

Discussion on the Idea of Differentiation and Treatment of Lung-kidney Qi Deficiency in COPD Stable Period from the Perspective of Water-silver Interaction Theory

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Abstract: The stable phase of chronic obstructive pulmonary disease (COPD) is characterized by lung-kidney qi deficiency as its core pathogenesis, presenting with persistent clinical manifestations that severely impair patients quality of life. This study systematically explores the etiology, pathogenesis, clinical features, and therapeutic strategies of lung-kidney qi deficiency syndrome during COPD stability based on the “metal-water mutual generation” theory in Traditional Chinese Medicine (TCM). Theoretical analysis reveals that impaired lung qi deficiency disrupts downward movement, leading to kidney qi deficiency through maternal dysfunction, which exacerbates dyspnea due to kidneys inability to retain qi, forming a vicious cycle. Clinical management should adhere to the principle of “lung-kidney mutual regulation and metal-water mutual support,” focusing on lung-tonifying qi replenishment and kidney qi retention while incorporating spleen-strengthening phlegm-resolving therapies and blood circulation activation. Common formulas include modified Bu Fei Tang (Lung-Tonifying Decoction) or Qi-Regulating Seven-Ingredient Decoction, combined with external therapies like acupoint patch application and moxibustion. Modern research confirms that this TCM approach of lung-kidney co-treatment based on metal-water theory significantly improves patients pulmonary function, exercise endurance, and immune function, providing an effective management strategy for COPD stability.

Keywords: Golden water and water generation, COPD stable period, Lung and kidney qi deficiency, Syndrome differentiation and treatment, Traditional Chinese medicine therapy.

1. Introduction

Chronic obstructive pulmonary disease (COPD), characterized by persistent airflow limitation, continues to rise in prevalence worldwide [1]. Although the acute symptoms of patients in the stable period are relieved, they still have shortness of breath, cough and phlegm, decreased exercise endurance and other symptoms. In TCM, they are mostly classified as “lung distension” and “asthma” [2]. Traditional Chinese medical practitioners have long recognized COPD as a disease fundamentally characterized by deficiency with apparent excess, with lung-kidney qi deficiency constituting its root cause. This understanding is closely tied to the “Metal-Water Generation” theory, which elucidates the dynamic interdependence between lung (Metal) and kidney (Water) in physiological functions and their pathological interactions. The theory provides core theoretical support for the “lung-kidney integrated therapy” approach during COPD stable phases. This study systematically explores the essence of Metal-Water Generation theory, analyzes the diagnostic and therapeutic principles of lung-kidney qi deficiency syndrome in COPD stable phases, and offers clinical guidance for both theoretical foundations and practical treatment strategies.

2. The Theoretical Origin and Core Connotation of the Theory of Mutual Generation Between Gold and Water

The theory of water and gold generation originated from the Huangdi Neijing, which is the core theory of the five elements

to explain the physiological mutual support and pathological mutual damage between lung and kidney [3]. The *Su Wen: Yin-Yang Yingxiang Da Lun* establishes the Five Elements connection between the lungs and kidneys through the principle that “the West generates dryness, which gives rise to metal... while the North generates cold, which generates water.” The *Su Wen: Jing Mai Bie Lun* further elucidates this relationship by explaining how “the lungs regulate water pathways and channel fluids downward to the bladder,” demonstrating how the descending function of lung qi nourishes the kidneys water-regulating role [4]. Subsequent medical scholars continuously refined this theory: Zhang Zhongjing established the Lung-Kidney Synergy Therapy in *Jingui Yaolue* by using Shenqi Pills to warm the kidneys and support lung function. Zhang Jingyue proposed in *Complete Works of Jingyue* that “the lungs govern qi circulation while the kidneys serve as its foundation,” emphasizing their coordinated roles in respiration and qi retention. Ye Tianshi demonstrated the mutual reinforcement between lung yin and kidney yin through formulas like Shengmai San for deficiency syndromes. The *Complete Works of Jingyue* underscores that “the lungs control qi dispersion and descent, governing respiratory functions, while the kidneys regulate qi containment and storage.” [5] The lungs descending function assists kidney qi in returning to its origin. When kidney qi flourishes, it gains control over inhalation, working synergistically with the lungs to maintain respiratory depth and rhythm while preventing breathlessness. The lungs, as the “source above water,” regulate fluid pathways to distribute body fluids, while the kidneys, as the “source below water,” govern vaporization and transformation through ascending and descending functions.

