

REFERENCES

- Bachmann, E., and Golberg, L. 1971. Reappraisal of the toxicology of ethylene glycol (III. Mitochondrial effects). Food Cosmet. Toxicol. 9 : 39-55.
- Bahri, L.E. 1991. 4-Methylpyrazole : an antidote for ethylene glycol intoxication in dogs. Compendium on Continuing Education for the Practicing Veterinarian. 13(7) : 1123-1126.
- Burke, T.J., Arnold, P.E., Gordon, J.A., Bulger, R.E., Dobyán, D.C., and Schrier, R.W. 1984. Protective effect of intrarenal calcium membrane blockers before or after renal ischemia. J.Clin.Invest. 74: 1830-1841.
- Dial, S.M., Thrall, M.A., and Hamar, D.W. 1994a. Efficacy of 4-methylpyrazole for treatment of ethylene glycol intoxication in dogs. Am. J. Vet. Res. 55(12) : 1762-1770.
- Dial, S.M., Thrall, M.A., and Hamar, D.W. 1994b. Comparison of ethanol and 4-methylpyrazole as treatments for ethylene glycol intoxication in cats. Am. J. Vet. Res. 55(12) : 1771-1782.
- Dobyán, D.C., Nagle, R.B., and Bulger, R.E. 1977. Acute tubular necrosis in the rat kidney following sustained hypotension. Lab. Invest. 37 : 411-422.
- Freeman, B.A., and Crapo, J.D. 1982. Biology of disease. free radicals and tissue injury. Lab. Invest. 47 : 412-426.
- Forsyth, S.F., and Guilford, W.G. 1995. Ischaemia-reperfusion injury a small animal perspective. Br. Vet. J. 151 : 281-299.

- Ganote, C.E., Reimer, K.A., and Jennings, R.B. 1974. Acute mercuric chloride nephrotoxicity : an electron microscopic and metabolic study. Lab. Invest. 31 : 633-647.
- Grauer, G.F., Thrall, M.A., Henre, B.A., Grauer, R.M., and Hamar, D.W. 1984. Early clinicopathologic findings in dogs ingesting ethylene glycol. Am. J. Vet. Res. 45(11) : 2299-2303.
- Geddes, L.A. 1984. Cardiovascular devices and their applications. 1st ed. New York: A Wiley-Interscience Publication.
- Guidet, B., and Shah, S.V. 1989. Enhanced in vivo H₂O₂ generation by rat kidney in glycerol-induced renal failure. Am. J. Physiol. 257 : F440-F445.
- Hagler, L., and Herman, R.H. 1973. Oxalate metabolism I. Am. J. Clin. Nutri. 26 : 758-765.
- Hashimoto, S. 1974. A new spectrophotometric assay method of xanthine oxidase in crude tissue homogenate. Analytical Biochemistry. 62 : 426-435.
- Hewlett, T.P., Ray, A.C., and Reagor, T.C. 1983. Diagnosis of ethylene glycol (anti-freeze) intoxication in dogs by determination of glycolic acid in serum and urine with high pressure liquid chromatography and gas chromatography-mass spectrometry. J. Assoc. Off. Anal. Chem. 66(2) : 276-283.
- Ilkiw, J.E., Rose, R.J., and Martin, I.C.A. 1991. A comparison of simultaneously collected arterial, mixed venous, jugular venous and cephalic venous blood samples in the assessment of blood-gas and acid-base status in the dog. Journal of Veterinary Internal Medicine. 5(5) : 294-298.
- Jacobsen, D., Hewlett, T.P., Webb, R., Brown, S.T., Ordinario, A.T., and McMartin, R.E. 1988. Ethylene glycol intoxication : Evaluation of kinetics and crystalluria. Am. J. Med. 84 : 145-152.

- Jacobsen, D., Overbo, S., Ostborg, J., and Sejersted, O.M. 1984. Glycolate causes the acidosis in ethylene glycol poisoning and is effectively removed by hemodialysis. Acta Med. Scand. 216 : 409-416.
- Lantz, G.C. 1995. Oxygen free radicals and reperfusion injury. In J.D. Bonagura (ed.) , *Current Veterinary Therapy XII Small Animal Practice* , pp. 64-67. Philadelphia: W.B. Saunders Company.
- Laurent, B., and Ardaillou, R. 1986. Reactive oxygen species : production and role in the kidney. Am. J. Physiol. 521 : F765-F776.
- Ohkawa, H., Ohishi, N., and Yagi, K. 1979. Assay for lipid peroxides in animal tissue by thiobarbituric acid reaction. Analytical Biochemistry. 95 : 351-358.
- Paller, M.S., Hoidal, J.R., and Ferris, T.F. 1984. Oxygen free radicals in ischemic acute renal failure in the rat. J. Clin. Invest. 74 : 1156-1164.
- Parry, M.F., and Wallach, R. 1974. Ethylene glycol poisoning. Am. J. Med. 57 : 143-150.
- Peterson, C.D., Colling, A.J., and Himes, J.M. 1981. Ethylene glycol poisoning. Pharmacokinetics during therapy with ethanol and hemodialysis. N. Engl. J. Med. 304 : 21-23.
- Porras, A.G., Olsen, J.S., and Palmer, G. 1981. The reaction of reduced xanthine oxidase with oxygen. The Journal of Biological Chemistry. 256(17) : 9096-9103.
- Rose, B.D. 1994. Clinical physiology of acid-base and electrolyte disorders. 4th ed. New York : McGraw-Hill Inc.
- Sanyer, J.L., Oehme, F.W., and McGavin, M.D. 1973. Systemic treatment of ethylene glycol toxicosis in dogs. Am. J. Vet. Res. 34(4) : 527-534.
- Smith, H.W. 1962. Principle of renal physiology. London : Oxford University Press.

- Smith, B.J., Anderson, B.G., Smith, S.A., and Chew, D.J. 1990. Early effects of ethylene glycol on the ultrastructure of the renal cortex in dogs. Am. J. Vet. Res. 51(1) : 89-96.
- Thrall, M.A., Dial, S.M., Winder, D.R. 1985. Identification of calcium oxalate monohydrate crystal by x-ray diffraction in urine of ethylene glycol-intoxicated dogs. Vet. Pathol. 22 : 625-628.
- Thrall, M.A., Grauer, G.F., and Dial, S.M. 1995. Antifreeze poisoning. In J.D. Bonagura (ed.), Current Veterinary Therapy XII Small Animal Practice, pp. 232-237. Philadelphia: W.B. Saunders Company.
- Thrall, M.A., Grauer, G.F., and Mero, K.N. 1984. Clinicopathologic findings in dogs and cats with ethylene glycol intoxication. JAVMA. 184(1) : 37-41.
- Turk, J., Morrell, L., and Avioli, L.V. 1986. Ethylene glycol intoxication. Arch. Intern. Med. 146 : 1601-1603.
- Walker, P.D., and Shah, S.V. 1988. Evidence suggesting a role for hydroxy radical in gentamicin-induced acute renal failure in rats. J. Clin. Invest. 81 : 334-341.
- Weiss, S.J. 1986. Oxygen, ischemia and inflammation. Acta Physiol. Scand. Suppl. 548 : 9-37.
- Young, M.K., and Raisz, I.G. 1952. An anthrone procedure for determination of inulin in biological fluids. Proc. Soc. Exper. Biol. and Med. 80 : 771-774.

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