Can Cardalis® be used alongside pimobendan?

Yes, it has been shown that Cardalis® is well tolerated when combined with pimobendan.

Do I need to reduce the furosemide dose when using Cardalis®?

No, the dose of furosemide that you need to control oedema will usually remain the same. The diuretic effect of spironolactone is very mild and is the main reason for using Cardalis® to counteract the harmful effects of angiotensin II and aldosterone, which include vasoconstriction and cardiovascular re-modelling/fibrosis.

To find out more about how you can upgrade your heart failure patients* to Cardalis®, visit www.ceva.co.uk or contact the practice support team on (01494) 781510.

To learn about the management of heart failure in practice from leading experts, visit the following free CPD website - www.cardioaco.cevalearn.com

Why not also try the Cardalis® iPhone App, available free from iTunes, which allows owners to measure respiratory rate at home and also provides a medication reminder service.
Why treat only half the problem?
Heart failure causes activation of the RAAS System and the production of angiotensin II and aldosterone. Both angiotensin II and aldosterone have harmful effects which contribute to the vicious cycle of heart failure.
Aldosterone levels, however, can continue to rise in patients receiving an ACE Inhibitor. This is because other factors also stimulate aldosterone production.  

ACE Inhibitors, such as benazepril, prevent the synthesis of angiotensin II.  

Aldosterone levels, however, can continue to rise in patients receiving an ACE Inhibitor. This is because other factors also stimulate aldosterone production.

Spironolactone takes the place of aldosterone on its receptor and therefore blocks the harmful effects of aldosterone.

Combining an ACE Inhibitor and spironolactone is the best strategy to achieve comprehensive blockade of the RAAS System.
The benefits of **ACE Inhibitors** have been clearly demonstrated in clinical trials:

- **Double-blind, placebo-controlled study looking at 125 dogs with heart failure caused by mitral valve disease**
- **49% reduction in the risk of mortality** when dogs received the leading ACE Inhibitor benazepril

However, despite these benefits:

- **Aldosterone levels can continue to rise in heart failure patients receiving an ACE Inhibitor**
- **In studies on healthy dogs, furosemide was shown to cause a three fold increase in aldosterone, an effect which was not inhibited by either an ACE Inhibitor or pimobendan**
The efficacy of the aldosterone antagonist spironolactone is well established in veterinary cardiology:

- **Double-blind placebo-controlled study looking at 212 dogs with heart failure caused by mitral valve disease**

- **69% reduction in the risk of mortality** when dogs received spironolactone in addition to an ACE Inhibitor

![Graph showing survival probability over time](image)

**Quality of life benefits:**
- *Quicker improvement in cough and activity levels*
- *Slower deterioration of cough, heart sounds and appetite*

The combination of benazepril and spironolactone has been shown to improve quality of life and prolong survival for dogs with heart failure.

* For the home-care treatment of congestive heart failure caused by chronic degenerative valvular disease in dogs (with diuretic support as appropriate)
Cardalis®: the unique combination of benazepril and spironolactone

Two active ingredients combined at their standard dosage

- Benazepril
- Spironolactone

Easy to give

- Small, beef flavoured tablets
- Once daily administration with food

Easy to prescribe

- Three tablet sizes
- 30 tablets per pot

Dog bodyweight (kg) | 2.5mg Benazepril 20mg Spironolactone | 5mg Benazepril 40mg Spironolactone | 10mg Benazepril 80mg Spironolactone
--- | --- | --- | ---
2.5 - 5 | 1/2 | | |
5 - 10 | 1 | | |
10 - 20 | | 1 | |
20 - 40 | | | 1
40 - 60 | | | 1 + 1/2
60 - 80 | | | 2

Cardalis® should be given as part of your first-line heart failure therapy*.

* For the home-care treatment of congestive heart failure caused by chronic degenerative valvular disease in dogs (with diuretic support as appropriate)
In a field study involving 101 dogs, Cardalis® has been shown to improve compliance...

...and owner satisfaction*.

Ease of administration confirmed by 97% of owners

9 out of 10 dogs take the tablets spontaneously

Clinical studies have also demonstrated:

- Comparable potassium levels for dogs receiving benazepril and spironolactone and those receiving benazepril alone10,11

- No clinically significant effects when administered to healthy dogs at up to 10 times the recommended dose10,12,13

“Based on evidence-based medicine, there is justification for the use of all three categories of heart failure medications – ACE Inhibitors, pimobendan and spironolactone – alongside furosemide”14

Mike Martin MVB DVC MRCVS RCVS Cardiology Specialist

* For the treatment of congestive heart failure caused by chronic degenerative valvular disease in dogs (with diuretic support as appropriate). See datasheet on the back page for a full list of precautions. An increased incidence of hyperkalaemia was not observed in clinical trials performed in dogs with this combination. However, regular monitoring of renal function and serum potassium levels is recommended in dogs with renal impairment, as they may have an increased risk of hyperkalaemia. This should also be evaluated before initiating treatment, especially in dogs which may suffer hypoadrenocorticism, hyperkalaemia or hyponatraemia.