The *Suwen: Jingmai Bie Lun* (Plain Questions: Differentiation of Meridians) elaborates on the pathway of “regulating water pathways and transporting fluids to the bladder.” The lungs descending function channels vital essence downward to the kidneys, while kidney qi transforms and elevates clear substances while purging impurities, maintaining balance in fluid distribution and excretion. Lung yin and kidney yin (true yin) mutually nourish each other: lung qi descends to transport nutrient-rich fluids into kidney essence (metal generating water), while kidney yin ascends to moisturize lungs against dryness (water nourishing metal). The *Lei Zheng Zhi Cai* (Differentiation of Symptoms and Therapeutic Approaches) states that “the lungs metallic energy nourishes kidney water below,” revealing their self-regulating system through yin fluid circulation. This establishes the core collaborative relationship between lungs and kidneys in respiration, metabolism, and substance transformation, providing physiological basis for COPD stable phase syndrome characterized by lung-kidney qi deficiency and the therapeutic principle of “metal-water mutual support.”

3. Pathogenesis and Characteristics of Lung and Kidney Qi Deficiency in COPD Stable Period

3.1 Pathogenesis and Development Characteristics of Lung and Kidney Qi Deficiency in COPD Stable Period

The essence of chronic obstructive pulmonary disease (COPD) in the stable phase manifests as a complex pathological state characterized by “root deficiency with surface excess, a mixture of deficiency and excess”. This condition arises from prolonged illness-induced depletion that leads to deficiency of vital energy in both lungs and kidneys, disrupting the mutual nourishment between metal and water elements. The pathogenesis evolves around the principle of “parent disease affecting offspring, where the offspring deprives the parent of qi”, with phlegm-stasis obstruction of meridians forming the core of surface excess. The disease progresses through three progressive stages: interaction between deficiency transmission and pathological products.

3.1.1 The mother organ is first damaged, and the lung and kidney are deficient (metal does not generate water)

COPD is mostly caused by chronic cough and asthma, which are prolonged and unhealed, and the long-term depletion of lung qi. The Classified Classic of Zang and Xiang clearly states: “The lung governs qi, and a long cough will injure the lung. If the lung is injured, there will be no qi to govern it.” [6] When lung qi deficiency disrupts its descending function, two critical pathologies emerge: First, the failure to transport nutrients downward to nourish kidney essence, resulting in insufficient qi transformation (metal failing to generate water). Second, impaired fluid regulation causes internal dampness accumulation that obstructs spleen function, creating a vicious cycle where earth fails to nourish metal and instead weakens kidney yang. This pathological manifestation perfectly aligns with the ancient text *Nanjing*’s principle: “When the mother is deficient, the child becomes deficient.” Ultimately, this leads to complete collapse of lung and kidney qi, leaving the body’s regulatory functions utterly compromised.

3.1.2 Sub-organ fatigue, kidney damage and lung damage (Qi does not return to the root)

The kidney is the root of qi, which is responsible for receiving qi and returning it to the source. When kidney qi is deficient, it fails to properly absorb and retain qi. Instead, qi rises upward and consumes lung qi, which is called “the child stealing the mother’s qi”. This eventually leads to a vicious cycle of “shortness of breath and rapid breathing, with more exhalation than inhalation” [7]. In his treatise “Zhan Cuo” (Breathing Distress) from *Complete Works of Jingyue*, Zhang Jingyue emphasized: “Hollowed breath manifests as panicked breathlessness with low-pitched sounds and shortness of breath, creating a sense of impending collapse... This condition originates in the lower jiao (lower energizer), primarily attributed to kidney deficiency.” More critically, insufficient kidney yang fails to generate body fluids for upward nourishment, leading to dry phlegm accumulation in the lungs—a classic case of “water failing to nourish metal.” When kidney deficiency causes fluid retention, it transforms into phlegm that accumulates in the lungs, ultimately obstructing the flow of qi.

