



**Libyan International Medical University**  
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**The Relation Between Renal Failure And Pericarditis**

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**This Report** is submitted to fulfill the requirements of **Respiratory system block**

**Abstract :**

The aim of this report is to discuss the relation and pathophysiology between end stage renal failure (ESRF) and pericarditis that can occur in patients with chronic renal failure before initiation of dialysis or in established dialysis patients.

**Introduction :**

Pericarditis it is an inflammation of the pericardium, the sac which surrounds the heart. There are many causes can lead to pericarditis and pericardial effusion, including infection and chest trauma or it can be secondary to a systemic disorder like autoimmune disorders, rheumatic fever, uremia and cancer. Uremia the most common systemic disorder associated with pericarditis it is the condition in which azotemia progress to clinical manifestations and systemic biochemical abnormalities .It more develops with chronic kidney disease (CKD), especially the latter stages of CKD<sup>(1)</sup>. Pericarditis in ESRD patients has been described as 2 entities: uremic and dialysis pericarditis. Uremic pericarditis has been traditionally described as the onset of clinical signs and symptoms before the initiation of renal replacement therapy (RRT) or within 8 weeks of its initiation. Dialysis pericarditis has been defined as the occurrence of clinical manifestations after being stabilized on RRT for more than 8 weeks<sup>(2)</sup>. Even though mortality in ESRD patients has decreased by 30% since 1999, it is still higher than age-matched individuals in the general population<sup>(3)</sup>. Furthermore, a growing incidence of complications from chronic renal failure and long-term hemodialysis has been observed, including pericarditis and uremic pericardial effusion, which frequently remain unrecognized in the absence of clinical signs and symptoms<sup>(4)</sup>. Complications of ESRD are responsible for approximately 14 in-hospital days, with an average of 2 hospitalizations per year, per dialysis patient<sup>(5)</sup>. The management of pericardial diseases in ESRD patients involves internists, cardiologists, and nephrologists.

**Discussion:**

Pericardial disease is common in patients with renal disease..Approximately 20% of uremic patients requiring chronic dialysis develop uremic pericarditis or dialysis pericarditis. The etiology of this is that when the kidneys fail to get rid of the wastes on your body, they build up in your blood. When dietary protein is broken down a product called urea is formed ,around 7 to 20 mg/dL (2.5 to 7.1 mmol/L) is considered normal. High levels of urea, called uremia, which it means “urine in the blood”. This condition is toxic to the body and could lead to a dangerous inflammation of the outer layers of the heart, the pericardium. Massive hemorrhage into the pericardial sac is usually attended by clotting and requires pericardiotomy and evacuation of clot. Uremic pericarditis may

complicate either acute or more commonly in chronic renal failure. When dialysis is not employed, uremic pericarditis is usually a preterminal event and is characterized by a serofibrinous exudation of an inadequate amount to cause cardiac tamponade<sup>6,7,8</sup>. In this report I compared between three studies to determine if pericarditis can develop secondary to end stage renal disease. In the first study a 27- year- old patient with a history of uncontrolled hypertension, end-stage-renal disease on hemodialysis, who presented with recurrent ascites, dyspnea, and hypotension. After diagnosis with CCP, a partial pericardiectomy was performed; however, the patient did not improve and a salvage total pericardiectomy soon followed. He continued to decompensate and expired following a terminal extubation. No definitive cause of constrictive pericarditis was found. Nonetheless, we surmise it may have developed secondary to his end-stage renal disease. A literature review revealed end-stage kidney disease as a relatively uncommon cause of CCP; only a few other such associations have thus far been reported<sup>(9)</sup>. Another study revealed that 85% of Patients with end stage renal disease (ESRD) usually do not die from the renal disease, but from cardiovascular complications. These complications involve arterial diseases, pericarditis, accelerated atherosclerosis and cardiac changes especially left ventricular hypertrophy<sup>(10)</sup>. In the study 7 cases were reported of having acute pericarditis with end-stage renal disease on renal replacement therapy. Only 4 of the patients gave any history of chest pain, and a pericardial friction rub was only noted in 2. Despite a period of intensive dialysis, none of the patients improved and all required pericardial drainage as the definitive curative procedure. The clinical presentation of acute pericarditis in dialysis patients therefore may be atypical and pericardial drainage should be considered early, as intensive dialysis alone may not lead to resolution<sup>(11)</sup>

### **Conclusion :**

Patients with end-stage renal disease (ESRD) may develop pericardial disease , including pericarditis ,pericardial effusions and occasionally chronic constrictive pericarditis. Two forms of pericarditis in renal failure have been described, uremic pericarditis and dialysis associated pericarditis.

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