

# Cardiorenal Syndrome-Clinical Challenge of the 21<sup>st</sup> Century

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## Introduction

The cardiac dysfunction and renal present a high prevalence in patients with chronic diseases, which contribute with another type of systemic disorders. National Heart Lung and Blood Institute sets the term cardiorenal syndrome (SCR) and defines it as the extreme deregulation failure and renal failure, which leads to a syndromic entity in which treatment to relieve symptoms of congestive heart failure (HF) is limited by the marked renal dysfunction [1].

The cardiorenal syndrome represents a pathological entity that is difficult to diagnose early, due to the various clinical manifestations that accompany it; in addition to this the causes are multiple cause both acute and chronic illnesses, resulting in a very insidious and complex management usually in this group of patients [2]. Within this spectrum they are involved different pathways that contribute to the development of this syndrome, inside of which are neurohormonal mechanisms, hemodynamic, and immunological disorders [3].

Currently, there is a unique and specific treatment for this syndrome, however are counted with therapeutic means for the multidisciplinary approach and treat each of the pathological changes that this presents, as are diuretics, ultrafiltration, vasodilators, inotropes, angiotensin converting enzyme inhibitors and angiotensin receptor blockers [4].

The cardiorenal syndrome presents a complete interaction which is not always possible to identify the initial injury, which is of utmost importance to stop the population with potential risk and implement preventive measures for the development and evolution of this pathology. Within the measures to be implemented are:

- Set the situation of each person in relation to the known modifiable risk factors [5].
- Inform the patient risk factors that presents and the measures to be taken in order to avoid complications associated.

- Arginine supplementation, and omega 3. Can interfere with the molecular pathways of oxidative stress and inflammation [6].
- Vitamins A, C, E, beta carotene and folic acid. Potential therapeutic to improve endothelial function, decrease the cardiovascular risk associated with atherosclerosis and anti-inflammatory effects [7].
- Glutamine and lysine, which may inhibit the activation of NF-kB and the expression of cytokines [8].
- Reduce the consumption of saturated fats. The activation of macrophages, induction of inflammation and oxidative stress are associated strongly with its ingestion [9].
- Supplementation with vitamin D [10].
- Glutathione and isoflavones, such as antioxidants and anti-inflammatory [11].

The cardiorenal syndrome is common in patients on heart failure or kidney function who attend with chronic diseases in its majority, therefore its early diagnosis and the detection of associated clinical manifestations is the first line of approach for this pathology. The treatment should be focused not only on the renal and cardiac involvement, but as has already been shown, the hemodynamic, metabolic and immunological, intervene in the development of this disease. The goal is the establishment of an individualized management and focused on the dominant pathophysiological mechanisms and their clinical manifestations.

## References

- (2004) Cardio-renal connections in heart failure and cardiovascular disease. National Heart, Lung and Blood Institute.
- Chávez-López EL, Alemán-Ortiz OF, Nando-Villicaña CC, Rosas-Munive E (2015) Síndrome cardiorenal: nuevas perspectivas. Rev Mex Cardiol 26(1): 39-52.

3. Bock JS, Gottlieb SS (2010) Cardiorenal syndrome new perspectives. *Circulation* 121(23): 2592-2600.
4. Hatamizadeh P, Fonarow GC, Budoff MJ, Darabian S, Kovesdy CP, et al. (2013) Cardiorenal syndrome: pathophysiology and potential targets for clinical management. *Nat Rev Nephrol* 9(2): 99-111.
5. Pérez JP, Bou XB (2008) Síndrome cardiorenal. *Nefrología Supl* 3: 29-32.
6. Con J, Joseph B, Kulvatunyou N, Tang A, O'Keefe T, et al. (2011) Evidence-based immune-modulating nutritional therapy in critically ill and injured patients. *Eur Surg* 43: 13-18.
7. Buijsse B, Feskens EJ, Schlettwein-Gsell D, Ferry M, Kok FJ, et al. (2005) Plasma carotene and alpha-tocopherol in relation to 10-y all-cause and cause-specific mortality in European elderly: the survey in Europe on nutrition and the elderly, a concerted action (SENECA) *Am J Clin Nutr* 82(4): 879-886.
8. Singleton KD, Wischmeyer PE (2008) Glutamine attenuates inflammation and NF-kappaB activation via Cullin-1 deneddylation. *Biochem Biophys Res Commun* 373(3): 445-449.
9. Enos RT, Davis JM, Velázquez KT, McClellan JL, Day SD, et al. (2013) Influence of dietary saturated fat content on adiposity, macrophage behavior, inflammation, and metabolism: composition matters. *J Lipid Res* 54(1): 152-163.
10. Lind L, Wengle B, Ljunghall S (1987) Blood pressure is lowered by vitamin D (alphacalcidol) during long-term treatment of patients with intermittent hypercalcaemia. A double-blind, placebo-controlled study. *Acta Med Scand* 222(5): 423-427.
11. Wong MC, Emery PW, Preedy VR, Wiseman H (2008) Health benefits of isoflavones in functional foods? Proteomic and metabonomic advances. *Inflammopharmacology*. 16(5): 235-239.