3.1.3 Phlegm and stasis interlock, solid substance in the void (the body is deficient and the mark is solid)

Qi deficiency leads to physical weakness and impaired circulation of body fluids and blood, resulting in pathological conditions such as phlegm-stasis accumulation. The classic text *Zhengzhi Huibian: Asthma Diseases* states: “Lung deficiency causes qi to transform essence into water instead of qi; spleen deficiency allows earth to overcome water rather than control it; kidney deficiency leads to uncontrolled water movement that transforms into phlegm.” When phlegm turbidity obstructs the lungs, airways become blocked; when blood stasis stagnates meridians, qi and blood lose nourishment. Modern research confirms COPD patients exhibit microcirculation disorders, hypercoagulability, and chronic inflammation – patterns that perfectly align with TCMs concept of “phlegm-stasis blocking lung meridians.” As both pathological products and secondary causative factors, phlegm-stasis intertwines with lung and kidney qi deficiency to form a “deficiency-phlegm-stasis” cycle, creating structural foundations for recurrent disease episodes.

3.2 Symptoms and Characteristics of COPD Stable Phase Lung Kidney Qi Deficiency Syndrome

In the stable period of chronic obstructive pulmonary disease (COPD), the core pathogenesis is often qi deficiency of lung and kidney, resulting in lung and kidney qi deficiency syndrome. A deep understanding of its symptoms and characteristics is crucial for accurate differentiation, establishment of treatment principles and prognosis assessment [8]. The pathological basis lies in prolonged coughing that depletes lung qi. When lung qi becomes deficient first, its functions of dispersion and descent are impaired, leading to impaired regulation. The lungs belong to metal and the kidneys to water, inherently governed by the principle of mutual generation—As metal (lung) governs clear and descending functions, it regulates water pathways to transport nutrients for kidney water (metal generates water). Adequate kidney water nourishes the lungs from above,

ensuring proper cleansing functions (water nourishes metal). This “metal-water generation” mechanism maintains respiratory coordination and fluid metabolism. However, COPD patients experience chronic lung qi deficiency, impairing both downward nutrient transport (metal fails to generate water) and water pathway regulation. The root condition inevitably affects the kidneys, creating a vicious cycle where water fails to nourish metal. Lung qi deficiency disrupts the storage and absorption functions, causing further depletion of lung qi (water fails to nourish metal). The lungs become even more deficient, breaking the metal-water generation chain. The lungs govern qi while the kidneys root it. With both lung and kidney qi deficiency, breathing becomes unstable—even during stable phases, patients endure prolonged symptoms with frequent exacerbations. The core distress manifests as breathlessness worsening with activity: deep, persistent, exertion-induced, and slightly relieved at rest. Patients report difficulty reaching the dantian during inhalation, sudden shortness of breath, and slurred speech. Daily activities like dressing, walking slowly, or speaking slightly intensify shortness of breath. Severe cases require sitting upright or lying flat with high pillows to sustain breathing. Distinctive features include labored inhalation without root recovery and ineffective exhalation. The presence of weak, intermittent breathing patterns clearly indicates impaired lung qi control, kidney qi regulation, and disharmony between Metal (lungs) and Water (kidneys). While coughing is common, it manifests as low-pitched, timid sounds that occur intermittently without forceful expulsion. Symptoms typically appear upon waking or after physical exertion, with scant phlegm resembling clear foam or pale-yellowish discharge. Coughing remains relatively easy to expel, while yellow purulent sputum is rarely observed. This reflects lung qi deficiency failing to distribute body fluids, where the Metal elements inability to generate water prevents proper warming, leading to fluid retention as phlegm. Concurrently, insufficient kidney yang fails to promote vaporization, resulting in thin, non-heat-inducing phlegm. Beyond respiratory symptoms, systemic qi deficiency and yang weakness are evident: patients experience persistent fatigue, lethargy, and reduced mobility. Mild exertion causes immediate exhaustion that resists recovery. Cold sweats occur during activity or meals, characterized by cool, watery perspiration accompanied by cold aversion. Chills and cold limbs are pronounced, with hands and feet feeling numb, lower back shivering, and a preference for warmth over wind exposure. Suffering from lumbar and knee soreness or empty pain, patients report worsening difficulty standing for extended periods and difficulty walking. Nocturia intensifies at night, presenting as frequent urination with clear, prolonged streams or weak voiding—indications of kidney qi deficiency and weakened lower body function (also a consequence of Metal-Water disharmony) [9]. Some patients present with ringing tinnitus resembling cicadas and gradually declining hearing. This condition stems from kidney qi deficiency impairing the ears orifice, where kidney essence fails to nourish the orifices (as water cannot nourish metal, leading to impaired nutrient supply). Physical examination reveals pallor, sallow complexion, or darkening skin; morning eyelid swelling; pale lips or cyanosis upon cold exposure; emaciation with muscle laxity; and occasional barrel chest. Physical examination shows cold extremities, loose skin, and diminished lung sounds with narrowed cardiac dullness.

