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Case Report

세포교정영양요법(OCNT)을 이용한 신장 기능 개선 사례

최연 약사
광주광역시 서구 운천로 88 운진빌딩 한샘약국

A Case Study on the Improvement of Kidney Functions Using Ortho-Cellular Nutrition Therapy (OCNT)

Pharmacist, Yeon Choi
Hansaem Pharmacy, 88, Unjin Building, Uncheon-ro, Seo-gu, Gwangju, Republic of Korea

ABSTRACT

Objective: The kidneys are one of the vital organs in the human body, performing various functions. Their primary role is to maintain homeostasis through metabolic processes of filtration, reabsorption, and secretion within the nephron, the functional unit of the kidney. Chronic kidney disease (CKD) is defined as a condition in which the glomerular filtration rate of the kidneys is less than 60 ml/min per 1.73 m² or when kidney damage persists for more than three months. This disease is associated with high incidence and mortality rates and requires substantial medical expenses. Therefore, early treatment is crucial, and diagnosis based on indicators that assess kidney function is essential.

Case Report: This case study involves a Korean male in his 30s with impaired kidney function. The severity of his kidney indicators was confirmed through a health examination, and he experienced white coat hypertension, where blood pressure was measured higher than usual due to anxiety when visiting the hospital. If the patient's kidney indicators persisted, CKD could also be suspected. Therefore, after assessing the patient's health condition, Ortho-Cellular Nutrition Therapy (OCNT) was applied by prescribing anthocyanin, linolenic acid, and taurine.

Conclusion: The patient reported that the levels of glomerular filtration rate (GFR) and blood urea nitrogen (BUN) returned to the normal range. The improvement in the patient's kidney health was confirmed through health examination results. However, as this study is based on a single patient case, there are limitations in applying the findings to all patients with kidney disease, indicating the need for large-scale studies.

Keywords Ortho-Cellular Nutrition Therapy (OCNT), kidney, chronic kidney disease, glomerular filtration rate (GFR), blood urea nitrogen (BUN)

Introduction

The kidneys are vital organs in the human body, performing various functions. Their primary functions include removing toxins generated by cellular or external substance metabolism, regulating the internal environment's homeostasis, and producing hormones. Additionally, the kidneys produce erythropoietin (EPO), calcitriol, and renin. The primary role of the kidneys is to maintain homeostasis in the body through sequential metabolic processes of filtration, reabsorption, and secretion within the nephron, the functional unit of the kidney. Filtration occurs in the glomerulus, the initial part of the nephron, while reabsorption and secretion take place in the tubules, which collect the filtrate and contribute to urine formation.[1]

Chronic kidney disease (CKD) is defined as a condition where the glomerular filtration rate (GFR) is less than 60 ml/min per 1.73 m² or when kidney damage persists for more than three months. Kidney damage can be diagnosed through pathological abnormalities confirmed by biopsy, changes in urine sediment, or proteinuria.[2] CKD is estimated to affect more than 850 million people worldwide.[3] In the United States, it has been reported that 1 in 7 adults suffers from CKD, which accounts for 14% of the total U.S. population. The majority of individuals with this condition are known to face high incidence and mortality rates, along with excessive medical costs. However, only about 9% of kidney disease patients are aware of their condition, making early treatment difficult.[4]

The classification process of CKD typically involves non-invasive tests, which are essential as they relate to the underlying causes of the disease. CKD can result from pre-

*Correspondence: Yeon Choi
E-mail: cy386@hanmail.net
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existing conditions such as kidney disease, cardiovascular disease, and diabetes. If not detected in the early stages, it can increase the risk of complications. Several indicators are used to assess kidney function, with the glomerular filtration rate (GFR) being the most representative.[5] The GFR refers to the kidney's ability to filter blood and is typically assessed through serum creatinine (SCr) levels. GFR varies depending on age, sex, and body size. For instance, in young women, the typical GFR is around 120 mL/min/1.73 m², while in men, it is about 130 mL/min/1.73 m². As individuals age, GFR tends to decrease.[6]

