03

CHRONIC KIDNEY DISEASE

3.1 About CKD

Chronic kidney disease

Chronic Kidney Disease (CKD) is one of the common diseases in cats and dogs, especially as they age. The probability of older cats and older dogs developing this disease is higher. It is important to note that CKD refers to renal insufficiency, and differs from Chronic Renal Failure (CRF). Most cats and dogs with CKD show symptoms of increased urination and thirst, weight loss, vomiting, and decreased appetite, with an emphasis on the persistent and irreversible nature of the disease. The exact medical causes that trigger CKD have not been clearly explained.

CKD is lifelong and irreversible. Treatment aims to minimize the accumulation of toxic metabolites in the blood as much as possible, maintain adequate hydration, address electrolyte imbalance, ensure proper nutrition, control blood pressure, and slow the progression of kidney disease. Currently, there are no definitive therapeutic guidelines for CKD in animals. Veterinary practices can only choose symptomatic treatment.

3.2 Chronic Kidney Disease (CKD) Diagnosis Flowchart for Cats

01

WEIGHT LOSS

INCREASED THIRST AND URINATION

DECREASED APPETITE

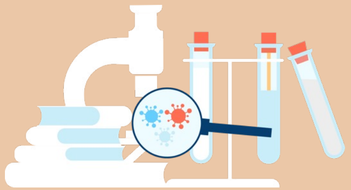
VOMITING

Early symptoms are not obvious, but common symptoms include weight loss, increased thirst and urination, decreased appetite, and vomiting.

02

Blood pressure, physical examination including weight, body condition score (BCS), hydration status, mucous membrane color, and kidney palpation.

03



1.Hematological tests: Complete blood count, biochemical tests (including SDMA), T4 (for senior cats);
2. Imaging tests: Ultrasound, X-rays;
3.Urinalysis: Specific gravity, sediment, UPC, urine culture; 4.Additional tests: Kidney biopsy (if necessary), excluding other systemic diseases.

√ No obvious abnormalities

04

Mild abnormalities, characterized by one or more of the following conditions:
Creatinine levels within the reference range but showing a continuous increase.
Sustained elevation of SDMA levels >14 μg/dL.

Abnormal kidney imaging persistent proteinuria.，UPC >0.4

The condition is serious, presenting the following abnormalities:
Increased levels of CREA and SDMA, along with a decrease in urine specific gravity.，USG＜1.035

ⓧ Diagnosed with Chronic Kidney Disease (CKD)

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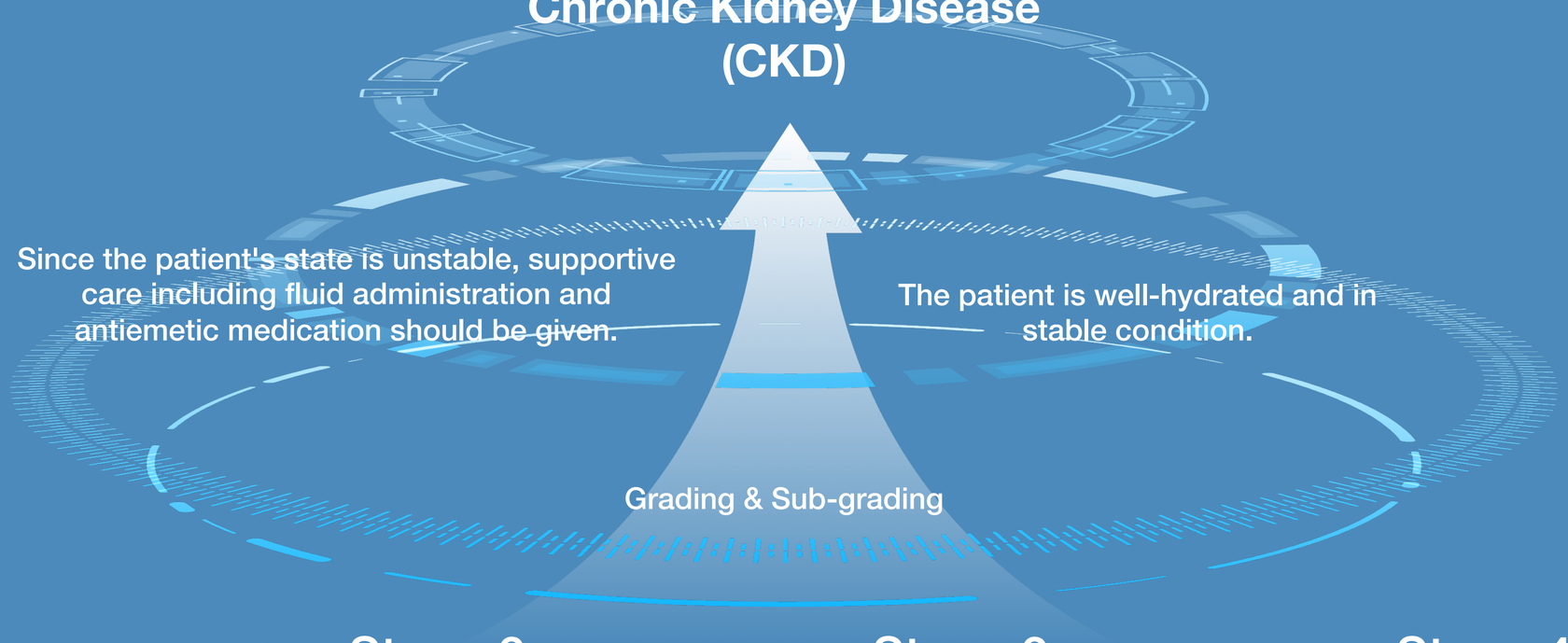
Diagnosed with Chronic Kidney Disease (CKD)



