Association of C- reactive protein with viral hepatitis in hemodialysis patients in west Libya

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Abstract

Introduction: Understanding the relationship between inflammatory markers, specifically C-reactive protein (CRP), and viral hepatitis in patients undergoing hemodialysis is essential for improving their care. Hemodialysis patients face a higher risk of viral infections such as hepatitis B and C due to frequent medical visits and weakened immune systems. Elevated CRP levels are associated with inflammation and the severity of liver disease, making CRP an important marker for monitoring the health of these patients. Studies have indicated that higher CRP levels in patients with chronic hepatitis C may reflect the effects of inflammation on the virus. Research also connects increased CRP to the severity of diseases in hepatitis B and C patients, making it useful for tracking disease progression and treatment effectiveness. Long-term dialysis may worsen inflammatory responses, leading to increased levels of inflammatory markers and related health risks. Studies suggest that CRP could correlate with liver function indicators like alanine aminotransferase (ALT) and aspartate aminotransferase (AST). In hemodialysis patients, CRP levels may vary depending on liver function, highlighting the link between liver health and systemic inflammation. Additionally, understanding inflammation could provide valuable insights into the prognosis for patients with chronic kidney disease and viral hepatitis. Data from various regions show different rates of hepatitis and inflammation, implying that treatment plans should adapt to local patient needs. Methods and material: The study involved 89 patients, mostly with hepatitis C, focusing on those undergoing hemodialysis. It collected demographic information, liver function tests, and CRP assessments using high-sensitivity ELISA methods. Statistical analyses demonstrated significant relationships between CRP levels, the duration of dialysis, and bilirubin levels. The study aimed to investigate the connection between CRP and viral hepatitis among hemodialysis patients in West Libya. Methods included descriptive statistics and Chi-square tests to assess relationships between CRP and various factors, with a significance level set at p < 0.05. Results showed that of the 89 patients, about 66.29% had normal CRP levels, indicating that not all hepatitis C

patients exhibit high inflammation. However, a longer duration of dialysis was linked to higher CRP levels, suggesting that prolonged treatment may increase inflammatory markers. There was also a significant relationship between CRP and bilirubin levels, suggesting bilirubin could indicate systemic inflammation rather than solely liver function. Although a majority of participants tested positive for hepatitis C, many did not show considerable systemic inflammation. **Discussion and conclusion:** The findings highlight the complex relationship between inflammation, liver function, and dialysis duration in patients with viral hepatitis. The study underscores the importance of focusing on liver health and crafting personalized care plans, as CRP levels varied little with age or gender. More research is suggested to better understand inflammatory markers in these patients and develop strategies to reduce inflammation while protecting liver function, aiming to enhance the quality of life for those affected.

Keywords: CRP hemodialysis hepatitis Libya inflammation.