Algorithm: identifying and managing phosphorus overload in cats diagnosed with CKD

Normal kidney function

IDEXX FGF-23 Test not indicated

Chronic kidney disease (CKD)

IRIS* CKD Stages 1 and 2

Total serum phosphorus < 1.5 mmol/L†

IDEXX FGF-23 Test indicated

Normal (≤ 299 pg/mL)

In cats with CKD.

Phosphate reduction through therapy is not indicated.

Review clinical signs and other kidney function diagnostics with owner.

Manage primary kidney disease as indicated by other renal diagnostics.

Recheck kidney function biomarkers and FGF-23 in 3–6 months.

Borderline (300–399 pg/mL)

In cats with CKD.

Suggests early phosphate overload and mineral dysregulation.

Review clinical signs and other kidney function diagnostics with owner.

Manage primary kidney disease as indicated by other renal diagnostics.

Recheck kidney function biomarkers and FGF-23 in 3–6 months.

Increased (≥ 400 pg/mL)

In cats with CKD.

Phosphate overload and mineral dysregulation is present.

Targeted therapy is indicated for phosphate reduction.

Review clinical signs and other kidney function diagnostics with owner.

Recheck kidney function biomarkers and FGF-23 in 3–6 months following introduction of therapy.

Recheck

Phosphorus remains < 1.5 mmol/L.†

FGF-23 concentration remains normal on recheck. Reduction in phosphorus through therapy is not recommended.

If FGF-23 concentration decreased from borderline or abnormal with treatment, continue care and plan to recheck FGF-23 concentration in 3–6 months.

Monitoring of kidney biomarkers and FGF-23 in stable IRIS CKD Stages 1 and 2 cats is recommended every 3–6 months.

Phosphorus remains < 1.5 mmol/L.†

If borderline result follows a normal concentration, recommend additional recheck in 3–6 months before instituting phosphorous reducing therapy.

Repeated borderline FGF-23 concentrations are indicative of early phosphate overload. Phosphate reduction as part of therapy is recommended.

If FGF-23 concentration has decreased from abnormal to borderline, continue instituted care and plan to recheck FGF-23 concentration in 3–6 months.

Monitoring of kidney biomarkers and FGF-23 in stable IRIS CKD Stages 1 and 2 cats is recommended every 3–6 months.

Confirm presence of IRIS CKD Stage 1 or 2, as substantial disease progression may impact FGF-23 concentration.

An increased FGF-23 on recheck confirms the need for targeted therapy for phosphate reduction and management.

If monitoring and FGF-23 has increased or minimally decreased (20% change) from previous concentration, consider further phosphate restriction.

If notably decreased (50% or greater), continue current therapy and plan to recheck FGF-23 concentration in 3 months.

Monitoring of kidney biomarkers and FGF-23 in stable IRIS CKD Stages 1 and 2 cats is recommended every 3–6 months.

The IDEXX FGF-23 Test provides an evidence-based approach to recognise phosphorus overload earlier[1–4] and recommend therapy to reduce phosphorus intake, supporting management of chronic kidney disease (CKD) in cats.

The IDEXX FGF-23 Test should only be run in cats with diagnosed or highly suspect IRIS CKD Stages 1 and 2. It is not recommended for cats with uncontrolled hyperthyroidism, profound anaemia or systemic inflammation.

Please note: When making changes to therapy impacting phosphorus intake or absorption, waiting at least 2 months to recheck FGF-23 is recommended.

References

1. Finch NC, Geddes RF, Syme HM, Elliott J. Fibroblast growth factor 23 (FGF-23) concentrations in cats with early nonazotemic chronic kidney disease (CKD) and in healthy geriatric cats. *J Vet Intern Med*. 2013;27(2):227–233. doi:10.1111/jvim.12036
2. Geddes RF, Elliott J, Syme HM. Relationship between plasma fibroblast growth factor-23 concentration and survival time in cats with chronic kidney disease. *J Vet Intern Med*. 2015;29(6):1494–1501. doi:10.1111/jvim.13625
3. Geddes RF, Finch NC, Elliott J, Syme HM. Fibroblast growth factor 23 in feline chronic kidney disease. *J Vet Intern Med*. 2013;27(2):234–241. doi:10.1111/jvim.12044
4. Seiler S, Heine GH, Fliser D. Clinical relevance of FGF-23 in chronic kidney disease. *Kidney Int Suppl*. 2009;76(114):S34–S42. doi:10.1038/ki.2009.405

*IRIS is the International Renal Interest Society

†According to IRIS guidelines