Stage I
Normonatremia

CREA: (mg/dL)＜1.6; (μmol/L)＜140
SDMA: (μg/dL)＜18

Stage 2
Mild azotemia

CREA: (mg/dL) 1.6-2.8; (μmol/L) 140-250
SDMA: (μg/dL) 18-25

Stage 3
Moderate azotemia

CREA: (mg/dL) 2.9-5.0; (μmol/L) 251-440
SDMA: (μg/dL) 26-38

Stage 4
Severe azotemia

CREA: (mg/dL) ＞5.0; (μmol/L) ＞440
SDMA:(μg/dL) ＞38

UPC (based on proteinuria for subgrading):
＜ 0.5 : No protein in urine; 0.2-0.4 : Borderline protein in urine;＞ 0.4 : Protein in urine; Systolic blood pressure (Sub-categorized based on blood pressure, mmHg):＜ 140: Normal blood pressure; 140-159: Pre-hypertension; 160-179: Hypertension; ≥180 : Severe hypertension

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3.3 The different stages of CKD

UPC (based on proteinuria for subgrading):

It is necessary to rule out the possibility of prerenal and postrenal proteinuria in order to quantitatively measure proteinuria. In order to subgrade proteinuria, it is ideal for the UPC value to be tested at least twice in a row, separated by at least two weeks between each measurement.

Systolic Blood Pressure (Subclassified by Blood Pressure, mmHg):

Systolic blood pressure subclassification is used to evaluate the likelihood and severity of target organ damage, together with any accompanying symptoms. For classification, systolic blood pressure readings from several visits should be documented. Systolic blood pressure readings obtained every two hours can also be used as a point of reference in the event of a single visit.

01

Azotemia Normal creatinine concentration
CREA：mg/dL＜1.6;μmol/L＜140
SDMA：μg/dL＜18

02

Mild Azotemia Creatinine concentration normal or mildly elevated
CREA: (mg/dL)1.6-2.8; (μmol/L)140-250

03

Moderate nitrogenemia
CREA：（mg/dL）2.9-5.0;（μmol/L）251-440
SDMA：（μg/dL）26-38

04

Severe hyperammonemia
CREA：（mg/dL）＞5.0;（μmol/L）＞440
SDMA：（μg/dL）＞38

Borderline proteinuria: **0.2-0.4**
Normal blood pressure: **<140**
High blood pressure: **160-179**

Proteinuria: **>0.4**
Borderline high blood pressure: **140-159**
Severe high blood pressure: **≥180**

3.4 Key Points for Different Levels of Management of CKD

Stage 1 Management Key Points:

1. Discontinue all potentially nephrotoxic medications whenever possible.
2. Identify and treat any pre-renal or post-renal abnormalities.
3. Rule out other treatable conditions such as pyelonephritis and stones.
4. Monitor blood pressure and urine protein-to-creatinine ratio (UPC).

HYDRATION MANAGEMENT

Provide access to fresh drinking water at all times.
Correct dehydration with intravenous fluids if

SYSTEMIC HYPERTENSION

Strive to keep systolic blood pressure <160mmHg and watch for hypotension (<120mmHg).
160-179mmHg: Measure twice within 8 weeks.
≥180mmHg: Measure twice within 2 weeks.

PROTEINURIA

UPC >0.4: Initiate drug therapy.
UPC 0.2-0.4: Requires close monitoring; consider intervention if persistently at the nephrotic range.

BLOOD PHOSPHORUS

Maintain blood phosphorus concentration <1.5mmol/L (4.6mg/dL).

