RESEARCH ON COMMON SYMPTOMS AND CLINICAL PATTERNS IN CHRONIC KIDNEY DISEASE PATIENTS ACCORDING TO TRADITIONAL MEDICINE

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Abstract

Objective: *To describe common symptoms and clinical patterns in Chronic kidney disease (CKD) patients according to traditional medicine.* ***Research method:*** *A cross-sectional descriptive research was conducted on 1,020 patients diagnosed with CKD based on modern medical criteria.* ***Results:*** *(1) Common symptoms of CKD in traditional medicine include reduced sexual activity, lower back pain, knee weakness, joint pain, tinnitus, dizziness, fatigue, poor appetite, nocturia, yellow and scanty urine, constipation, pale swollen tongue, yellow sticky or white slippery tongue coating, and sublingual varices. (2) Common clinical patterns according to traditional found in CKD patients include five root syndrome patterns: Energy-Yin dual deficiency (31.57%), Spleen-Kidney energy deficiency (28.24%), Spleen-Kidney Yang deficiency (18.43%), Yin-Yang dual deficiency (17.35%), Liver-Kidney Yin deficiency (2.84%) And four branch syndrome patterns: Phlegm-Dampness (68.73%), Dampness-Heat (21.18%), Blood stasis (12.16%), Water-Dampness (7.75%). Patients with Spleen-Kidney Yang deficiency and Yin-Yang dual deficiency had an average glomerular filtration rate (GFR) of 28.1±17.14 ml/min/1.73m² and 26.9±16.25 ml/min/1.73m², respectively, which was lower than that of patients with Spleen-Kidney Energy deficiency, Energy-Yin dual deficiency, and Liver-Kidney Yin deficiency (35.61±18.25 ml/min/1.73m², 36.19±18.42 ml/min/1.73m², and 42.93±14.24 ml/min/1.73m², respectively; $p < 0.05$). Patients with Water-Dampness pattern had an average GFR of 28.7±16.16 ml/min/1.73m², which was lower than those with Blood stasis (35.11±17.16 ml/min/1.73m²) and Dampness Heat patterns (34±17.21 ml/min/1.73m²); $p < 0.05$.* ***Conclusions:*** *Common clinical symptoms of CKD according to traditional medicine are mainly related to the Spleen-Kidney organs. The root syndrome patterns include Energy-Yin dual deficiency, Spleen-Kidney Energy deficiency, Spleen-Kidney Yang deficiency, Yin-Yang dual deficiency, and Liver-Kidney Yin deficiency. The branch syndrome patterns often seen are Phlegm-Dampness, Dampness-Heat, Blood*

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stasis, and Water-Dampness. Patients with Spleen-Kidney Yang deficiency and Yin-Yang dual deficiency have lower GFR compared to other root syndrome patterns, and those with Water-Dampness have lower GFR than those with Blood stasis and Dampness-Heat patterns.

Keywords: *Chronic kidney disease, traditional medicine patterns, traditional medicine symptoms*

I. INTRODUCTION

Chronic kidney disease (CKD) is the final outcome of chronic renal and urinary diseases, gradually reducing kidney function until complete kidney failure. At this stage, the kidneys can no longer filter toxins from the body, leading to a disruption in both exocrine and endocrine functions, requiring treatment through periodic dialysis or kidney transplantation [1]. CKD is becoming a significant public health issue worldwide. In 2017, approximately 30 million Americans had CKD, accounting for 15% of the population. Among them, around 661,000 had kidney failure, including 468,000 undergoing dialysis and 193,000 living with a transplanted kidney [2]. Treatment costs for these patients continue to increase.

Traditional medicine has long played an important role in treating and slowing the progression of CKD. However, there is a lack of surveys, statistics, and summaries of symptoms and clinical patterns in CKD to guide further research from a traditional medicine perspective. This would help objectify traditional medicine research and provide a foundation for studies on traditional medicine products for CKD treatment. Based on these reasons, the research team from the Military Institute of Traditional Medicine conducted a research titled: "*Research on common symptoms and clinical patterns in chronic kidney disease patients according to Traditional medicine*" to describe traditional medicine symptoms and patterns commonly found in CKD patients.

II. METHODS

2.1. Subjects

Inclusion criteria: Patients Aged 18 years and older, diagnosed with CKD based on modern medical criteria, who have not yet undergone kidney replacement therapy and provide consent participate in the research.

Exclusion criteria: Patients with acute infections, cancer, blood diseases, liver failure, acute stroke, mental illness, inability to respond to questions, and pregnant women.