However, determining the exact value of the GFR is challenging, as the filtration process occurs in millions of glomeruli, and the composition and volume of the filtrate change as it passes through the kidneys. Therefore, GFR is measured through the excretion of markers filtered by the kidneys, referred to as mGFR (measured GFR). These filtration marker substances can be measured in plasma or urine, and ideally, the substances should be filtered in the glomerulus without being reabsorbed or secreted. A representative example of such a marker is insulin.[7]

Kidney function is assessed not only through the GFR but also by measuring SCr, blood urea nitrogen (BUN), and urine analysis. Creatinine is derived from the breakdown of creatine and is freely filtered, but it is neither reabsorbed nor metabolized. However, a significant portion of creatinine comes from secretion in the proximal tubules, the blood vessels responsible for kidney reabsorption. As a result, there is a possibility of measurement variability when determining the GFR.[8] When measuring the GFR using creatinine, it is essential to consider factors such as the patient's dietary intake, muscle mass, changes in tubular secretion, and whether creatinine excretion is influenced by kidney disease. BUN is an indicator that measures the concentration of urea nitrogen in the blood. As GFR decreases, BUN levels typically rise; however, BUN can fluctuate independently because the rate of urea production is not constant and may increase due to factors such as high-protein diets, bleeding, or trauma.[9]

The patient in this case study reported a decline in kidney function due to a decrease in GFR and an increase in BUN levels starting in 2022. Additionally, based on the results of a health examination in 2023, the patient was warned by the doctor that if kidney function continued to deteriorate, dialysis might be necessary, and he was diagnosed in the pre-stage of CKD. Therefore, the goal is to improve kidney function through Ortho-Cellular Nutrition Therapy (OCNT).

Case Study

1. Subject

One patient with impaired kidney function was included in this case study.

1) Name: Park OO (31 years old / M)
2) Diagnosis: Pre-stage Chronic Kidney Disease
3) Date of onset: January 2022
4) Treatment period: January 2024 – Present
5) Chief complaints: Decreased GFR, White Coat Hypertension
6) Medical history: Decreased GFR, Increased BUN levels
7) Social history: Alcohol consumption once a week
8) Family history: Father with thyroid cancer
9) Current illness and medications: None

2. Methods

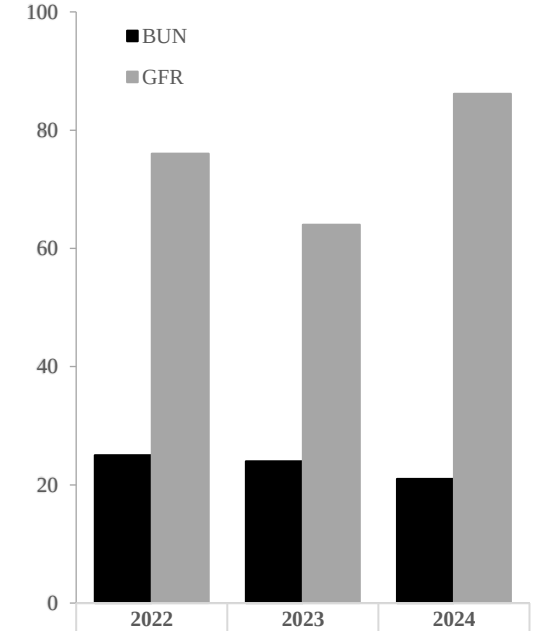
Cyaplex F Capsule (303, twice a day, 3 capsules per dose)
Eufaplex Alpha Capsule (303, twice a day, 3 capsules per dose)
Haepobooster F Granules (101, twice a day, 1 sachet per dose)

Results

The patient reported that he became aware of a decline in kidney function through health screnning two years ago. Additionally, one year later, his kidney function worsened further, and due to anxiety during hospital visits, he experienced white coat hypertension, where his blood pressure was measured higher than usual.

Therefore, to reduce the patient's kidney filtration burden, OCNT was administered for four months to improve liver detoxification. The patient underwent a health screening, and the results showed that his GFR increased to 86.13 mL/min/1.73 m^2, and his BUN level decreased to 21 mg/dL (Normal GFR values are 90-120 mL/min/1.73 m^2, and normal BUN values are 6-20 mg/dL). Additionally, the patient's attending physician expressed that the kidney function would return to normal if managed this way. Based on the improved condition, the patient has reduced the dosage of OCNT to once daily starting November 2024. The patient's kidney function results from the health screening are shown in Fig. 1. below.

