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Editorial:

RENAL REPLACEMENT TREATMENT IN CARDIAC FAILURE

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Version española

When the conservative measures for the treatment of renal failure secondary to heart failure (pre-renal cardiogenic renal failure) are not enough to avoid alterations in the internal millieu and/or water and salt overload, it is necessary to use a renal replacement therapy (artificial kidney), which could be extracorporeal (hemodialysis - hemofiltration) or intracorporeal (peritoneal dialysis)[1-2].

The need to use renal replacement in patients who suffer from heart failure can arise when some of the following clinical situations take place:

A) Heart failure decompensation, with clear water and salt overload and low systolic volume, which brings about resistance to diuretics therapy when these cannot be filtrated and thus they do not reach their action site (tubular lumen). The removal of such water and salt overload by means of dialytic ultrafiltration (extracorporeal or peritoneal) or by hemofiltration associated to a negative balance of water and salt, leads to an improvement in heart contractility (Starling law), its systolic volume, and therefore in renal

perfusion and diuretics renal response[3-4].

Frequently, it occurs that after a few sessions of ultrafiltration, they stop being necessary due to that the recovered renal response to the diuretics is enough to obtain the required negative balance of water and salt. Nevertheless, it is worth mentioning that there are several additional advantages to the removal of fluid by ultrafiltration respect to that removed by diuresis: on one hand, while the ultrafiltrated fluid is isotonic, the urinated fluid is hypotonic, so the sodium removal obtained by ultrafiltration is higher than that obtained by diuresis[5-6].

On the other hand, the removal by ultrafiltration (isotonic) results in a more sustained decrease of intravascular hydrostatic pressure than that induced by diuresis, which produces a much lower activation of the renin-angiotensin-aldosterone axis than that obtained by diuretics[4-6].

B) Heart decompensated disease with a marked systolic volume reduction, severe pre-renal renal failure which leads to oliguria, water and salt overload, uremia, hyponatremia, hyperkalemia and/or metabolic acidosis. The treatment for these complications is the combination of dialysis and ultrafiltration (using haemodialysis or peritoneal dialysis) or the indication of haemodiafiltration, depending if the patient is haemodinamically stable or not, respectively[6-7].

For this reason, in cases of acute renal failure secondary to cardiogenic shock it is preferred to use continuous renal replacement therapies to control its volume overload and correct its electrolytic and acid-base alterations.

C) Heart failure associated to advanced chronic renal failure (stage IV or V), is a clinical situation where failure in both organs combined causes each of them to decompensate more easily. In fact, a patient suffering from chronic renal failure and who also suffers heart disease can be necessary to enter into a chronic dialysis program (hemodialysis or peritoneal dialysis) earlier than usual (glomerular filtration $\leq$ 20 and $\geq$ 10 ml/min/1.73 m^2) since there is a bad handling of water and salt balance (frequent episodes of acute lung congestion) despite being adequately treated (hyposodic diet, diuretics, spironolactone, beta blockers, convertase inhibitors and/or angiotensin II receptor blockers).

If the peritoneal dialysis treatment is indicated, it can be enough to do a more reduced number of dialytic exchanges (cycles) respect to those patients who start dialysis due to end-stage renal disease: this type of peritoneal dialysis, which progressively increases the amount of exchanges is called incremental dialysis[6-10].

CONCLUSION Renal replacement therapies help to treat decompensated heart failure associated or not to renal insufficiency.

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