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1: Am J Kidney Dis. 2001 Nov;38(5):1089-95.

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Chronic caffeine consumption exacerbates hypertension in rats with polycystic kidney disease.

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Autosomal dominant polycystic kidney disease (ADPKD) is a common inherited disorder frequently associated with renal failure, hypertension, and other abnormalities. The present study determined whether chronic caffeine intake in an animal model of this disease would affect renal structure and function and blood pressure. Heterozygous male Han:Sprague-Dawley rats with ADPKD and normal littermates were provided with either tap water or solutions of caffeine to drink, starting at 1 month of age. When rats were aged 6 months, glomerular filtration rate (GFR) and mean arterial blood pressure (MAP) were measured under Inactin (Byk Gulden, Konstanz, Germany) anesthesia. Caffeine intake had no effect on GFR or cyst development in rats with PKD. MAP was greater in rats with PKD than normal rats and was increased more by caffeine. The hypertensive effect of chronic caffeine intake could not be ascribed to direct pressor effects of angiotensin II. Based on our finding that caffeine exacerbates hypertension in rats with PKD, it may be prudent for patients with ADPKD to limit coffee consumption to four or fewer cups of caffeinated coffee per day, pending studies of humans.

PMID: 11684564 [PubMed - indexed for MEDLINE]

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