2.2. Methods

2.2.1. Research Design

A cross-sectional descriptive research.

2.2.2. Sample size

Using the formula for sample size calculation for a single-group research estimating a proportion with absolute error, based on research by Zhang Meng and Liu Xiao Min (2008) [3], the required sample size was calculated to be 955 CKD patients. In practice, data were collected from 1,020 CKD patients.

2.2.3. Conducting method

Researchers were trained prior to collecting data.

Data were gathered from 1,020 CKD patients at several hospitals across three regions in Vietnam: the North (Hanoi, Lao Cai, Hai Phong), the Central (Da Nang), and the South (Ho Chi Minh City) based on a survey form approved by the Scientific Council.

Research indicators, diagnostic criteria, classification standards, and assessments of CKD stages [4], as well as CKD pattern classifications [5], [6], were described in the research manual.

2.3. Location and duration of research

The research was conducted at various hospitals in the Northern, Central, and Southern regions from October 2018 to August 2020.

2.4. Data processing

Data were analyzed using SPSS 20.0 software, including descriptive statistics, t-tests, and chi-square tests. Statistical significance was considered at $p < 0.05$.

2.5. Research ethics

The research was approved by the Ethics Council of Bach Mai Hospital on May 31, 2019.

Participations were entirely voluntary, and patients could withdraw at any time without any obligations. Personal information of the patients was kept confidential and used solely for research purposes.

III. RESULTS

This research, conducted on 1,020 patients with CKD, showed a high mean age of 63.82 ± 17.72 years, with the majority (78.43%) being aged 50 or older. The male-to-female ratio was 1.8:1. Among the participants, 45.39% had CKD stage I, and stages II and III each accounted for 28.33%.

3.1 Common traditional medicine symptoms in CKD patients

Table 1. Common traditional medicine symptoms in CKD patients (n = 1,020)

TT	Symptom	Count (n)	Percentage (%)
1	Reduced sexual activity	925	90.69
2	Sublingual varices	736	72.16
3	Dark yellow urine in small amounts	710	69.61
4	Greasy yellow tongue coating	709	69.51
5	Fatigue	707	69.31
6	Pain in the affected area	707	69.31
7	Pale swollen tongue	685	67.16
8	Nocturia (nighttime urination)	643	63.04
9	Dizziness	621	60.88
10	Smooth white tongue coating	601	58.92
11	Joint and bone pain	582	57.06
12	Back pain and knee pain	543	53.24
13	Poor appetite	475	46.57
14	Constipation	452	44.31
15	Purple tongue	409	40.10
16	Tinnitus	385	37.75
17	Heaviness in limbs	367	35.98
18	Thirst	318	31.18
19	Obesity, sluggishness	295	28.92
20	Edema	292	28.63
21	Dry mouth without thirst	288	28.24
22	Insomnia	286	28.04
23	Sticky tongue coating	283	27.75
24	Bitter mouth	267	26.18
25	Dark, small amount of urine	259	25.39
26	Red tongue	255	25.00
27	Headache	253	24.80
28	Thin physique	235	23.04
30	Fixed pain	225	22.06
31	Loose teeth, hair loss	209	20.49

Comment: In CKD patients, a high percentage (90.69%) showed reduced sexual activity. Symptoms such as sublingual varices, dark yellow urine in small amounts, greasy yellow tongue coating, fatigue, pain, and pale swollen tongue were also frequent, each seen in over 67% of patients. Other common symptoms, present in over 40% of cases, included nocturia, dizziness, smooth white tongue coating, joint pain, lower back and knee pain, poor appetite, constipation, and purple tongue.

3.2 Common traditional medicine patterns in CKD Patients

Table 2. Distribution of Common traditional medicine patterns in CKD

Root syndrome pattern	Count (n)	Percentage (%)	Branch syndrome pattern	Count (n)	Percentage (%)
Energy-Yin dual deficiency	322	31.57	Phlegm Dampness	701	68.73
Spleen-Kidney Energy Deficiency	288	28.24	Dampness Heat	216	21.18
Spleen-Kidney Yang Deficiency	188	18.43	Blood stasis	124	12.16
Yin-Yang dual deficiency	177	17.35	Water-Dampness	79	7.75
Liver-Kidney Yin Deficiency	29	2.84			
Lung-Kidney Energy Deficiency	7	0.69			
Heart-Kidney Yang Deficiency	6	0.59			
Incoordination between heart and kidney	3	0.29			

** A patient may have one or several combined branch syndrome patterns*

Comment: The most common root syndrome patterns were Energy-Yin dual deficiency (31.57%), Spleen-Kidney Energy deficiency (28.24%), Spleen-Kidney Yang deficiency (18.43%), Yin-Yang dual deficiency (17.35%), and Liver-Kidney Yin deficiency (2.84%).

