

BREED-SPECIFIC REFERENCE RANGES FOR ECHOCARDIOGRAPHY IN SALUKIS

S.M. Lehtinen¹, M.E. Wiberg¹, J. Häggström², H. Lohi³

¹Faculty of Veterinary Medicine, University of Helsinki, Helsinki, Finland

²Swedish University of Agricultural Sciences, Uppsala, Sweden

³Molecular Neurology, University of Helsinki, Helsinki, Finland

Sighthounds are athletic dogs and they have been claimed to have larger hearts compared to similar sized breeds. The left ventricle (LV) may enlarge in response to cardiac disease, but also in response to training, so called athlete's heart syndrome, which is a benign condition. To distinguish abnormal echocardiographic measurements from normal, breed-specific reference values are needed. The aim of this study is to establish normal reference ranges for echocardiographic measurements in the Saluki breed.

The study comprised 78 clinically healthy Salukis (41 males and 37 females), mean age 72 months (\pm SD 28 months), bodyweight (BW) 24,7kg (\pm 3,7kg). Case history was ascertained and dogs underwent physical examination, complete blood count, serum biochemistry profile, thyroid profile, blood pressure measurement and 3-min ECG. Standard M-mode and 2D echocardiographic measurements were obtained. Dogs with systolic murmur 1/6, and dogs with mitral valve regurgitation (MR) <15% (MR color flow jet area/left atrium area \times 100% in apical view) were considered normal. Linear regression models were used to establish reference ranges.

Heart rate (HR) varied from 44 to 120 bpm (81 ± 17 bpm). BW was a significant predictor for LV dimensions, i.e. M-mode LV diameter and 2D volume in diastole (LVIDD and LVEDV) and systole (LVIDS and LVESV), and mitral valve end point septal separation (EPSS). HR was a significant predictor for FS% (fractional shortening). Predicted values (95 % prediction intervals) were calculated from regression models where mean BW (24,7 kg) and age (72 months), and median HR (80 bpm) were used. Normal reference ranges were: LVIDD 46,0 mm (40,0-52,0), LVIDS 33,4 mm (27,3-39,5), LVEDV 86,3 ml (64,6-108,0), LVESV 44,2 ml (29,2-59,2), FS%: 27,5 % (20,3-34,6), ejection fraction EF%: 48,9 % (38,6-59,1), EPSS 7,3 mm (4,4-10,2), sphericity index 1,6 (1,4-1,9), interventricular septum in diastole 10,9 mm (8,6-13,3) and systole 13,8 mm (10,5-17,1), LV free wall in diastole 10,4 mm (8,3-12,4) and systole 13,1 mm (10,0-16,1), left atrial (LA) diameter 28,5 mm (23,8-33,3), aortic (Ao) diameter 23,9 mm (20,1-27,8), LA/Ao 1,2 (1,0-1,4), and aortic and pulmonic flow velocity 1,4 m/s (0,9-1,9) and 1,2 m/s (0,8-1,6), respectively.

This study provides echocardiographic values for normal Salukis which can be used as a reference values.

Conflicts of interest: No conflicts of interest reported