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Editorial

Hemorrhagic Cholecystitis: Acute Renal Injury in the Postoperative

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Hemorrhagic cholecystitis is an uncommon condition associated with a high risk of mortality. In cases of hemorrhagic cholecystitis, there is tissue necrosis in the wall of the gallbladder, leading to the development of a pseudoaneurysm in the cystic artery, followed by its rupture.

Acute renal failure (ARF) is a recognized complication of various biliary tract conditions, particularly evident during biliary tract surgeries in the presence of jaundice-related blockages. However, there is limited information on renal failure in cases of acute cholecystitis and its complications such as choledocholithiasis, infections, abscess, or perforation which can cause aerobilia and hemobilia, exacerbating hemorrhagic cholecystitis.

The postoperative period of biliary tract surgeries during jaundice-related blockage often presents temporary increases in creatinine levels and oliguria. The decrease in renal function and plasma flow in the postoperative period still has unknown etiologies, but hypovolemia, thrombocytopenia, bacteremia, pancreatitis, or hyperbilirubinemia may contribute to renal function impairment in patients under this condition.

Bacteremia is one of the causes cited for acute renal failure. In the study by Burden (1975), 14 patients with acute cholecystitis were analyzed, of whom six developed reversible acute renal failure. It is noteworthy that only one of the six patients was dehydrated. The study concluded that intravascular coagulation resulting from the infection was the cause of the acute renal failure.

Abdominal bacterial infections, particularly, substantially elevate the risk of acute renal failure when compared to infections originating in other anatomical sites. This heightened risk is attributed to the complex pathophysiological processes associated with abdominal infections.

Infections and sepsis are strongly correlated with both acute kidney injury and acute renal failure. The mechanisms underlying these conditions include the loss of fluid into the third space as a result of inflammatory responses. This fluid sequestration contributes to significant hemodynamic changes, including vasodilation and decreased effective circulating blood volume. These changes lead to hypoperfusion of the renal tubules, which in turn reduces the glomerular filtration rate. Prolonged hypoperfusion and subsequent ischemia result in cellular injury and necrosis within the renal parenchyma.

Consequently, these pathological processes collectively impair renal function and contribute to the development of acute renal failure.

Nowadays, laparoscopic cholecystectomies are commonly performed, typically involving the creation of a pneumoperitoneum with intra-abdominal pressures ranging between 12 and 15 mmHg. An increase in intra-abdominal pressure results in a reduction in venous return, which decreases renal perfusion and subsequently activates both the sympathetic nervous system and the renin-angiotensin-aldosterone system. The study by Allaria (2007) demonstrated that elevated intra-abdominal pressure during laparoscopic pneumoperitoneum is one of the factors associated with acute kidney injury. This study also observed congestion of the extra-glomerular capillaries, which supports this hypothesis.

Another factor that can be considered a predictor of acute kidney injury in the postoperative period of hemorrhagic cholecystitis is the anesthetic management during the surgical procedure. Although there is no specific evidence indicating that any particular anesthetic technique is more favorable for the progression of acute kidney injury, factors such as sustained hypotension, hypovolemic shock, and the volume of fluids administered during surgery may serve as predictors for renal impairment.

Hemorrhagic cholecystitis presents with severe conditions and high mortality rates, making prompt diagnosis and surgical intervention crucial. In addition to timely indication and effective surgical treatment, it is essential to provide comprehensive patient care during hospitalization in the ICU and on the wards with a multidisciplinary team to prevent complications such as acute kidney injury or to address them appropriately if they occur [1-8].

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