



## **CHRONIC KIDNEY FAILURE**

### **What goes wrong?**

#### **1. BUN and Creatinine**

These are nitrogen-containing by-products of protein metabolism. The kidney usually filters them out of the bloodstream. When they are elevated they cause nausea and general malaise. These are the two blood elements we measure most often to assess kidney function and progression of kidney disease.

#### **2. Phosphorous**

The kidneys help maintain our calcium and phosphorous levels. With failure, phosphorous often becomes elevated. This can cause nausea and can make kidney failure progress more rapidly. We can also see other organs calcify and lose function. The kidneys work with the parathyroid gland to help maintain phosphorous levels.

#### **3. Fluid Balance**

The kidneys help us maintain proper hydration. When they fail, you will notice increased water consumption and urination. With advancing disease, dehydration is almost inevitable.

#### **4. Blood Pressure**

The kidneys help maintain blood pressure. When they fail, high blood pressure often ensues. This causes more rapid progression of kidney failure along with potential problems in the eye, heart and blood vessels.

#### **5. Red Blood Cell count**

The kidneys produce a hormone called erythropoietin that tells the bone marrow when it is time to make red blood cells. If this hormone is not produced, anemia will result.

#### **6. Acid/Base Balance**

Some animals and people in kidney failure will not be able to maintain blood pH. This causes upset stomach, changes in respiration, general malaise, and can decalcify bones.

#### **7. Potassium**

The kidneys help regulate potassium levels. If this becomes low, muscle weakness develops and heart problems can occur.



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### **What do we measure?**

We will regularly measure several things depending on the type of problems we are seeing and the severity of the disease. Frequency of measurements will depend on severity also.

A kidney blood panel includes:

- BUN
- Creatinine
- PCV = red cell count
- phosphorous
- Calcium
- electrolytes = for potassium

- Blood Pressure
- Urinalysis
- Parathyroid hormone levels
- Physical wellness – weight, appetite, activity, etc.

### **How do we treat kidney failure?**

In addition to monitoring all of the above, the following treatments may be used:

- Fluid therapy – intravenous in hospital or subcutaneous at home
- Low protein/low phosphorous diets
- Omega-3 fatty acids
- Pepcid AC and similar products - help with nausea and gastritis
- Erythropoietin injections
- Calcitriol supplement to help keep phosphorous low
- Phosphorous binding agents
- Vasodilators (enalapril or similar) to improve blood flow to kidneys
- Iron supplements
- Potassium supplements
- Antacids
- Blood pressure medications such as Norvasc

It is important to keep patients teeth clean and maintain a good appetite.