The branch syndrome patterns were most frequently Phlegm-Dampness (68.73%), followed by Dampness-Heat (21.18%), Blood stasis (12.16%), and Water-Dampness (7.75%).

Table 3. Blood creatinine levels and Glomerular filtration rate by root syndrome patterns

Root syndrome pattern	Count	Blood Creatinine (µmol/L, $\overline{X}$ ± SD)	GFR (ml/min/1.73m², $\overline{X}$ ± SD)
Spleen-Kidney Yang deficiency (1)	188	313.04±227.47 ∆	28.1±17.14 ∆
Yin-Yang dual deficiency (2)	177	300.59±210.65*	26.9±16.25*
Spleen-Kidney Energy deficiency (3)	288	240±191.86* ∆	35.61±18.25* ∆
Energy-Yin dual deficiency (4)	322	226.46±174.6* ∆	36.19±18.42* ∆
Liver-Kidney Yin deficiency (5)	29	170.3±88.93* ∆	42.93±14.24* ∆

Note: *p < 0.05 compared to (1); ∆p < 0.05 compared to (2).

Comment: Patients with Spleen-Kidney Yang deficiency and Yin-Yang dual deficiency had significantly higher mean blood creatinine levels and lower mean GFR compared to those with Spleen-Kidney Energy deficiency, Energy-Yin dual deficiency, and Liver-Kidney Yin deficiency (p < 0.05).

Table 4. Blood creatinine levels and GFR by branch syndrome patterns

Branch syndrome patterns	Count	Blood Creatinine (µmol/L, $\overline{X}$ ± SD)	GFR (ml/min/1.73m², $\overline{X}$ ± SD)
Phlegm-Dampness (1)	701	265.33±206.18	32.62±18.51
Dampness-Heat (2)	216	243.24±181.49	34.00±17.21*
Blood stasis (3)	124	227.83±186.79*	35.11±17.16*
Water-Dampness (4)	79	281.84±189.87	28.70±16.16

*Note: *p < 0.05 compared to (4). A patient may have one or several combined branch syndrome patterns*

Comment: Patients with Water-Dampness had significantly higher mean blood creatinine and lower mean GFR than those with Blood stasis (p < 0.05) and lower GFR compared to those with Dampness Heat (p < 0.05).

IV. DISCUSSION

The research was conducted based on data collected from 1,020 CKD patients at hospitals across Northern, the Central, and Southern Vietnam. Based on the synthesis and analysis of the results obtained, the research team has the following points of discussion:

4.1. Discussion on common traditional medicine symptoms in CKD patients

The average age of CKD patients was high at 63.82 ± 17.72 years, with the majority being over 50 years old (78.43%). This finding is consistent with a survey of 50,000 people in China, where the average age of 1,185 CKD patients was 63.6 ± 14.7 years [7]. The male-to-female ratio was 1.8:1. Men are more likely to develop underlying conditions that lead to CKD, such as urinary stones and benign prostatic hyperplasia, ... resulting in a higher rate of CKD among men.

The research was based on a questionnaire survey among CKD patients, and to address potential bias from patients undergoing hemodialysis or peritoneal dialysis, we chose to survey patients who had not yet undergone renal transplant and dialysis therapy. Consequently, the majority of patients surveyed had CKD in stages I to III, accounting for 97.06%, with stage IV CKD found at a very low rate of 2.94%.

Due to the high age of CKD patients and the decline in liver and kidney functions, a significant proportion (90.69%) exhibited symptoms of reduced sexual function, and dizziness and tinnitus were also frequently observed (60.88% and 37.75%, respectively). The kidneys govern urination and defecation, and the lumbar area corresponds to the Fu organs of the kidney; thus, when kidney deficiency occurs, symptoms such as nocturia and lower back pain with knee weakness are prevalent (63.04% and 53.24% of cases, respectively). (Table 1).

