



Echocardiographic variables in healthy North American Salukis

T.A. Kurosawa, DVM ^{a,c}, M.D. Sist, DVM ^b, R.A. Sanders, DVM, MS ^{a,*}

^a Department of Small Animal Clinical Sciences College of Veterinary Medicine, Michigan State University, East Lansing, MI 48824, USA

^b Michigan State University Veterinary Diagnostic Laboratory, Michigan State University, East Lansing, MI 48824, USA

Received 10 May 2016; received in revised form 11 June 2018; accepted 18 July 2018

KEYWORDS

Echocardiogram;
Sighthound;
Canine;
Dog

Abstract *Introduction:* To report normal echocardiographic variables from a population of healthy Salukis in North America.

Animals: The study included 83 healthy adult Salukis from North America with structurally normal hearts.

Methods: All animals underwent a full physical examination and two-dimensional, M-mode, and Doppler echocardiography using the right parasternal and left apical views with the left ventricular volumes calculated using the Simpson's method of discs. Echocardiographic variables were compared among sex, body surface area, and body weight (BW) using linear regression. The 95% predictive intervals were calculated for both unadjusted and BW-adjusted data.

Results: No relationship between sex and the echocardiographic variables was noted. Predictive intervals for echocardiographic variables are presented for 22 echocardiographic variables. Linear regression suggested that 16 of those variables were associated with BW. The 95% predictive intervals of echocardiographic variables adjusted for BW are reported.

Conclusions: The data from this study provide breed-specific echocardiographic reference values for Salukis.

© 2018 Elsevier B.V. All rights reserved.

* Corresponding author.

E-mail address: ras@cvm.msu.edu (R.A. Sanders).

^c Current address of Dr. Kurosawa: VERG, 196 4th Avenue Brooklyn NY 11217, USA.

Abbreviations

2D	two-dimensional
BW	body weight
DCM	dilated cardiomyopathy
FS	fractional shortening

Introduction

As advancements are made in the diagnosis and monitoring of cardiovascular diseases in dogs using echocardiography, many variables, including breed, somatotype, sex, age, body weight (BW), and level of athleticism, have been reported to result in deviations of cardiac measurements from the normal reference values [1–8]. Commonly used echocardiographic reference ranges for a dog undergoing echocardiographic examination are from an examination of a population of multiple breeds and are dependent on BW and somatotype [4,8]. Because there is a large variation in somatotype in dogs, breed-specific reference values are necessary to more accurately evaluate the heart of a specific breed using echocardiography. Currently there are more than 37 breed-specific echocardiographic studies, with several breeds reported to have significant differences compared with a general population of healthy mixed breed dogs [5,7,10–14].

Salukis hunt by sight and are considered to be the oldest breed of the domesticated dog [15,16]. They are known for their speed and endurance and commonly compete in open field and lure coursing events. They have a deep, narrow chest conformation and often have very low body condition scores. Breeds with similar levels of athletic ability and conformation, such as Greyhounds and Afghan hounds, are reported to have significantly different echocardiographic measurements compared with reference ranges for normal dogs [1,2,11,17–19]. Sighthounds, such as Greyhounds and Whippets, have been previously reported to have indices of systolic function, including M-mode–derived fractional shortening (FS) and the left ventricular internal dimension at end-systole, different from reference ranges of a general population of multiple breeds [1,10,20]. According to reports by Cornell et al., 95% of normal dogs had FS >25%; however, nine of 20 of those with FS < 25% were Greyhounds [4]. The importance of breed-specific reference ranges is apparent in Doberman Pinschers, where the identification and treatment of individuals with early dilated cardiomyopathy (DCM) has been shown to prolong survival for

approximately a year [21,22]. Although published data on cardiac diseases in Salukis are scarce, a summary of a Saluki health survey conducted by the Kennel Club/British Small Animal Veterinary Association Scientific Committee, cardiac disease (17.2%) was the most commonly reported disease condition and was the second leading cause of death (14.4%).^d Although the cause of death in these Salukis was unknown, underlying cardiomyopathy causing sudden cardiac death was considered. To accurately assess cardiac diseases in Salukis, normal echocardiographic values are needed. Recently, echocardiographic reference ranges of two populations of European Salukis were published, but it is not known if these parameters are comparable to North American Salukis [23,^e]. The goal of this study was to determine echocardiographic measurements in normal healthy North American Salukis without any evidence of heart disease. The reference ranges established may be used in a clinical setting and for future studies evaluating cardiomyopathy in Salukis.

Animals, materials, and methods

For this study, 107 clinically healthy Salukis (aged >12 months) were evaluated prospectively at the Michigan State University College of Veterinary Medicine and at the Saluki Club of America National Specialty Shows from 2011 to 2015. The study was conducted under the guidelines of the Animal Care and Use Committee of Michigan State University. Written informed consent authorizing study participation was obtained from each participating Saluki owner. Dogs were screened for pre-existing cardiac disease by history, physical examination, and echocardiography. Females that were in estrus, pregnant, or lactating were excluded from the study. All dogs included in the study had no evidence of structural or functional abnormalities noted during the standard M-mode, two-dimensional (2D), color Doppler and spectral Doppler imaging performed by a single operator (RAS) with an ultrasonographic unit^f equipped with GE ultrasound 3.5–7.5 MHz phased array transducer. Salukis with echocardiographic findings of

^d Summary Results of the Purebred Dog Health Survey for the Saluki Breed, The Kennel Club (United Kingdom) Jan 7, 2011.

^e Lehtinen SM, Wiberg ME, Haggstrom J, Lohi H. Breed-specific reference ranges for echocardiography in Salukis. *J. Vet. Intern. Med.* 2014; 29:471 (Abstract).

^f Vivid 7 and Vivid I, GE Healthcare, Waukesha, WI, USA.

Download English Version:

<https://daneshyari.com/en/article/11010731>

Download Persian Version:

<https://daneshyari.com/article/11010731>

[Daneshyari.com](https://daneshyari.com)