VETERINARY TECHNICAL DATASHEET

Cystinuria Type I-A; mutation originally found in Newfoundland Dog

Mutation Found In :Landseer, Newfoundland

Disorder Type

- Urinary

Disease Severity

- Moderate

Background

Dogs with cystinuria are not able to reabsorb the amino acid cystine in their kidneys and therefore high concentrations can accumulate in the urinary tract causing formation of cystine crystals and stones that can obstruct the urinary tract. While cystinuria has been reported in a number of breeds, it is particularly severe in Newfoundlands. Several mutations have been shown to cause the condition and the inheritance pattern varies between them.

Key Signs

- Cystitis
- Hematuria
- Stranguria
- Urinary calculi
- Urinary tract obstruction

Clinical Description

Dogs affected by cystinuria present with signs of recurring cystitis, hematuria, stranguria, and pollakiuria. The precipitation of amino acids in the urine results in the formation of crystals and calculi, leading to urolithiasis and urinary tract obstruction, in some cases.

Mode of Inheritance

- autosomal recessive

Gene Name

- SLC3A1

Next Steps

Existing cystine stones should be removed by surgical, mechanical, or medical dissolution methods. Recurrence of cystine uroliths after dissolution or removal is high. The condition can be partly managed through diet therapy and thus dietary options and the importance of diet management should be emphasized to clients.

References

Brons, A.K., Henthorn, P.S., Raj, K., Fitzgerald, C.A., Liu, J., Sewell, A.C., Giger, U. SLC3A1 and SLC7A9 mutations in autosomal recessive or dominant canine cystinuria: a new classification system. J Vet Intern Med 27:1400-8, 2013.