

Pathophysiology and therapeutic options of Cardiorenal syndrome: unresolved issue

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Cardiorenal syndrome has been defined as the pathophysiologic disorder of the heart and the kidney whereby acute or chronic dysfunction of one organ may induce acute or chronic dysfunction of the other organ. These simultaneous dysfunction of both the heart and the kidney caused by bidirectional nature of heart and kidney interaction. It has been termed since 2008, from Acute Dialysis Quality Initiative(ADQI) consensus conference, and present a classification scheme with 5 subtypes that reflect the pathophysiology, time-frame, and nature of concomitant disorders. The mechanisms that involved in cardiorenal syndrome are complex, multifactorial, and including hemodynamic factors and nonhemodynamic factors are not entirely understood. Decreased cardiac output, renal arterial hypoperfusion, renal venous congestion, neuro-hormonal activation, oxidative stress, endothelial dysfunction and activation of inflammatory cascade are noted as several central pathogenic mechanisms. But absence of a clear definition and complex of cluster of clinical conditions contribute to lack of clarity with regard to diagnosis and management tools. Several unresolved issues such as hemodynamic mechanism(decreased renal perfusion from decreased cardiac output vs renal congestion from fluid overload), volume management(adequate water replacement vs vigorous diuretics use), therapeutic organ preservation (renal preservation better vs cardiac preservation better), hemodynamic management(diuretics better? vs ultrafiltration better?) and several new therapeutic options will be discussed here.