Auscultation detects weak breath sounds, prolonged exhalation, scattered low-pitched wheezes, or fine moist rales at lung bases, with distant heart sounds. Tongue and pulse: Pale, swollen tongue with tooth marks (indicating qi deficiency and fluid retention); thin white coating; deep thready pulse (particularly weak at cunkou level), confirming kidney qi deficiency. Floating pulse with scattered roots suggests impending yang collapse. Clinical progression reveals constitutional weakness predisposing to acute exacerbations from wind-cold, fatigue, emotional stress, or dietary factors. Each episode worsens lung and kidney qi, creating a vicious cycle. Symptoms follow morning-evening rhythms and cold sensitivity (worsening in autumn/winter). This syndrome develops from chronic conditions involving lung-spleen-kidney imbalance or congenital kidney deficiency. While COPD pathology aligns with TCM theory and pulmonary function tests support it, the syndromes complexity extends beyond...Clinical differentiation requires distinguishing from isolated lung qi deficiency, spleen-lung qi deficiency, and yang deficiency with fluid retention. The core syndrome manifests as: “exhaustion-induced shortness of breath, labored breathing, weak cough with clear phlegm, fatigue, spontaneous sweating, cold intolerance, soreness in lower back/knees, frequent nocturia, pale swollen tongue with tooth marks and white coating, thready pulse (especially at the cun position).” Treatment principles emphasize “tonifying lungs to consolidate exterior, nourishing kidneys to receive qi” rooted in the “metal-water generation” theory—Lung-tonifying qi (metal) not only strengthens vital energy but also nourishes kidney water (metal generates water). Kidney-warming qi (water) not only stabilizes movement but also enriches lung metal (water nourishes metal). This dual lung-kidney therapy establishes respiratory coordination and life-sustaining foundation. Common formulas include Lung-Tonifying Decoction, Seven-Ingredient Qi-Regulating Pill, and modified Shengqi Pill, which rigorously tonify primordial qi to stabilize lower qi and relieve wheezing. Complementary therapies enhance spleen function, resolve phlegm, activate blood circulation, and regulate emotions with dietary moderation. The essence of COPD stable phase treatment lies in this profound application—of “metal-water generation”: lung and kidney organs mutually support through water-metallurgy dynamics—damage to one affects both. To consolidate root causes, source restoration is essential [10]. Only when the lungs and kidneys are in harmony and the gold and water are nourished can we stabilize the body, consolidate the foundation and cut off the disease, demonstrating the supreme wisdom of the holistic and constant view of TCM.

4. Examples of Medical Cases

On March 4, 2025, the patient Tang XX (male, 65 years old) visited the hospital for his first consultation. Chief complaint: Chronic obstructive pulmonary disease (COPD) diagnosed over six years ago. Six years prior, he was admitted to XJTU Second Affiliated Hospital with cough, phlegm production, chest tightness, and shortness of breath, diagnosed with COPD and cough variant asthma. Current symptoms include chest tightness, shortness of breath, non-productive cough that worsens at night or after exposure to irritants like odors or cold air. Symptoms also include throat itching-induced coughing, dry mouth at night, poor sleep quality (waking up

