

Publication

Preventive effect of beta-adrenoceptor blockade on glucocorticoid-induced memory retrieval deficits

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Elevated glucocorticoid levels impair retrieval of emotional information, and animal studies indicate that this effect depends on concurrent emotional arousal-induced increases in noradrenergic transmission within the brain. The authors investigated whether the beta-adrenoceptor antagonist propranolol blocks glucocorticoid-induced memory retrieval impairments in human subjects.; In a double-blind, placebo-controlled study, 42 healthy volunteers were presented a set of words with variable emotionality and asked to learn them for recall. A day later, cortisone (25 mg), propranolol (40 mg), or both drugs were administered orally 1 hour before a free-recall test.; Cortisone selectively impaired the recall of emotionally arousing words by 42%. This impairment was blocked by the concurrent administration of propranolol. Propranolol alone did not affect recall of either emotional or neutral words.; A pharmacological blockade of beta-adrenoceptors prevents glucocorticoid-induced memory retrieval deficits in human subjects. This finding may have important implications for the treatment of memory deficits in hypercortisolemic states, such as stress and depression.

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