Chronic kidney disease is mainly related to the Spleen-Kidney organs. When the functions of the Spleen - Kidney organs decline, patients experience fatigue, poor appetite, and pale swollen tongues (69.31%, 46.57%, and 67.16%, respectively). Additionally, Vietnam's humid and rainy climate promotes dampness evil. The spleen both transports and dislikes dampness. When damp evil invades, the spleen's transport and transformation functions become obstructed. Conversely, a weakened spleen function also reduces its ability to transport and transform, leading to dampness. Prolonged dampness can generate heat, and dampness causes stagnation. This stagnation in the meridians leads to blood stasis, fluid accumulation, and, over time, the dampness condenses to form phlegm,... these pathological products transform into one another. Prolonged stagnation of dampness and phlegm eventually generate heat, and phlegm stagnation obstructs the meridians and congest blood. These conditions lead to symptoms such as pale, swollen tongues, greasy white coating on the tongue, joint and bone pain affects over 50% of cases, heavy tension headaches occur in 24.8%, and a sticky, greasy

tongue coating is present in 27.75% (Table 1).

The decline in spleen function, along with the stagnation of phlegm and dampness, further disrupts the spleen's functions, causing symptoms of fatigue, swollen tongues, greasy white coating, and poor appetite (all with a prevalence over 45.57%). Phlegm and dampness impede the meridian and the circulation of energy and blood, causing symptoms such as localized pain (69.31%) and sublingual varices (72.16%) (Table 1). While five viscera can produce phlegm, the spleen-kidney are the main sources. The spleen governs the transportation and transformation of water- dampness. If the spleen is deficient and dampness prevails, it can lead to the formation of phlegm. The kidneys govern water metabolism, and insufficient kidney yang can cause water and dampness to overflow, resulting in phlegm and fluid retention syndrome. The triple burners is the pathway for water metabolism, while the bladder stores urine. If the energy transformation process is impaired, water metabolism becomes disrupted, leading to the accumulation of fluids, which condense into phlegm. When the liver fails to ensure the smooth flow of energy, it causes stagnation in the energy mechanism, obstructing the processes of ascending and descending. This results in water retention, leading to the formation of phlegm and fluid retention syndrome. Phlegm-Dampness stagnation results in a greasy yellow coating on the tongue (69.51%), heavy limbs (35.98%), obesity with sluggishness (28.92%), and sticky tongue coating (27.75%) are frequently observed (Table 1).

The above symptoms are characteristic symptoms of the disease pattern, indicating the decline in the functional capacities of the internal organs, primarily the kidneys, spleen, and liver. These disruptions in the transportation and transformation of Water-Dampness give generate to pathological products such as Phlegm-Dampness, Dampness-Heat, Blood stasis, and Water-Dampness. This creates a pathological cycle where organ dysfunction leads to the formation of pathological products, which in turn exacerbate the functional disorders of the organs.

4.2. Discussion on common traditional medicine syndromes in CKD Patients

CKD in traditional medicine falls under the categories of root asthenia and branch plenitude. According to the results in Table 2, the most commonly root syndrome patterns include Energy-Yin dual deficiency (31.57%), Spleen-Kidney Energy deficiency (28.24%), Spleen-Kidney Yang deficiency (18.43%), Yin-Yang dual deficiency (17.35%), and Liver-Kidney Yin deficiency

(2.84%). These findings are consistent with studies by Truong Manh and Luu Hieu Man (2008) on 180 patients [3] and by Nhiep Li Phuong on 200 CKD patients [8]. Other patterns, such as Incoordination between heart and kidney, Heart and Kidney Yang deficiency, and Lung and Kidney Energy deficiency, were found at lower rates (0.29%, 0.59%, and 0.69%, respectively). We observed that CKD patients often have accompanying conditions such as cardiovascular diseases, diabetes, or respiratory diseases, etc Therefore, the less common patterns, such as incoordination between heart and kidney, Heart - Kidney Yang deficiency, and Lung-Kidney Energy deficiency, may represent secondary syndromes associated with these comorbidities.

The results presented in Table 3 indicate that patients with Spleen-Kidney Yang deficiency and Yin-Yang dual deficiency had significantly higher average serum creatinine levels and lower GFR ($p < 0.05$) compared to patients with Liver-Kidney Yin deficiency, Spleen-Kidney Energy deficiency, and Energy-Yin dual deficiency. This finding aligns with the distribution of CKD patients according to traditional medicine syndromes, where each syndrome corresponds to a different disease stage. In the early stages, CKD often presents as Spleen-Kidney Energy deficiency or Energy-Yin dual deficiency, while progression to Yin-Yang dual deficiency represents the later stages of the disease [9].

