

Comparative evaluation of acepromazine and diazepam effects on parameters of splenic vessels in cats using color doppler ultrasonography

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Abstract

Color doppler ultrasonography is a suitable method for assessment of vascular hemodynamics. This procedure is non-invasive and has no side effects. The purpose of the present survey was the evaluation of acepromazine (0.15 mg/kg) and diazepam (0.4 mg/kg) effects on spleen vascular indices in healthy native cats by color doppler ultrasonography technique. The present study was done on twenty native cats (10 male and 10 females) and in a similar weight range. In the first group, diazepam was injected and in the second group, acepromazine only. Vascular indices of spleen (artery and vein) were measured in two groups in times 10, 30 and 60 minute (after administration of the drug) in the studied. Peak systolic velocity (PSV), end diastolic velocity (EDV), mean velocity (MV), resistive index (RI), pulsatility index (PI), volume flow (VF) and spectral wave forms (SWF). The obtained results showed that arterial vascular parameters of PSV, EDV, MV and VF had a significant difference between two groups. The most changes were seen in the treated group with acepromazine, so that PSV and EDV indices were increased from 14.98 ± 1.13 and 11.83 ± 1.12 in minute 10 to 18.21 ± 1.13 and 16.19 ± 1.12 in minute 60 (according to cm/sec). In survey of vascular indices of vein, parameters of EDV, MV, RI, PI and VF were significant between two groups. In conclusion, the present results showed that acepromazine compared with diazepam, was caused more perfusion in splenic arterial vascular significantly. As a result acepromazine cannot be an appropriate drug for restraint of cats for ultrasonography evaluation of abdominal cavity, but diazepam can be administered without side effects in restless cats.

Key words: Acepromazine, Diazepam, Splenic vessels, Color doppler, Ultrasonography, Cat

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References

- Avizeh, R.; Ghadiri, A.R.; Najafzadeh Varzi, H. and Taliei Tabari, M. (2010). A comparison between propofol and acepromazine effects on spleen size in dogs by radiography. *Iranian Veterinary Journal*, 2(2): 5-12. (In Persian).
- Baldo, C.F.; Garcia-Pereira, F.L.; Nelson, N.C.; Hauptman, J.G. and Shih, A.C. (2012). Effects of anesthetic drugs on canine splenic volume determined via computed tomography. *American Journal of Veterinary Research*, 73(11): 1715-1719.
- Bednarski, R.M. (2007). Dogs and cats. In: Tranquilli, W.J.; Thurmon, J.C. and Grimm, K.A. (Eds). *Lumb and Jone's Veterinary Anesthesia and Analgesia*. 4th ed. Ames: Balckwell, Pp: 705-715.
- Bushong, S.C. and Archer, B.R. (1991). *Diagnostic ultrasound: physics, biology and instrumentation*. 1st ed. St. Louis, Mosby, Pp: 146-158.
- Couto, C.G. and Hammer, A.S. (2005). Disease of the lymph nodes and spleen. In: Ettinger, S.J. and Feldman, E.C. (Eds). *Veterinary Internal Medicine*. Vol. 2, 4th ed. W.B. Saunders Co., Philadelphia, Pp: 1938-1946.
- Faghihi, S.M. and Gandomi Sani, H.R. (2013). *Veterinary Pharmacy*. 3rd ed., Tehran University Press, Pp: 484-495.
- Ferrandis, I.; Jakovljevic, S.; Aprea, F. and Corletto, F. (2013). Effects of two sedative protocols and hepatosplenic disease on Doppler indices of splenic arteries in dogs: A preliminary study. *The Veterinary Journal*, 197(3): 712-716.
- Hanson, J.A.; Papageorges, M.; Girard, E.; Menard, M. and Hebert, P. (2001). Ultrasonographic appearance of splenic disease in 101 cats. *Veterinary Radiology and Ultrasound*, 42(5): 441-445.
- Hudson, J.H.; Finn-Bodner, S.T.; Cotes, J.R.; Sorjonen, D.C.; Simpson, S.T.; Wrigh, J.C. et al. (1995). Color Doppler spectral analysis in the spinal cord of normal dogs. *Veterinary Radiology and Ultrasound*, 36(6): 542-547.
- Laurenson, M.P.; Skorupski, K.A.; Moore, P.F. and Zwingenberger, A.L. (2011). Ultrasonography of intestinal mast cell tumors in the cat. *Veterinary Radiology and Ultrasound*, 52(3): 330-334.
- Masoudifard, M.; Vajhi, A.R.; Soroori, S. and Asadzadeh Manjili, S. (2008). Normal color and pulsed-waved Doppler ultrasonography of femoral artery in rabbits. *Journal of Veterinary Research*, 62(6): 379-383.
- Nyland, T.G. and Mattoon, J.S. (2002). *Small animal ultrasound*. WB Saunders Company, Philadelphia, Pp: 93-142.
- O'Brien, R.T.; Waller, K.R. and Osgood, T.L. (2004). Sonographic features of drug-induced splenic congestion. *Veterinary Radiology and Ultrasound*, 45(3): 225-227.
- Rossi, F.; Leone, V.F.; Vignoli, M.; Laddaga, E. and Terragni, R. (2008). Use of contrast enhanced ultrasound for characterization of focal splenic lesions. *Veterinary Radiology and Ultrasound*, 49(2): 154-164.
- Thrall, D.E. (2007). *Textbooks of Veterinary Diagnostic Radiology*. 5th ed. W.B. Saunders Co. Philadelphia, Pp: 540-555.
- Tublin, M.E.; Tessler, F.N. and Murphy, M.E. (1999). Correlation between renal vascular resistance, pulse pressure, and the resistive index in isolated perfused rabbit kidneys. *Radiology*, 213(1): 258-264.
- Wilson, D.V.; Evans, A.T.; Carpenter, R.A. and Mullineaux, D.R. (2004). The effects of four anesthetic protocols on splenic size in dogs. *Veterinary Anesthesia and Analgesia*, 31(2): 102-108.
- Xavier, F.; Yu, M. and McNeill, J.R. (1996). Validation of a flow- differential technique for the recording of splenic blood-volume changes to vasoactive agents. *Journal of Cardiovascular Pharmacology and Therapeutics*, 28(5): 605-610.