

# Cardio-renal syndrome: the need for a consensus

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## What is it?

The definition of cardio-renal syndrome appears to be constantly changing. Originally, the description of this syndrome seemed to refer to the onset of renal impairment as a consequence of congestive cardiac failure, acute or chronic, irrespective of the age (1,2). Subsequently, the bi-directional nature between cardiac and renal impairment, i.e. the mechanism of one recruiting the other (cardio-renal vs. reno-cardiac syndrome), irrespective of which came first seemed to be what we were referring to (3). Later, some went on to describe subtypes of this condition, based on not the severity of the syndrome but aetiology (4,5). Some others are trying to achieve a consensus (6).

In general, a syndrome constitutes a group of concurrent symptoms of a disease. In this context cardiorenal syndrome can be described as a status of sodium retention associated with clinical features of volume overload (dyspnoea, oedema). We already know what can lead to this, for example, congestive cardiac failure, renal failure. In the former although we explain the clinical scenario based on low cardiac output leading to poor renal perfusion causing salt and water overload, in reality the cardiac output appears to be maintained normally in a majority in this condition (7,8). Then what is the explanation for renal impairment as a result of congestive cardiac failure? Some think it is venous congestion (9,10).

## Why we need to go back to the drawing board

In extreme states of cardio-renal syndrome (whatever the aetiology), the symptoms (i.e. dyspnoea, oedema, low urine output,) and the modalities of treatment (oxygen therapy, inotropes, diuretics, respiratory support, and dialysis) are somewhat similar, irrespective of what comes first, whether it was renal or cardiac failure. The principles of therapy are also the same for patients in multi-

organ failure where the onset of renal and cardiac failure is multi-factorial, triggered by the offending agent (e.g. microbes). On the other hand we are fully aware that complete 'cure', can be achieved only by specifically addressing the original problem, i.e. in renal failure – the renal function, in cardiac failure – the cardiac function, and in multi-organ failure, by mitigating or removing the original etiological agent. In this context, Cardio-renal syndrome is truly a 'Rat bag' of several diseases.

The hallmark of scientific investigation is 'measurement'. If we cannot measure something, we cannot understand it. If we cannot understand it, we cannot modify its course. Thus, the first and foremost thing would be to streamline terminology and define the condition accurately (11). Secondly we need a method to measure its severity. Thus, achieving a consensus on its definition and measuring its severity is a priority. Only then can we make a real progress.

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