



# COMPANION ANIMAL

Royal Canin Student Award



## Hypertrophic cardiomyopathy in Maine Coon cats in The Netherlands

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The significance of the MYBPC3-A31P mutation and other known causative mutations, and the utility of N-terminal pro-brain natriuretic peptide in the diagnosis of this condition

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### Background

Hypertrophic cardiomyopathy (HCM) is the most common cardiomyopathy in cats and it is postulated to inherit as an autosomal dominant trait (1,2). Thus far, two mutations in the *MYBPC3* gene are known (3). The gold standard test to diagnose HCM is echocardiography. However, this is operator dependent. Measurement of N-terminal pro-brain natriuretic peptide (NT-proBNP) has been reported to be valuable in detecting HCM in cats.

### Objectives

The aims of this study were to fully phenotype Maine Coon cats from the Dutch population, to establish the phenotype-genotype correlation within these cats, and to measure NT-proBNP and compare these results with echocardiography as a screening test for the diagnosis of HCM

### Methods

Maine Coon cats (n=30) were classified using echocardiography as phenotypically healthy (n=19), equivocal (n=3), or HCM (n=8). Plasma NT-proBNP concentrations were measured in 33 Maine Coon cats. A total of 44 Maine Coon cats have been genotyped.

### Results

Based on echocardiography, 22 cats classified as healthy and 8 as HCM. The HCM mutation A31P was found in 4 (66.7%) of the healthy cats, 1 of the equivocal cats (16.7%), and 1 (16.7%) of the HCM cats. The A74T mutation was found in 12 (80.0%) of the healthy cats and 3 (20.0%) of the HCM cats. HCM allele frequencies did not differ significantly between 'healthy' and 'HCM' groups ( $p=0.64$  for A31P;  $p=0.54$  for A74T). NT-proBNP concentrations ranged between  $<24$  pmol/l and 278 pmol/l (median 31 pmol/l) in healthy cats and ranged between  $<24$  pmol/l and  $>1500$  pmol/l (median 197 pmol/l) in affected cats. The concentrations were significantly higher in affected cats compared to healthy cats ( $p=0.008$ ).

### Conclusion

The value of genetic tests for detecting HCM is low in the cats of this study. The mutations analysed appear to have a low penetrance. NT-proBNP seems a promising cardiac biomarker in HCM, but more samples are needed.

### Key words

Maine Coon cats; Genetic Tests; HCM; NT-proBNP.

### References

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