

Sulfur-containing amino acids that increase renal glutathione protect the kidney against papillary necrosis induced by 2-bromoethylamine

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Papillary necrosis was observed in the kidneys of rats, 72 h after receiving a single injection of bromoethylamine (BEA). This effect was associated with renal glutathione (GSH) depletion 1 h after the administration of BEA. Stimulation of renal GSH synthesis by pretreatment of the animals either with glutamine + glucine + cystine or N-acetyl-L-cysteine was attempted. Low doses of these precursors administered previously to BEA, respectively, decreased or abolished the GSH depletion. Nevertheless, both pretreatments failed to modify the magnitude of renal papillary necrosis. High doses of these precursors did not modify the BEA-induced GSH depletion, but they significantly increased GSH levels 24 h after BEA administration. At this time, although a smaller intensity of renal papillary necrosis was observed with the amino acid mixture pretreatment, N-acetyl-L-cysteine pretreated rats showed no papillary necrosis. It is suggested that the observed protective effects against BEA-induced r