Novelty Journals

International Journal of Novel Research in Healthcare and Nursing
Vol. 1, Issue 1, pp: (27-29), Month: September-December 2014, Available at: www.noveltyjournals.com

Hematobiochemical Changes in *Chlamydophila Felis*-Infected Domestic Cats *(Felis Catus)* Of Gujarat

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Abstract: **A common practice of keeping Domestic cats (*Felis catus*) as companions is observed in urban as well as rural areas of Gujarat. *Chlamydophila felis*, a bacterium is responsible for conjunctivitis, rhinitis and other respiratory problems in cats and has zoonotic significance. A total of 24 domestic cats were screened for *Chlamydophila felis* infection using Biogal's ImmunoComb™ rapid diagnostic kits (Biogal Galed Labs., Israel) out of which, 10 (41.67%) were positive for infection. Hematological as well as serum biochemical parameters were analyzed and compared with uninfected domestic cats. Results suggest that alterations in hematobiochemical parameters should be considered before initiation of therapeutic regimen for favorable clinical outcome in *Chalmydophila felis*-infected domestic cats.**

Keywords: **Domestic cats, *Felis catus*, *Chlamydophila felis*, Hematobiochemical, Gujarat.**

I. INTRODUCTION

Domestic cat, a small furry domesticated carnivorous mammal is valued by humans for its companionship as household pet [1]. It was first classified as *Felis catus* by Carlous Linnaeus in the tenth edition of his *Systema Naturae*, 1758. Despite many superstitious beliefs about cats, increasing numbers of cat owners has been observed in Gujarat, India. Because of small body size, it possesses little physical danger to adult humans [2]. However, there are possibilities of transmission of zoonotic diseases such as cat scratch disease, cat-bite or rabies, toxoplasmosis, chlamydophilosis etc. to humans. Chlamydophilosis in cats is caused by *Chlamydophila felis* and is characterized by acute or chronic conjunctivitis, rhinitis as well as pneumonia [3]. An epidemiological and clinicopathological study on common diseases and disorders of domestic cats was carried out in order to achieve baseline data in Gujarat. Cats were screened for *Chlamydophila felis* infection and estimation of hematobiochemical parameters was carried out.

II. MATERIALS AND METHODS

A total of twenty four (N=24) domestic cats were screened for detection of *Chlamydophila felis* antibodies using Biogal ImmunoComb™ Dot-assay modified ELISA rapid diagnostic kits (Biogal Galed Lab., Israel). Blood samples (2 milliliter each) were collected from saphenous vein of cats in a sterile plastic tri-potassium ethylene diamine tetraacetate (K3EDTA) vial for hematological analysis by using autohematology analyzer (BC-2800 Vet, Mindray). Blood samples were withdrawn from saphenous vein in a separate sterile plastic vial without anticoagulant for serum extraction. Serum biochemical parameters were analyzed by using commercial diagnostic kits procured from Crest Biosystem (A Division of Coral Clinical System, Goa). Blood and sera samples were used for detection of antibodies by using rapid diagnostic kits. Statistical analysis of data was carried out by standard methods [4] to establish hematological and serum biochemical alterations in *Chlamydophila felis*-infected domestic cats.

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III. RESULTS AND DISCUSSION

Out of 24 domestic cats screened, 10 (41.67%) were positive for natural *Chlamydophila felis* infection with characteristic clinical signs of conjunctivitis and respiratory tract infection. Hematobiochemical alterations in *Chlamydophila felis*-infected domestic cats (Group-A, n=10) and uninfected domestic cats (Group-B, n=10) are shown in TABLE: 1. Hematological assessment helps in assessment of clinical health status of infected cats. Less information is available on hematological alterations in *Chalmydophila felis*-infected domestic cats. In the present study, difference in Hb concentrations in Group-A and Group-B was statistically non-significant (P>0.05). The difference between RBC counts was statistically highly significant (P<0.01) while difference between PCV in Group-A and Group-B was statistically significant (P<0.05). Increased levels of RBCs and PCV are indicative of hemoconcentration as well as dehydration in *Chlamydophila felis*-infected cats. The mean values of TLC, monocyte count, basophils, MCV increased non-significantly while mean values of lymphocyte count, eosinophil count, MCH as well as platelet counts decreased non-significantly in *Chlamydophila felis*-infected domestic cats as compared to uninfected cats. Increased TLC, *i.e.*, leukocytosis is indicative of active infection and depends on severity of infection [5]. This base line data on hematological parameters would aid new insights for monitoring health status of domestic cats. Serum biochemical parameter estimation helps in assessment of clinical health status of infected cats with special reference to involvement of organ-function. Less information is available on alterations in serum biochemical parameters in *Chalmydophila felis*-infected domestic cats.