Stage 2 Management Key Points:

Levels 1 through 4 are all at Stage 1

HYDRATION MANAGEMENT

Provide fresh drinking water at all times;

Correct dehydration with fluid therapy when clinical symptoms occur

SYSTEMIC HYPERTENSION STAGES 1 AND 7

Aim to keep systolic blood pressure <160mmHg and monitor for signs of hypotension (<120mmHg)

160-179mmHg: Measure twice within 8 weeks;

≥180mmHg: Measure twice within 2 weeks

PROTEINURIA

UPC 0.2-0.4

Requires close monitoring;

consider intervention if renal threshold proteinuria persists

REDUCE PHOSPHORUS INTAKE

Maintain blood phosphorus concentration <1.5mmol/L (4.6mg/dL);

If blood phosphorus concentration remains >1.5mmol/L: Administer phosphorus binders and monitor blood phosphorus and calcium concentrations every 4-6 week intervals

HYPOKALEMIA

Intervene when serum potassium levels drop below 3.5mmol/L

IDEXX SDMA >25MG/DL AND CREATININE BETWEEN 1.6-2.8MG/DL

Categorized as Level 3 and treated accordingly

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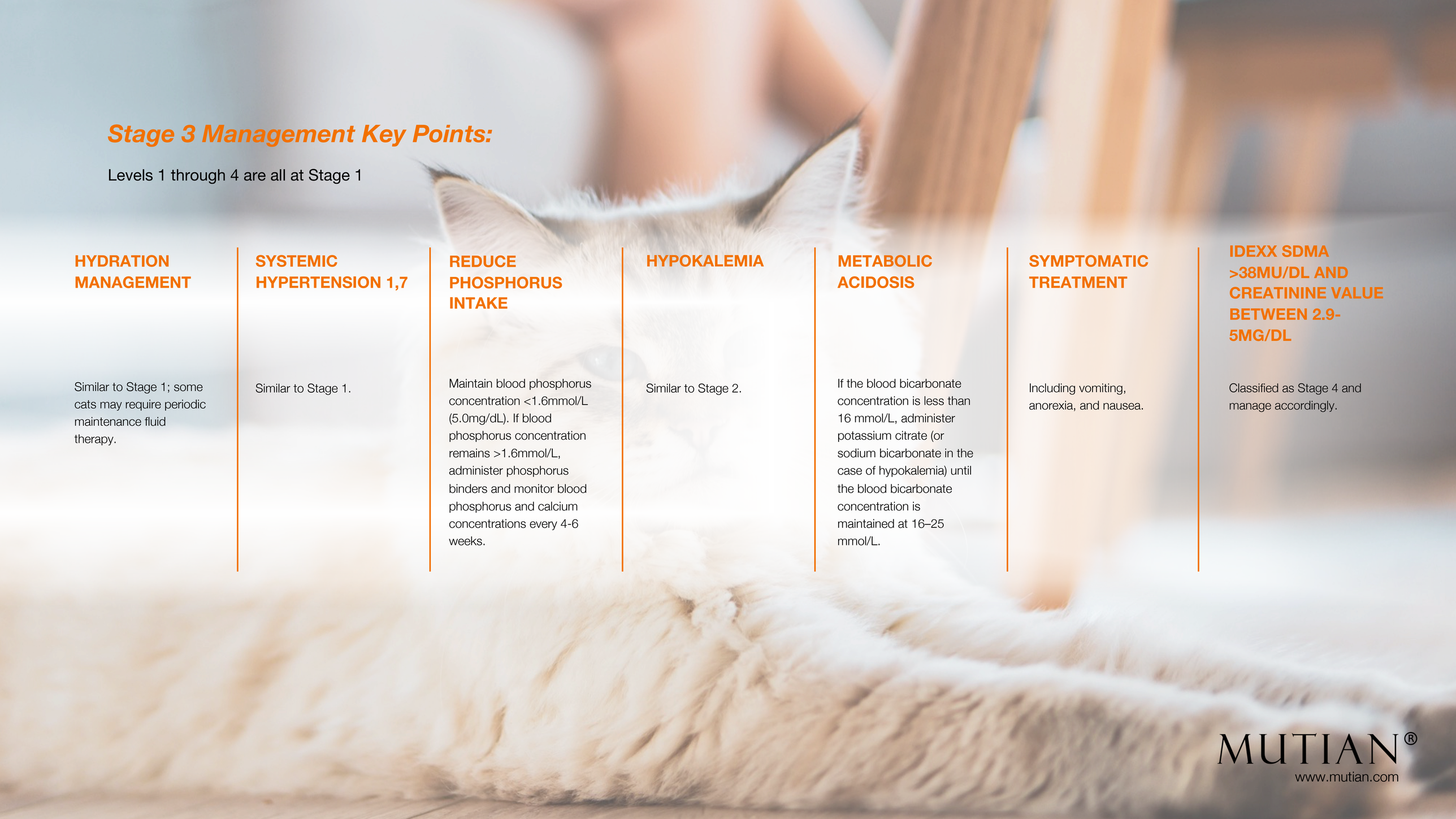

Stage 3 Management Key Points:

Levels 1 through 4 are all at Stage 1

HYDRATION MANAGEMENT

Similar to Stage 1; some cats may require periodic maintenance fluid therapy.