around 3 AM), difficulty falling asleep, and normal appetite with regular bowel movements. Clinical examination findings: Pale tongue with thick white greasy coating; deep pulse. Ancillary tests: Chest CT revealed multiple nodules in the right upper lobe (largest measuring approximately 12mm×9mm). Previous chest CT at XJTU Second Affiliated Hospital (August 11, 2024) showed: 1. Chronic lesions in right upper lobe; 2. Glassy nodules in left upper lobe (30mm diameter), benign micro-nodules in both lung lobes; 3. Interstitial changes in lower lung lobes; 4. Cord-like foci in right middle lobe and left lung; 5. Pleural thickening. On December 11, 2023, nitric oxide test (FENO: 93.2) and pulmonary function tests indicated mild obstructive ventilatory dysfunction. Traditional Chinese Medicine diagnosis: Lung distension (Lung-Kidney Qi Deficiency Syndrome). Western medical diagnoses: 1) COPD; 2) Pulmonary nodules. Treatment protocol: Modified Lung-Tonic Decoction (specific formula follows).

Codonopsis Tablets 15g, Astragalus 30g, Prepared Rehmannia 24g, Honeyed Southern Schisandra 15g, Honeyed Purple Garden 15g, Honeyed Mulberry Bark 15g, Saposhnikovia 10g, Wheat Bran Fried Atractylodes 15g, White Peony Root 10g, Honeyed Ephedra 10g, Dried Ginger 8g, Asarum 3g, Pinellia 8g, Cinnamon Twig 10g, Fried Perilla 15g, Fried Bitter Apricot Kernel 10g, Honeyed Lily 30g, Bamboo Shoot 10g. Dosage: 1 dose per day, divided into two servings of 200ml each, with additional herbal patch application and Governor Vessel moxibustion therapy once. Second consultation: March 11, 2025. Current medical history: After medication, chest tightness and shortness of breath improved, occasional throat itching and coughing, nocturnal whistling sounds, dry mouth at night, night sweats, poor sleep quality, frequent waking at 3 AM, difficulty falling asleep, normal appetite, frequent nocturia (2-3 times). Clinical examination: Red tongue with white thick coating and slight fissures, deep pulse. Continue using modified Lung-Tonic Decoction, adding 10g Cistanche, 10g Perilla Leaf, 15g Kochia Seed to alleviate itching and coughing symptoms, plus 15g Fructus Corni and 15g Rosa laevigata to reduce urinary frequency and incontinence. Continue oral administration for 7 doses. March 18, 2025. Third consultation: Patients chest tightness, shortness of breath, and wheezing symptoms significantly improved compared to previous visits. No recurrence of wheezing, dry mouth at night, generally normal sleep quality, alleviated nocturia (about once), and regular bowel movements. Continue modified Lung-Tonic Decoction and herbal patch application consolidation therapy: Codonopsis replaced with 15g Pseudostellaria, added 15g Dendrobium and 15g Anemarrhena to nourish yin and clear heat to relieve dry mouth, plus 30g Honeyed Lily to calm mind and alleviate insomnia with frequent dreaming. Post-treatment Follow-up continued, and the symptoms of the patient improved, chest tightness, shortness of breath and fatigue improved, and no other symptoms were observed.

Case Note: The patient, Mr. Tang (age 65), presented with “over six years of chronic obstructive pulmonary disease” under the TCM diagnosis of lung expansion syndrome, while Western medicine diagnosed chronic obstructive pulmonary disease with pulmonary nodules. The core pathogenesis involves lung-kidney qi deficiency and impaired metal-water transformation—Chronic lung deficiency disrupts nutrient

distribution, leading to kidney depletion that depletes kidney yin. This deficiency prevents nourishment to lung tissues, creating a vicious cycle where metal fails to generate water and water fails to nourish metal. Initial diagnosis revealed chest tightness, shortness of breath, cold-induced cough, itchy throat with coughing, pale tongue with thick greasy white coating, and deep pulse—indicating lung qi deficiency (weak metal), defensive collapse, and latent phlegm. Second diagnosis progressed to throat itching with whistling sounds, frequent nocturia, night sweats, dry mouth, red tongue with cracked coating—manifesting water depletion with wind agitation (kidney dryness causing liver wind disturbing lung system) and dual qi-yin deficiency. Third diagnosis focused on nighttime dry mouth and insomnia, indicating dual deficiency of metal-water and fire scorching meridians.