Fig. 1. Kidney function test results of the patient before and after OCNT. The values returned to normal levels in 2024 after OCNT was performed.



	2022	2023	2024
BUN	25	24	21
GFR	76	64	86.13

* BUN: mg/dL, GFR: mL/min/1.73 m^2

Discussion

The kidneys are the detoxifying organs of the body, responsible for excreting metabolic by-products and waste

products generated within the body. Damaged kidneys are difficult to regenerate with modern medicine and are treated through dialysis or transplantation. However, dialysis increases the risk of infections and various complications. Epidemiological studies have shown that dialysis patients have a mortality rate of more than three times higher than those undergoing transplantation. While transplantation has a relatively higher survival rate, the use of immunosuppressive medications can lead to a weakened immune system, increasing the risk of cardiovascular diseases, infections, cancers, and other complications, which can also increase the mortality rate.[10]

Anthocyanins are a type of flavonoid compound found in plant tissues such as flowers and fruits, and they have excellent bioavailability. They exhibit antioxidant, anti-inflammatory, and anti-atherosclerotic properties, particularly demonstrating direct antioxidant effects that protect against DNA, protein, and lipid damage. Recent studies have shown that anthocyanins activate certain detoxifying enzymes, such as glutathione peroxidase, catalase, and transferases, which help reduce oxidative stress. Furthermore, anthocyanins have been reported to improve CKD by alleviating hyperglycemia and enhancing insulin sensitivity, thus reducing kidney damage. This effect is particularly prominent in patients with underlying conditions such as diabetes, where the single anthocyanin compound C3G (Cyanidin-3-O-glucoside) has been shown to reduce blood glucose levels, prevent kidney damage and lower inflammatory cytokine levels, demonstrating anti-inflammatory effects.[11] Therefore, it is believed that the prescription of Cyaplex F, which contains anthocyanins, contributed to improving the patient's kidney function.

Eufaplex contains linoleic acid, a type of fatty acid. Linoleic acid is one of the most commonly consumed unsaturated fatty acids in the human diet. When ingested, it is utilized in various ways, such as serving as an energy source for the body or contributing to the formation of lipids. Additionally, it plays a key role in forming phospholipids in cell membranes, which are crucial structural components of the epidermis, and it also generates various derivatives involved in cellular signaling.[12] One study reported that linoleic acid contributes to the synthesis of prostaglandins. When linoleic acid was administered to subjects for two weeks, an increase in the metabolic products of prostaglandins was observed in their urine. Additionally, there was a noticeable increase in the excretion of sodium and creatinine.[13] Prostaglandins are kidney metabolites derived from arachidonic acid, and they interact with various receptors to regulate renal hemodynamics as well as the excretion of sodium and water. Additionally, each receptor plays a role in regulating vascular responsiveness, glomerular tone, and renin secretion, a renal hormone.[14] Therefore, the production of prostaglandins positively impacts kidney function, and it is believed to have influenced the improvement in this patient's symptoms.

Taurine is the most abundant amino acid in humans and plays a crucial role in various physiological processes. It binds to bile acids, maintains calcium homeostasis, stabilizes cell membranes, and regulates osmolality in the body.[15] Taurine plays a significant role in various physiological processes in the kidneys, influencing urine excretion. It is involved in the renal cell cycle and apoptosis, regulates ion reabsorption, blood flow, and endothelial function in the kidneys, and performs antioxidant functions in the glomeruli. Additionally, taurine affects kidney ischemia and damage.[16] Haepobooster F is rich in taurine, and it is believed to have positively impacted renal blood flow regulation and the improvement of kidney cells.

In this case, the patient did not have underlying conditions such as diabetes or hypertension, nor was there any medication intake that could damage kidney function. Despite this, the patient's kidney function deteriorated rapidly at a young age in his 30s, leading to the risk of CKD. Therefore, by applying OCNT based on the individual's health status, the improvement in the patient's kidney cells indicates the potential for renal function to recover.

However, this is a case of OCNT conducted on a single patient, and there are limitations in generalizing the results to all CKD patients. Nevertheless, in this case, the patient's kidney function changes were reflected in the health screening results, and it was confirmed that the patient's health improved through OCNT. Therefore, with the patient's consent, this case is being reported.

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