SYSTEMIC HYPERTENSION 1,7

Similar to Stage 1.

REDUCE PHOSPHORUS INTAKE

Maintain blood phosphorus concentration <1.6mmol/L (5.0mg/dL). If blood phosphorus concentration remains >1.6mmol/L, administer phosphorus binders and monitor blood phosphorus and calcium concentrations every 4-6 weeks.

HYPOKALEMIA

Similar to Stage 2.

METABOLIC ACIDOSIS

If the blood bicarbonate concentration is less than 16 mmol/L, administer potassium citrate (or sodium bicarbonate in the case of hypokalemia) until the blood bicarbonate concentration is maintained at 16–25 mmol/L.

SYMPTOMATIC TREATMENT

Including vomiting, anorexia, and nausea.

IDEXX SDMA >38MU/DL AND CREATININE VALUE BETWEEN 2.9-5MG/DL

Classified as Stage 4 and manage accordingly.

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Stage 4 Management Key Points:

Levels 1 through 4 are all at stage 1

1. Strengthen prevention of malnutrition and dehydration, consider the use of feeding tubes.
2. Consider kidney dialysis and kidney transplantation.

HYDRATION MANAGEMENT: Same as Stage 3.

SYSTEMIC HYPERTENSION 1,7: Same as Stage 1.

PROTEINURIA: Same as Stage 1.

REDUCE PHOSPHORUS INTAKE: Maintain blood phosphorus concentration <1.9mmol/L (6.0mg/dL). If blood phosphorus concentration remains >1.9mmol/L, administer phosphorus binders and monitor blood phosphorus and calcium concentrations every 4-6 week intervals.

HYPOKALEMIA: Same as Stage 2.

METABOLIC ACIDOSIS: Same as Stage 3.

SYMPTOMATIC TREATMENT: Same as Stage 3.

If anemia affecting quality of life (HCT <20%) is presented, treatment should be considered. Fluid therapy.

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MAINTAINING HYDRATION

In cats with kidney disease, dehydration can have an impact on renal perfusion, which in turn can impair the quality of life and course of the disease. Dehydration can be effectively treated and uremic toxins diluted by subcutaneous fluid treatment, syringe feeding water, and encouraging voluntary water intake (with careful monitoring to avoid overhydration).

CONTROLLING PROTEINURIA

The severity of proteinuria correlates with the prognosis of cats with kidney disease. Properly managing proteinuria and monitoring the urine protein-to-creatinine ratio (UPC) are crucial.

Effective management of hypertension is necessary to stop future harm to the kidneys, heart, brain vasculature, and eyes. Systolic blood pressure should be kept between 150 and 160 mmHg.

3.5 About Petney

Petney® Indications

Petney® is indicated for feline and canines patients diagnosed with International Renal Interest Society (IRIS) stages 2 to 4 chronic kidney disease (CKD). Its purpose is to ameliorate clinical symptoms, safeguard residual renal function, and mitigate the potential for sustained deterioration in renal function, thereby diminishing the likelihood of progression to end-stage kidney disease (ESKD).

Petney® Efficient

The efficacy of Petney® was assessed in a double-masked, multicenter, randomized, vehicle-controlled field study involving 156 cats (104 in the Petney group, 52 in the vehicle control group) with IRIS Stage 2 to 4. Cats, aged 7 months to 12 years and weighing 1.8-5.4 kg, received either Petney® (1 tablet) or vehicle control daily for 120 days. The primary endpoint, prospectively defined, included changes in serum creatinine (sCr), quality-of-life assessment, and treatment impression.Owners recorded changes in quality of life (QoL) on days 30, 60, 90, and 120, while veterinarians examined kidney-related laboratory data on the same days.Physical activity scores were significantly worse in the vehicle control group, whereas appetite scores improved significantly in the Petney®group, showing a statistically significant difference on day 120. QoL assessment revealed a higher proportion of much improved, improved, and minimally improved responses in the Petney® group. Serum creatinine increased significantly in the vehicle control group but not in the Petney® group, with a significant difference at day 120. The serum phosphorus-to-calcium ratio increased significantly in the vehicle control group but not in the Petney® group. No clinically relevant changes were observed in CBC and other blood chemistry tests.

[Description]

Petney®I is an oral tablet for treating CKD in cats, containing 5mg of the main active ingredient AC1903, accompanied by inactive components such as Calcium citrate, Microcry-stalline cellulose, Carboxymethylcellulose calcium, and Hydroxypropyl cellulose, Magnesium stearate, PEG 6000, and Titanium oxide.

[Specification]

28 tablets/box

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