Canine leishmaniosis (CanL) is an infectious disease affecting dogs in the Mediterranean countries and is caused by the intracellular protozoan *Leishmania infantum*. This infection can cause a subclinical course or may cause a serious life-threatening disease for the patient.

In dogs with clinical signs of CanL, a switch in the immune system toward a humoral (Th2) response is seen. The activation of B cells produces high levels of immunoglobulins and immune complexes.

Glomerular deposition of circulating antigen / antibody complexes plays a key role in the pathogenesis of renal injury and the subsequent development of proteinuria. Despite the primary location of the lesions in the glomeruli, there may also be a tubulointerstitial involvement.

Kidney disease may be the only clinical or pathological finding of CanL and can progress from mild proteinuria in the absence of azotemia to a end stage of renal disease or nephrotic syndrome.

After confirming the infection, medical management will be directed to a combined treatment of the primary disease, i.e. leishmaniosis, and the renal disease.

According to the ACVIM 2013 consensus, where treatment recommendations were established for patients with positive serology and glomerular disease, the standard treatment of glomerular disease has to be started after confirming the presence of proteinuria (UPC ≥ 0.5).

Drugs commonly used to reduce proteinuria are those acting on the renin-angiotensin-aldosterone axis: angiotensin-converting enzyme (ACE) inhibitors (e.g. benazepril and enalapril), drugs that block the angiotensin receptor blockers (ARBs) (e.g. Telmisartan and Losartan) and aldosterone receptor blockers such as spironolactone.

The evolution of some parameters (UPC, serum creatinine, blood pressure) every 1-2 weeks after the initiation or modification of standard treatment will guide you in the monitoring of the effectiveness of the treatment (reduction of the UPC without causing hypotension (or increase of renal parameters > 130% of the initial value).

In veterinary medicine, nutritional management plays a very important role in the management of renal disease. In fact, the international society of renal interest (IRIS) recommends the administration of a renal diet even in early stages (stage 1, serum creatinine < 1.4 mg/dl), if there is proteinuria.

Procoagulant state associated with thrombi formation in nephrotic syndrome has a multifactorial etiology. The ACVIM study group recommends the administration of low doses of aspirin (1 - 5 mg/kg/day) as a treatment for thromboprophylaxis in patients with glomerular proteinuria.

The treatment of hypertension in patients with renal disease aims to prevent injury in target organs such as the eye, brain, kidney or cardiovascular system. IRIS provides the associated risk of injury in target organs in relation to the value of systolic blood pressure (SBP). 2013 ACVIM consensus recommends treating those patients with SBP > 160 mm Hg and diastolic blood pressure (DBP) > 100 mm Hg with the aim of achieving a SBP < 150 mm Hg and/or a DBP < 95 mm Hg, as well as a reduction of the UPC < 0.5 or below 50% of the initial value. The drugs recommended for this purpose are ACE inhibitors, ARB, calcium channel blockers (e.g. amlodipine), β-blockers (e.g. Atenolol), α blockers (e.g. Prazosin), direct
vasodilators (e.g., Hydralazine), and diuretics (e.g., Spironolactone). Monitoring will be based on risk, patient global status and IRIS classification.

The ACVIM consensus recommends the use of diuretic drugs only in patients where the function of some organs is critically compromised (e.g., ascites or pulmonary edema with respiratory distress). Furosemide is the diuretic of choice for pulmonary edema and spironolactone for pleural or abdominal effusion.

Patients with glomerular disease are predisposed to fluid overload. For this reason, if replacement therapy is needed, a close monitoring is required in order to detect the development of edema.

The other alterations related to renal disease include anemia, hyperphosphatemia and metabolic acidosis will be treated as for any patient with chronic kidney disease.

The use of therapy of renal replacement therapy has been recently reported in a patient with renal disease and leishmaniosis.

**Bibliography**


