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J Urol. 1997 Dec;158(6):2045-50.

## Effect of long-term oral L-arginine on the nitric oxide synthase pathway in the urine from patients with interstitial cystitis.

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#### Abstract

**PURPOSE:** We attempted to determine whether oral L-arginine, the substrate for nitric oxide synthase, increases nitric oxide synthase activity and cyclic guanosine monophosphate (cGMP) levels in the urine from interstitial cystitis patients. Nitric oxide and cGMP are decreased in urine from interstitial cystitis patients and both induce smooth muscle relaxation and immunological responses. Increasing urinary nitric oxide and cGMP may ameliorate interstitial cystitis symptoms.

**MATERIALS AND METHODS:** Eight patients with interstitial cystitis were given L-arginine (1,500 mg. a day) orally for 6 months. Before and during treatment nitric oxide synthase activity and inducible nitric oxide synthase protein, cGMP, nitrate plus nitrite and interleukin 8 (IL-8) levels were measured in urine.

**RESULTS:** After 2 weeks to 1 month of oral L-arginine treatment, urinary levels of nitric oxide synthase related enzymes and products increased significantly, while levels of the cytokine IL-8 were not changed significantly. IL-8 was significantly elevated in interstitial cystitis patients with leukocyte esterase positive urine.

**CONCLUSIONS:** Long-term oral administration of L-arginine increases nitric oxide related enzymes and metabolites in the urine of patients with interstitial cystitis, which is associated with a decrease in interstitial cystitis related symptoms.

PMID: 9366309 [PubMed - indexed for MEDLINE]



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