The legislation takes Yong Lei Qian Fang as the base formula to supplement the lung decoction, and runs through the mechanism of mutual generation between metal and water in the five elements: In the initial diagnosis, Codonopsis, Astragalus and fried white atractylodes are used to tonify lung qi and cultivate earth to generate metal, thus restoring the source of “metal generating water” [11]. In the second treatment, prepared rehmannia and honeyed nandina are used to replenish essence, consolidate the kidneys, and regulate qi to return to its origin, establishing the foundation of “water nourishing metal”. Furthermore, cinnamon twig is employed to promote yang circulation and transform qi to assist fluid retention (water nourishes metal). Honeyed lily and white peony root moisturize dryness and protect yin while counteracting the dryness of ginger and pungent herbs. Honeyed ephedra and roasted bitter apricot kernel promote the descending of lung qi to restore the pivot of qi transformation. The third treatment incorporates alpinia and goldenberry to warm the kidneys, consolidate containment, strengthen waters storage function to stabilize the upper jiao with water-nourishing metal, and stabilize kidney water with metal-nourishing fire. The fourth treatment transforms dangshen into taizi shen to clear and replenish qi and yin, adds shihu to nourish kidney yin and moisten lung dryness (water nourishes metal), and adds zhimu to clear deficient fire and stabilize kidney water (metal descending fire). Double honeyed lily guides heart fire downward to interact with kidney water, ultimately forming a dynamic balance of metal-water generation and qi-yin restoration. Throughout the treatment process, it begins with consolidating metal and activating water, pivots on nourishing water and containing metal, and concludes with harmonizing qi and yin. This approach not only alleviates chronic lung diseases but also highlights the theoretical value of metal-water generation in the diagnosis and treatment of chronic pulmonary disorders, serving as an exemplary model of ancient methods reinterpreted for modern practice.

5. Summary

Chronic obstructive pulmonary disease (COPD) in its stable phase presents persistent challenges, with its core pathogenesis rooted in the interplay between lung and kidney qi deficiency. This dynamic interaction creates a vicious cycle. The “Golden Water Mutual Generation” theory provides fundamental principles for comprehensive diagnosis and treatment. The lungs, associated with metal, govern qi

circulation and respiration as the source of water; the kidneys, representing water, regulate qi absorption and preserve essence as the foundation of qi. Their mutual generation constitutes the physiological norm where lung and kidney qi coexist and support each other. When lung qi deficiency impairs dispersion and descent functions, the metal element fails to generate water, leading to maternal dysfunction affecting the kidney. Conversely, kidney qi deficiency weakens retention capacity, causing water to fail to contain metal, resulting in upward qi floating and persistent dyspnea. This represents the pathological mechanism of “metal-water imbalance.” Therefore, managing COPDs stable-phase lung-kidney qi deficiency requires adherence to the principle of “lung-kidney coordination and metal-water mutual generation.” Treatment strategies emphasize “tonifying earth to nourish metal” to consolidate lung qi foundation, and “warming kidneys to absorb qi” to enhance retention capacity. Only when metal qi is abundant can it generate water, and sufficient kidney water can sustain metal. This restores the normal metal-water generation mechanism [12]. In clinical practice, the primary formulas often involve lung-tonifying and qi-invigorating approaches (such as Bu Fei Tang) combined with kidney-warming and qi-absorbing methods (like Qiwei Duqi Tang), with flexible adaptations. It is crucial to recognize the spleens role as the source of phlegm production and its tendency to affect meridians in chronic conditions. Treatment should simultaneously strengthen the spleen to resolve phlegm at its root while activating blood circulation to unblock meridian pathways. Complementary therapies like acupoint patch application and moxibustion can further stimulate meridian energy, warm and unblock lung-kidney functions, achieving synergistic effects through integrated internal and external treatments. This approach vividly demonstrates how the ancient wisdom of “metal-water generation” remains relevant in modern disease management, providing a comprehensive TCM intervention protocol for COPD stable phases that integrates therapeutic principles, formulas, and herbal prescriptions.

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