In CKD, prolonged illness leads to primordial kidney deficiency, which disrupts the Spleen's transformation and transportation functions, results in inadequate activating of energy, and causes imbalances in ascending, descending, opening, and closing processes. As a result, the kidney fails to store (should store but doesn’t), to ascend (should ascend but doesn’t), or to excrete (should excrete but doesn’t), forming a syndrome of root asthenia and branch plenitude. In the early stages of CKD, deficiency of healthy energy and turbid evil are not severe. As the disease progresses to the intermediate stage, healthy energy declines gradually while the internal accumulation of turbid evil gradually increase. Each root asthenia pattern may be accompanied by one or more branch plenitude. The branch plenitude patterns associated with kidney disorders include phlegm, dampness, blood stasis, and edema. While all five viscera can produce phlegm, the Spleen-Kidney are primary contributors. Furthermore, Vietnam’s hot and humid climate, coupled with dietary habits,

irregular lifestyles, and frequent consumption of fatty foods, exacerbates conditions related to dampness and phlegm.

Regarding branch syndromes, Phlegm - Dampness is the most common, affecting 68.73% of patients. This aligns with the view that turbid phlegm is a frequent manifestation of branch syndrome. Next is Dampness - Heat, which affects 21.18% of patients, While Blood stasis (12.16%) and Water - Dampness (7.75%) are less common. Prolonged Phlegm - Dampness may generate heat (Table 2). Phlegm - Dampness, Dampness - Heat, Blood stasis, and Water - Dampness form a cyclical pattern, generating and transforming into one another. Patients with Water - Dampness syndrome had higher average blood creatinine levels (281.84 ± 189.87µmol/L) compared to those with Blood stasis syndrome (227.83 ± 186.79µmol/L). Their GFR (28.7 ± 16.16mL/ min/ 1.73m²) was significantly lower than that of patients with Blood stasis (35.11 ± 17.16mL/ min/ 1.73m²) or Dampness - Heat syndrome (34 ± 17.21mL/ min/ 1.73m²), with $p < 0.05$ (Table 4).

V. CONCLUSIONS

From researching 1,020 patients diagnosed with CKD based on modern medicine, we draw the following conclusions:

The common symptoms of CKD in traditional medicine primarily involve the Spleen-Kidney organs. These include reduced sexual function, nighttime urination, lower back pain, knee weakness, joint pain, tinnitus, dizziness, fatigue, poor appetite, scanty yellow urine, constipation, pale and swollen tongue body, and either a greasy yellow or white slippery tongue coating, as well as sublingual varices.

The common traditional medicine syndromes for CKD include five root syndrome patterns: Energy - Yin dual deficiency (31.57%), Spleen-Kidney Energy deficiency (28.24%), Spleen - Kidney Yang deficiency (18.43%), Yin-Yang dual deficiency (17.35%), and Liver - Kidney Yin deficiency (2.84%). There are also four branch syndrome patterns: Phlegm - Dampness (68.73%), Dampness - Heat (21.18%), Blood stasis (12.16%), and Water - Dampness (7.75%).

Patients with Spleen - Kidney Yang deficiency and Yin - Yang dual deficiency had higher mean blood creatinine levels at 313.04 ± 227.47µmol/L and 300.59 ± 210.65µmol/L, respectively, compared to those with Spleen - Kidney Energy deficiency, Energy - Yin dual deficiency, and Liver - Kidney Yin deficiency, with levels of 240 ± 191.86µmol/L, 226.46 ± 174.6µmol/L, and 170.3 ± 88.93 µmol/L, respectively ($p < 0.05$). Similarly, the GFR for patients with Spleen-Kidney Yang deficiency and Yin - Yang dual deficiency was 28.1 ± 17.14ml/ min/ 1.73m² and

26.9 ± 16.25ml/ min/ 1.73m², respectively, lower than that for those with Spleen-Kidney Energy deficiency, Energy-Yin dual deficiency, and Liver-Kidney Yin deficiency, at 35.61 ± 18.25ml/ min/ 1.73m², 36.19 ± 18.42ml/ min/ 1.73m², and 42.93 ± 14.24 ml/ min/ 1.73m², respectively. Patients with Water-Dampness had a mean GFR of 28.7 ± 16.16ml/ min/ 1.73m², which was lower than those with Blood stasis (35.11 ± 17.16ml/ min/ 1.73m²) and Dampness - Heat (34 ± 17.21 ml/ min/ 1.73m²).

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