



The Interplay of Proteinuria and Cachexia from the Perspective of Persian Medicine (PM)

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DEAR EDITOR

Chronic kidney disease (CKD) impacts approximately 15-20% of adults globally and is identified as an independent risk factor for non-alcoholic fatty liver disease (NAFLD). NAFLD is associated with cardiovascular disease (CVD) and poses a threatening condition as it is becoming a major public health concern in connection with metabolic syndrome (1).

Due to the connection it has with several metabolic disorders, proteinuria - the detection of proteins excreted in the urine - is gaining prevalence with the increase of chronic diseases such as CKD, diabetes mellitus, hypertension, brain strokes, preeclampsia, cancer, and obesity. Normal urinary protein excretion is less than 150 mg/24 hours and consists mostly of secreted proteins. The normal mean albumin excretion rate (AER) is 5-10 mg/day, with an AER of more than 30 mg/day considered abnormal. Poor kidney and cardiovascular outcomes are caused by structural damage to the glomerular filtration barrier. Proteinuria often manifests clinically in the forms of cachexia, foamy urine, and edema (2).

The term Cachexia (kak-ex-ee-a) comes from the Greek words "Kakos" (meaning bad) and "Hexis" (meaning condition).

Characterized by a hypercatabolic state that alters the body's utilization of proteins, carbohydrates, and fats in the context of a chronic inflammatory response, cachexia is defined as the accelerated loss of skeletal muscle and is distinct from ordinary weight loss. What exactly happens in cachexia is still

a mystery to scientists due to its complex process that involves several organs and systems in the body. Cachexia manifests in individuals with chronic illnesses, such as cancer, heart failure, cirrhosis, and hepatic or renal failure. Foamy urine is an indicator of protein in the urine (2).

Food, when digested by the liver, is converted into secondary metabolites, a collection of substances that are called Humor in PM. The process of food digestion is divided into four stages: gastric, hepatic, vascular, and tissue metabolism. Disturbance in any of these four stages can lead to the production of bad humors and eventually cause diseases, such as *su-ol-qonyeh* which corresponds to cachexia in terms of clinical symptoms and refers to widespread tissue damage throughout the body caused by chronic diseases, such as heart failure and chronic liver and kidney disease. *Su-ol-qonyeh*, when advanced, develops into a disease called Estesqua - equivalent to Ascites - which is categorized into different types. As stated in PM resources, these diseases share similar symptoms with proteinuria, such as foam in the urine and edema in various degrees appearing in different organs. In the past, a method of diagnosis used by PM physicians was to examine the patient's urine in a glass container made in the shape of a human bladder, called a *Qarooreh* (Fig. 1). Foamy urine was seen in the same way in some diseases.



Figure. 1. *Qarooreh*

By comparing these two points of view, it can be concluded that chronic diseases caused by underlying factors trigger the release of pathogenic mediators and tissue damage. PM states that these predisposing factors are divided into two categories: cold and hot. Treatment and drug selection are based on this division, and the treatment protocols differ for each patient (3). Taking PM into consideration when treating patients, especially those with proteinuria accompanied by weight loss, edema, or ascites, not only helps the process but also provides a basis for further research and improvement in the prevention and control of these diseases.

Conflict of Interest

The authors have no conflict of interest to declare.

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