HOW I TREAT... CONGESTIVE HEART FAILTURE WITHOUT A CARDIOLOGIST?

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The presentation of the congestive heart failure depends mainly on the patient we are dealing with, as well as the underlying disease. We are going to talk about the most typical scenarios that are presented to us in the clinic, and decide the most appropriate therapeutic treatment for these patients.

**Ambulatory and stable canine patient**
This would be the typical small dog that is presented without breathing distress. The owner has noticed an increase in respiratory rate (at rest) and even exercise intolerance. This is the ideal scenario, and is the result of educating the owners to monitor the progress of the disease. In this way we can diagnose the CHF in early stages. Although echocardiography can be useful to confirm the valvular problem and detect other lesions associated with valvular disease, the key diagnostic test is the thoracic radiography. If we have not seen the patient for some time, I would recommend a complete blood and urine analysis to the owner. At least, I would recommend a renal profile, as this would help us to decide the appropriate dose of diuretic agents. Blood pressure is also a useful test, since, in case of systemic hypertension, we should treat more aggressively with vasodilators. Although in an ideal world we should perform all these tests, it is common to meet owners who cannot afford the expense that these entail. It is important to choose the diagnostic tests to provide the best possible information. In this case they would be the thoracic x-ray, and secondly the blood pressure and renal analysis.

These patients usually do not need to be hospitalized, although sometimes oxygen therapy for a couple of hours can be beneficial. The classical treatment includes furosemide at standard dosages (2 mg/Kg every 12 hours) and pimobendan (0.2-0.3mg/Kg every 12 hours). The pimobendan must be given on an empty stomach since the gastric content affects its absorption. If the dog has a good appetite and kidney values are normal, you can start with the angiotensin-converting enzyme inhibitors: Enalapril (0.5 mg/Kg every 12 hours) or benazepril (0.25-0.5mg/Kg every 24 hours). These drugs may affect appetite and or renal function, so it may be wise waiting a few days to start this medication. Renal values and x-rays should be repeated within 5-7 days.

**Canine patient with sudden heart failure**
These patients often come to the emergency service with impaired breathing and stress. It is important to stabilize the patient before carrying out X-rays since they can decompensate quickly. Oxygen therapy is very important, and in many cases, a light sedation (butorphanol 0.2mg/Kg +/- acepromazine 0.02 mg/Kg) helps improving the patient breathing. If the patient tolerates it, we should collect some blood for a renal blood test. In these cases, the dose of furosemide will depend on the severity of the disease and also
whether the patient was already receiving this drug. Start with dosages of 2 mg/kg every hour, and assess the effect of furosemide based on respiratory rate. Obviously, if there is no improvement after 3 or 4 hours, we should ask ourselves if the diagnosis of congestive heart failure is right. Probably, dogs receiving oral furosemide at home need higher doses of this drug. Pimobendan is also indicated for these cases, either injectable (in countries where available) or orally if the patient tolerates it.

Once respiratory rate decreases around 30-40 breaths per minute, start adjusting the dosages of diuretics (every 8 or 12 hours) and repeat the renal test and electrolytes analysis. This will help us decide how aggressive we can be with these diuretics.

**Feline patient with sudden heart failure**

In cats, the accumulation of fluid can occur in the pulmonary interstitium and alveoli (pulmonary oedema), in the pleural space (pleural effusion), pericardium (pericardial effusion), or any combination of these. Typically, cats with severe pleural effusion need to be drained almost immediately after being lightly sedated (butorphanol 0.2mg/Kg +/- alfaxalon3 2 mg/KG). After draining the effusion, the respiratory rate, and mainly the respiratory effort, can improve so that the cat seems to breathe normally. It is important to not treat improperly these cats with the furosemide dosages used in dogs. In most cases, 1 mg/Kg every 24 or 12 hours may be enough to keep the heart failure under control. However, if the cat also has pulmonary oedema, dosages of furosemide will probably have to be higher or more frequent.

The use of the pimobendan in cats is not as standardized as in dogs, and it depends on the experience of the clinician in these situations. Normally, I usually reserve the use of this drug for cases where there is low blood pressure with the purpose to improve cardiac output, or when I have already treated the cat and there is recurrence of the CHF. ACE inhibitors are also recommended in cats; however there is little evidence of their effectiveness. As in dogs, I usually start these drugs during the next visit, and only when renal values and appetite are normal.

Because of the predisposition for arterial thromboembolism in these patients, the use of clopidogrel (18.75 mg per cat and day) is recommended. Normally, these tablets have a bitter taste, and many cats have trouble taking them. In these cases, I recommend the owners introducing the pills into empty gelatine capsules to mask the taste.