

Treatment of Prerenal Azotemia, its Types, Causes and Symptoms

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DESCRIPTION

An excessively high quantity of nitrogen waste products and other nitrogen-rich chemicals in the blood is known as prerenal azotemia. The kidneys' inability or failure to properly filter blood is substantially to blame. If it is not controlled, it can cause uremia and acute renal damage (kidney failure). A reduction in blood flow (hypoperfusion) to the kidneys is what causes prerenal azotemia. There is no innate kidney disease, though. It can happen as a result of, among other things, haemorrhage, shock, volume depletion, congestive heart failure, adrenal insufficiency, and renal artery narrowing.

Treatment

When certain causes of azotemia are treated right away, kidney function may be restored; if treatment is postponed, renal function may be permanently lost. Hemodialysis or peritoneal dialysis, blood pressure-raising drugs, and therapy for the underlying illness that produced the azotemia are all possible forms of treatment.

Types

Primary renal azotemia: Usually, renal azotemia (acute kidney failure) results in uremia. It is an innate kidney disease that typically results from renal parenchymal injury. Acute tubular necrosis, glomerulonephritis, renal failure, and other kidney diseases can all be contributing factors. In renal azotemia, the Blood Urea Nitrogen:Creatinine (BUN:Cr) is less than 15. Because of the decreased glomerular filtration rate caused by renal disease, nothing is filtered as effectively as it should be. Additionally to not being normally filtered, the urea that is filtered is not properly reabsorbed by the proximal tubule. As a result, urea levels are higher in the urine and lower in the blood when compared to creatinine. The amount of creatinine in the blood increases as creatinine filtration declines. Urea is elevated by third spacing of fluids such as peritonitis, osmotic diuresis, or low aldosterone conditions like Addison's disease.

Postrenal azotemia: Postrenal azotemia is brought on by a blockage of urine flow in a region below the kidneys. It can be brought on by congenital defects such as vesicoureteral reflux, kidney stone blockage, pregnancy, cancer compression of the

ureters, prostatic hyperplasia, or urethral stone blockage. There is no underlying renal illness, similar to prerenal azotemia. A hydronephrotic condition called backflow into the kidneys might result from the increased resistance to urine flow.

In postrenal azotemia, the BUN:Cr is initially >15. The enhanced urea reabsorption results in an aberrant elevation of urea relative to creatinine due to the higher nephron tubular pressure (caused by fluid back-up). Renal azotemia will arise from ongoing injury to the tubular epithelium, which will cause a reduced BUN:Cr ratio.

Symptoms

- Oliguria or anuria (insufficient or nonexistent urination)
- Asterixis (flapping tremor) and fatigue
- Lack of alertness
- Perplexity
- Confusion
- Tachycardia (rapid pulse)
- Pale skin
- Dry mouth (xerostomia)
- Edoema, anasarca (swelling)
- Thirst
- Orthostatic blood pressure (variable based on posture of body)

Causes

Prerenal azotemia is frequent, particularly in the elderly and those who are hospitalised. Blood is filtered by the kidneys. They also produce urine to get rid of garbage. Blood filtering also decreases as the volume or pressure of blood flowing through the kidneys decreases. It might perhaps not happen at all. Waste materials remain in the blood. Although the kidney is functioning, little to no urine is produced.

A disorder called azotemia occurs when the body accumulates nitrogen waste products like creatinine and urea. When these waste products accumulate, they become poisonous. They cause tissue damage and lessen the capacity of the organs to perform. The most typical type of kidney failure in hospitalised patients is prerenal azotemia. It could be brought on by any illness that lowers blood flow to the kidney, such as:

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- Heat exposure
 - Decreased fluid intake (dehydration)
 - Loss of blood volume
 - Burns
 - Conditions that allow fluid to escape from the bloodstream
- Prolonged vomiting, diarrhoea, or bleeding
 - Burns
 - Conditions that allow fluid to escape from the bloodstream
 - Certain medications, such as NSAIDs and ACE inhibitors (drugs used to treat heart failure or high blood pressure).