Table-1: Hematobiochemical alterations in *Chlamydophila felis*-infected and uninfected domestic cats (Mean±S.E.)

Parameter	Unit of measurement	Grouup-A (Infected group) (n=10)	Group-B (Uninfected group) (n=10)
Hematological parameters			
Hemoglobin (Hb)	g/dL	13.91±00.49	12.92±00.49
Red blood cell (RBC) count	million/cmm	09.05**±00.49	07.28**±00.32
Packed cell volume (PCV)	%	39.20*±01.40	31.69*±1.57
Total leukocyte count (TEC)	cells/cmm	57369.00±13390.29	32008.33±8128.90
Polymorphs	%	65.85±08.20	60.12±04.20
Lymphocytes	%	31.99±08.59	32.21±03.54
Eosinophil	%	04.24±00.75	05.06±00.74
Monocytes	%	03.96±00.74	03.51±00.70
Basophils	%	01.03±00.30	00.61±00.18
Mean corpuscular volume (MCV)	fl	43.82±01.50	43.59±01.39
Mean corpuscular hemoglobin (MCH)	pg	15.81±01.03	17.88±00.51
Mean corpuscular hemoglobin concentration (MCHC)	%	35.85**±01.58	41.53**±01.45
Platelet count	platelets/cmm	122760.00±23724.99	128370.00±18466.73
Serum biochemical parameters			
Alanine transaminase (ALT)	U/L	49.03±06.00	45.72±03.93
Aspartate transaminase (AST)	U/L	59.34±04.93	47.90±04.19
Total protein	g/dL	06.30±00.28	06.82±00.31
Creatinine	mg/dL	01.02±00.10	01.80±00.71
Blood urea nitrogen (BUN)	mg/dL	38.01±03.49	39.56±04.74
g=gram; dL=deciliter; cmm=cubic millimeter; %=per cent; fl=femtoliters; pg=picogram; U=units; L=liter; mg=milligram. (*=P<0.05, **=P<0.01)			

In the present study, liver specific enzymes ALT and AST did alter (increased) non-significantly (P>0.05) in *Chlamydophila felis*-infected cats. Other parameters such as total protein, serum creatinine and BUN did alter (decreased) non-significantly (P>0.05) in *Chlamydophila felis*-infected cats. These alterations attribute to possible involvement of hepatic and renal functions with disease progression.

IV. CONCLUSIONS

Hematological parameters revealed significant increase in RBC counts and PCV values in *Chlamydophila felis*-infected domestic cats suggestive of dehydration and a need to initiate fluid therapy for clinical management. Hematology also revealed non-significant alterations in Hb, TLC, polymorphs count, lymphocyte count, eosinophil count, monocyte count, basophil count, MCV, MCH as well as platelet counts which require further investigations on a larger scale. Serum biochemical changes included non-significant increase in levels of ALT and AST enzymes as well as non-significant decrease in total protein, serum creatinine and BUN levels. Frequent sampling should be considered to rule out possible organ-function involvement with disease progression and general clinical health status of *Chlamydophila felis*-infected domestic cats. It is concluded that evaluation of hematobiochemical alterations is important prior to initiation of appropriate therapeutic regimen in *Chlamydophila felis*-infected domestic cats in order to achieve a favorable clinical outcome.

REFERENCES

[1] M. Halanova and Z. Sulinova, "*Chlamydophila felis* in cats – are the stray cats dangerous source of infection?," Zoonoses and Public Health, Vol. 58, No. 7, pp. 519-522, 2011.

[2] C. Yan and H. Fukushi, "Seroepidemiological investigation of feline chlamydiosis in cats and humans in Japan," Microbiol. Immunol., Vol. 44, No. 3, pp. 155-160, 2000.

[3] K. Ohya, H. Okuda, S. Maeda, T. Yagamuchi and H. Fukushi, "Using CF0218-ELISA to distinguish *Chlamydophila felis*-infected cats from vaccinated and uninfected domestic cats," Vet. Microbiol., Vol. 146, pp. 366-370, 2010. [PubMED]

[4] G. W. Snedecor and W. G. Cochran WG, Statistical Methods. 6th ed., Oxford and IBH Publishing Company, Calcutta, 1980.

[5] N. Tonzon, S. S. Scholten, D. Palvin and A. Dove, "*Chlamydophila felis* infection in cats – Clinical cases," Slov. Vet. Res., Vol. 43, No. 2, pp. 109-114, 2006.