Feline hypersomatotropism: what is the veterinarians' approach to the disease?

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Background

Feline hypersomatotropism (FHS) is increasingly recognized among both diabetic and non-diabetic cats. Different diagnostic and therapeutic approaches exist, depending on the preferences of veterinarians and the availability of technical equipment.

The aim of this observational study was to collect epidemiological data and describe the veterinarians' experience with FHS, as well as their approach to the disease.

Materials and Methods

An online survey was developed and translated into Italian, English, Portuguese, Spanish, and German. The survey included questions focused on veterinarians' work experience and choices of diagnostics, treatment, and follow-up of FHS. The improvement following treatment (IFT) was described using a score ranging from 1 (absent) to 5 (obvious).

Respondents were recruited through social networks, internet forums, and direct contact by e-mail.

The veterinarians' responses were reviewed and FHS diagnosis was considered correct if at least 2 of the following criteria were present:

! clinical suspicion
! elevated insulin-like growth factor-1 (IGF-1) or GH serum concentrations
! visualization of a pituitary mass by mean of advance imaging (CT or MRI)

or histopathological confirmation

Results

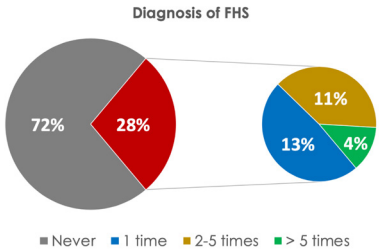

Figure 1. Circle charts illustrating proportions of participants who diagnose FHS among the veterinarians included in the study.

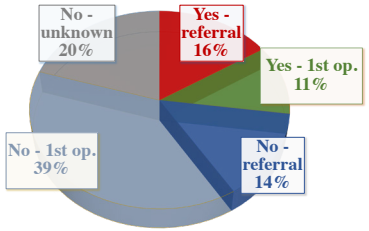

Figure 2. Circle charts illustrating work environments of veterinarians included in the study

One-hundred-twelve veterinarians from 14 countries were included. Data regarding previous experience with FHS and work environment are reported in Figure 1 and 2, respectively. Overall, data regarding 60 cats with FHS were collected. Among them, 53 (88%) were diabetic, while 7 (12%) were not. All non-diabetic cats were diagnosed by 3 veterinarians. Data regarding clinical signs of both diabetic and non-diabetic FHS are reported in Table 1. Data about diagnostic tests performed are reported in Figure 3.

Table 1

Clinical signs	All FHS cats (n=60)	Non-diabetic FHS cats (n=7)
PU/PD	49 (82%)	1 (14%)
Polyphagia	29 (48%)	
Physical changes	27 (45%)	5 (71%)
Progressive weight gain	17 (28%)	4 (57%)
Increased respiratory noises	13 (22%)	1 (14%)
Dandruff/Bad fur	14 (23%)	
Cardiac alterations	9 (15%)	2 (29%)
Weight loss	8 (13%)	
Plantigrad stance	4 (7%)	
Neurological signs	3 (5%)	
Galactorrhea	1 (2%)	1 (14%)

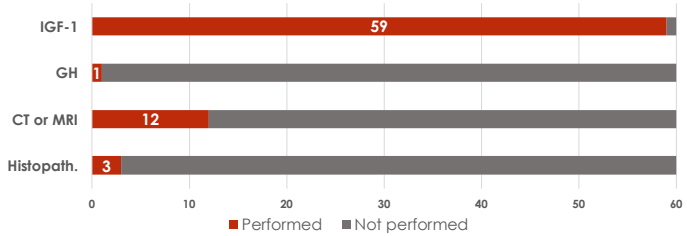

Figure 3. Horizontal bar graph describing diagnostic tests performed to diagnose FHS by veterinarians included in the study.

Treatments used in diabetic cats were reported in Figure 4. Cabergoline was used as monotherapy in 6/7 (85%) non-diabetic cats.

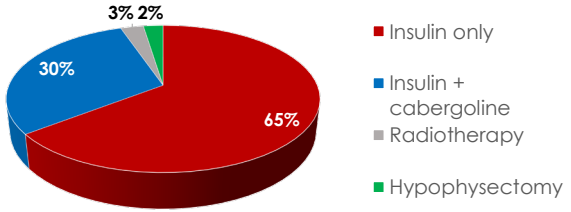

Figure 4. Circle charts illustrating treatments used in 53 cats with hypersomatotropism and diabetes mellitus included in this study

The median overall IFT score was 3 (interquartile range [IQR]:2-4).The **survival time** was available for 17/24 deceased cats, with a median of **18 months** (IQR:7-26).

Conclusions

! The majority of veterinarians' never diagnosed FHS, despite the disease is increasingly recognized.
! Feline HS should be considered also in non-diabetic cats.
! Medical treatment (insulin and/or cabergoline) remains the most common treatment.

