

Cardiorenal syndrome: From bench to bedside and back

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The majority of heart failure (HF) patients have some degree of renal dysfunction. There is a bidirectional relationship between the heart and the kidneys in HF the one affecting the function of the other in a vicious circle that promotes syndrome's deterioration. The failing heart may impair renal function both by "forward" failure (drop in cardiac output) and "backward" failure (increase in central venous pressure) thus decreasing glomerular filtration rate. Inflammatory activation, cell death and drug therapy may also affect renal function. A significant drawback in assessing these patients is the lack of biomarkers providing an accurate and timely estimation of renal function. Worsening renal function in acute HF patients following aggressive diuretic therapy, in particular, seems to confer an adverse prognosis only when not associated with effective decongestion in the context of diuretic resistance. Increasing diuretic dosage, sequential nephron blockade with different diuretic classes and renal replacement therapy with ultrafiltration along with enhancing cardiac performance with inotropes, when indicated, are measures to overcome diuretic resistance. Better understanding of the pathophysiology and the complex interactions will improve management of the syndrome.