



Lecture Code : DS01-S4

Session Name : Dialysis Specialist Physician Course 1

Session Topic : Issues in Hemodialysis

Date & Time, Place : June 22 (Sun) / 08:30-10:30 / Room 3 (GBR 103)

Prevention of Hemodialysis-Induced Organ Ischemia

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Hemodialysis is an essential therapeutic intervention for sustaining the lives of patients with end-stage kidney disease (ESKD). However, paradoxically, hemodialysis patients exhibit a more than tenfold higher incidence and mortality rate of cardiovascular disease compared to the general population. These patients are exposed to various complications, including intradialytic hypotension, abnormal perfusion to critical organs such as the heart, brain, liver, and kidneys, and damage to vulnerable vascular beds. The circulatory stress induced by periodic hemodialysis exacerbates these conditions, further aggravated by microvascular endothelial dysfunction. This vicious cycle leads to progressive and cumulative damage to major organs, ultimately resulting in irreversible multiorgan injury. Therefore, understanding perfusion-related injury induced by hemodialysis is crucial for comprehending the clinical outcomes of ESKD treatment, including hemodialysis. This lecture aims to discuss the pathophysiology of hemodialysis-induced organ ischemia and the key factors influencing its development. Recurrent episodes of hypotension and ischemia-reperfusion injury during hemodialysis negatively impact the cardiovascular and central nervous systems, while chronic inflammation and oxidative stress contribute to hepatic dysfunction and neurodegenerative changes. Given these mechanisms, this lecture will explore the pathophysiology of hemodialysis-induced organ ischemia, focusing on these critical factors, and summarize clinical strategies aimed at mitigating its occurrence through a comprehensive review of the literature.

Keywords: hemodialysis, ischemia, hemodialysis-induced, Circulatory stress, hemodialysis-induced organ ischemia