

Dog Blood Type DEA 1 in Dogs from Luanda

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Introduction

Dog blood group systems are defined according to species-specific antigens located on the surface of erythrocyte cell membranes and are defined according to antigenic recognition. Each individual might express an antigen in a varying degree (positive blood type) or miss a specific antigen (negative blood type) [1,2]. From the different blood groups systems reported in dogs, the Dog Erythrocyte Antigen (DEA) is the most studied with the DEA 1, 3, 4, 5, 6, 7 and 8 blood types recognized internationally after classification with polyclonal alloantibodies obtained from previously transfused dogs, or specific monoclonal antibodies [1,3]. Within the DEA blood group system, the DEA 1 has a strong antigenicity and is related to blood incompatibility reactions.

Although dogs do not appear to have naturally occurring alloantibodies, and the first blood transfusion might be safe, second mismatched transfusions of DEA 1 positive to DEA 1 negative dogs produce anti-DEA 1 antibodies that might develop fatal, acute haemolytic reactions [4]. Various methods have been used for blood typing in dogs and for this purpose an immunochromatographic strip technique using monoclonal antibody was developed and validated [5].

Objectives

The aim of this study was to determine the prevalence of DEA 1 blood type in the canine population from Luanda.

Materials and Methods

For this study, 112 blood samples collected to EDTA tubes from dogs attended at Clínica Veterinária Casa dos Animais, Luanda, that needed blood work on their diagnostic plan were used. No blood samples were collected on purpose for this study. For DEA 1 blood type determination an immunochromatographic strip technique using a murine monoclonal antibody (Lab Test DEA 1, Alvedia, Limonest, France) was used following the manufacturer's instructions.

Results

Of the 112 animals tested, 52.68% (n=59) were DEA positive and 47.32% (n=53) DEA negative. Table 1 presents the demographic characteristics of the population tested and blood typing results.

Table 1. Demographic characteristics and blood typing results of the 112 dogs

	Nº of dogs	DEA 1+ N (%)	DEA 1- N (%)
Gender			
Male	59	24 (40.7)	35 (59.3)
Female	53	35 (66.0)	18 (34.0)
Municipalities			
Luanda	84	42 (50.0)	42 (50.0)
Viana	28	17 (60.7)	11 (39.3)
Breed			
Mixed Breed	34	17 (50.0)	17 (50.0)
Pure Breed	78	42 (53.9)	36 (46.1)
Total	112	59 (52.7)	53 (47.3)

There were no statistically significant differences between the two locations for sex or DEA1 groups ($p=0.376$ and $p=0.325$), however, female animals tended to be DEA1 positive and males DEA1 negative ($p=0.0085$). The probability of a dog to become sensitized following a first-time mismatched blood transfusion was 24.9%, and an approximate 6.2% probability of an acute haemolytic reaction following a second incompatible blood transfusion.

Conclusions

This is the first approach to the prevalence of blood type DEA 1 in a canine population in Southern Africa (Luanda, Angola). In general, DEA frequency was similar to that reported worldwide, but when compared to other African countries some differences were found. The risk of an acute haemolytic transfusion reaction in mismatched blood transfusions was higher than in other African regions, so DEA 1 blood typing before blood transfusion is recommended.



References

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