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References

Niessen SJM, *et al*. Studying cat (Felis catus) diabetes: Beware of the acromegalic imposter. *PLoS ONE* **10**, 1–18 (2015)
Fletcher JM, *et al*. Hypersomatotropism in 3 Cats without Concurrent Diabetes Mellitus. *Journal of Veterinary Internal Medicine* **30,** 1216-1221 (2016)

Complete the survey here →

Feline hypersomatotropism: the owners' point of view

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Background

Feline hypersomatotropism (FHS) has been recognized more frequently in recent years, both in cats with and without diabetes mellitus (DM). FHS can affect the quality of life (QoL) of cats and owners though little is known about their QoL and life expectancy.

The aims of this observational study were to:

a) collect epidemiological data
b) describe the owners' perception of the disease, its treatment, and its impact on cat QoL
c) investigate the life expectancy

Materials and Methods

An online survey was developed and translated into Italian, English, Portuguese, Spanish, and German.

Respondents were recruited through social networks, internet forums, and direct contact by e-mail.

The owners were asked about diagnosis, treatment, QoL, and follow-up of cats with FHS. The cats' QoL and the improvement following treatment (IFT) were assessed using a score ranging from 1 to 5:

- QoL → 1 (poor) to 5 (excellent)
- IFT → 1 (absent) to 5 (obvious)

Inclusion criteria:

- Clinical signs suggestive for FHS
- Elevated insulin like-growth factor-1 (IGF-1) or GH serum concentrations

The QoL scores at diagnosis and after treatment were compared using the Wilcoxon test. Results were reported as median (range).

Results

Figure 1. Total number and geographical distribution of cats included in the study.

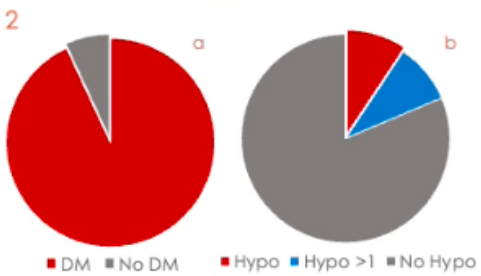

Figure 2. Circle charts illustrating proportions of FHS cats affected by diabetes mellitus (a) and diabetic FHS cats experiencing symptomatic hypoglycemia (b)

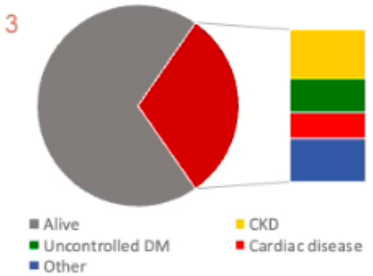

Figure 3. Circle charts illustrating proportions of FHS cats alive and deceased. Among deceased cats, causes of death/euthanasia are illustrated.

Male (70/101, [70%]) and indoor (69/101, [69%]) cats were overrepresented. Diabetes mellitus was present in 94/101 (93%) cats, and 86/94 (91%) were already receiving insulin treatment when FHS was diagnosed.

The median daily insulin dose at diagnosis was 14 U (3-60) and the median interval between start of insulin treatment and FHS diagnosis was 5 months (0.5-60). The maximum (median) daily insulin dose administered during the course of the disease was 24 U (4-110). Symptomatic hypoglycemia occurred at least once in 22/96 (23%) cats, with 11 (12%) experiencing >1 episode (Figure 2).

Diabetic cats were **treated** with:

- insulin therapy only → 51/94 (54%)
- insulin therapy plus cabergoline → 20/94 (21%)
- radiotherapy → 12/94 (13%)
- hypophysectomy → 8/94 (9%)

The **median QoL score** at diagnosis (3, [1-5]) was lower than after treatment (4, [1-5]; P<0.0001).

The **median IFT score** was 4 (1-5). Hypophysectomized cats had the highest IFT score (5, [5-5]).

Forty-six cats (46%) developed **co-morbidities** after FHS diagnosis, with chronic kidney disease (CKD) (16/46, [35%]), pancreatitis (14/46, [30%]), and left ventricular hypertrophy (7/46, [15%]) being the most common.

Thirty-one (31%) cats were **deceased** at time of questionnaire completion, with the most common causes of death/euthanasia being CKD (10/31, [31%]), uncontrolled DM (7/31, [22%]), and heart failure (5/31, [16%]) (Fig.3).

Median survival time was 28 months (range 0-69).

Conclusions

- The most common presentation of FHS remains diabetes mellitus, but FHS should be considered also in non-diabetic cats with compatible signs.
- Symptomatic hypoglycemia is common in diabetic FHS cats receiving insulin therapy.
- Treatment of FHS usually improves QoL and hypophysectomy seems the most effective one.
- FHS-induced co-morbidities are common and can lead to death or euthanasia. For this reason, treatments aimed at removing/decreasing GH excess are warranted.

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References

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