it with his hand, his hand becomes sticky, as well as thickness and dirt.
8. The heat in respiration is high because the air is heated by the decomposed matter in the lungs and mixes with the hot vapors going out of it, and it stays in the lungs for a long time due to the narrowness of the passage. [21]
9. Due to the abundance of the matter, the chest feels a high burden and strain. Because the lungs are not sensitive themselves, but the *ghishā'al-ri'a* (pleural membrane) is sensitive. [9]
10. The chest pain is referred between both shoulders. [15]
11. There is occasionally throbbing pain under the shoulders, in the clavicle, and in the breast, or in all three areas, which is permanent and sometimes accompanied by a cough.
12. Patient does not feel any relief by lying on any side, except on back side. [9,15]

13. Often, especially during fever, the patient is sleepy, this is also due to the abundance of the vapors.
14. The pulse is wavy and soft because the *waram* is present in the soft organ and the matter of *waram* is *ruṭūbat* (moist) and the *nafas* is *'aẓīm* (respiratory distress) because fresh air is needed. The touch of the pulse is soft. [15]

6. Fate of *Dhāt al-ri'a*

1. **Stage of *Tahlīl* (resolution):** Sometimes, the matter of *dhāt al-ri'a* is dissolved and excreted out.
2. **Stage of *Qih* (pus formation/putrefaction):** Sometimes, there is pus formation which is homogeneous and white firm and sometimes it is thick like wine dregs.
3. **Stage of *Ṣalāba* (induration):** Sometimes, the matter of *dhāt al-ri'a* becomes hard [9, 15].
 - As stated by Hippocrates, if abscesses emerge on the chest and near the breast in a pneumonia patient, the disease has ended. He also claims that when the *waram* forms behind the ear (parotid gland swelling), it is a good sign.
 - If boils occur on the calf region this is also considered a good sign, if copious secretions with cough are easily expelled out and the condition of the patient improves day by day and there is a reduction in disorders, then it is a good sign, in this case, the matter is gradually dissolved and excreted. [11]

7. Complications

The decision of this disease is generally made by the seventh day, that is, the symptoms of the end of this disease are generally evident on the seventh day because this day is the day of *qawī būhran* (strong crisis) of the disease and the sixth day is the day of its *būhran raḍḍī* (a state when the disease-causing material becomes dominant in the body causing the death of an individual²²) so death in this disease often occurs on the sixth day. [11]

1. ***Dhāt al-janb*:** When the matter of *dhāt al-ri'a* is transferred towards *ghishā'al-ri'a*. [9,15]
2. ***Qarāniṭus/Sarsām damwī* (Acute meningitis):** When the matter of *dhāt al-ri'a* is ascended to the brain.
3. **Palpitation and syncope:** The matter of *dhāt al-ri'a* moves toward the heart. [9]

4. **Tuberculosis:** If the patient's *quwwat* (power) is weak, then the patient dies after the emergence of pus, and if the *quwwat* is strong, the disease progresses and causes tuberculosis. [11]
5. Sometimes, after the *dhāt al-ri'a*, numbness occurs from the edge of the arm and to the inner side of the wrist to the tip of the fingers. [9]
6. Jalinus states that- loose motion is a very bad sign in *dhāt al-ri'a* because it indicates that vitality is completely dead. [20]

8. Difference between Dhāt al-ri'a and Dhāt al-janb

S.NO.	Dhāt al-ri'a	Dhāt al-janb
1	It is a <i>waram</i> that develops within the lung, indicating that <i>waram</i> occurs in the empty region.	It is a <i>waram</i> develops in <i>ghishā'al-ri'a</i> , indicating that <i>waram</i> occurs in a hard region.
2	<i>Dhāt al-ri'a</i> is produced by every <i>khilṭ</i> but often caused by putrefy <i>balgham shor</i> .	<i>Dhāt al-janb</i> is mostly <i>ṣafrāwi</i> , but sometimes it is also produced by blood.
3	There is mild fever.	Fever is severe because the matter is closer to the heart. [14]
4	Pain is mild because there is no sensation in the lungs.	Pain is severe because <i>ghishā'al-ri'a</i> is sensitive.
5	Pulse is <i>mawjī</i> (pulsus fructuosus).	Pulse is <i>minshārī</i> (pulsus serratus) [7]

9. Diagnosis

1. Diagnosis based on matter of Dhāt al-ri'a:

- If the severity of fever and thirst, dry tongue and cough, excessive heat in the chest, and yellowness of urine occurs and there is no shortness of breath, chest congestion and presence of other symptoms of *ṣafrā'* then *waram* of *dhāt al-ri'a* is *ṣafrāwī*.
- If above mentioned symptoms of heat are not severe the tongue eyes and cheeks are red, the pain is throbbing in nature, the breath is severe, the tongue is sticky, drowsiness is persisting and there are other symptoms of blood predominance then *waram* of *dhāt al-ri'a* is *damwī*.
- Profuse salivation, drooping of body, shortness of breath, lack of redness, and mild fever are evidence of *waram balghamī*. [11]

2. Diagnosis based on characteristics of 'Usr al-tanaffus (dyspnea):

When '*Usr al-tanaffus*' arises as a result of *waram*, it is accompanied by *Wajā' thaqīl* (heavy pain), and fever and cough occur without hemoptysis. Whereas *Usr al-tanaffus* caused by *sudda* (obstruction) is free from fever and cough occurs with hemoptysis. [23]

10. Discussion and Conclusion

Pneumonia is a common and potentially serious respiratory infection that can be caused by various microorganisms, including bacteria, viruses, fungi, and parasites. The etiopathogenesis of pneumonia involves a complex interplay of host factors, environmental factors, and infectious agents. In Unani medicine, *dhāt al-ri'a* is a *waram* that occurs mainly as a result of an imbalance in quantity and quality of one of the four humours and due to transferring of morbid matter towards the lungs causes many consequences. The current review demonstrates that the Unani physicians are well versed in etiology, types, pathogenesis, clinical manifestations, diagnosis, fate, and complications of *dhāt al-ri'a*. It may be concluded through this research paper that understanding the underlying mechanisms is essential for developing strategies for prevention, early diagnosis, and effective treatment for *dhāt al-ri'a*.

Declaration of Conflict

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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