Do glucocorticoids hold promise as a treatment for PTSD?

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As symptoms of posttraumatic stress disorder (PTSD) progress, the involved person's physical and mental health deteriorates.[1] This sparks lifestyle changes that allow them to avoid re-exposure to triggering stimuli; however, it also increases their risk of social isolation. Early clinical investigation has found that patients who experience hyperarousal symptoms of overt PTSD—difficulty sleeping, emotional dyscontrol, hypervigilance, and an enhanced startle response—could benefit from the stress-reducing capacity of glucocorticoids.

Decreased glucocorticoids

After a distressing situation, norepinephrine levels rise acutely.[2,3] This contributes to a protective retention of potentially threatening memories, which is how people learn to avoid danger.

Glucocorticoid secretion enhances a patient's coping mechanisms by helping them process information in a way that diminishes retrieval of fear-evoking memories.[2,3] Glucocorticoid, also called cortisol, is referred to as a "stress hormone." Cortisol promotes emotional adaptability following a traumatic event; this action diminishes future, inappropriate retrieval of frightening memories as a physiologic mechanism to help people cope with upsetting situations.[3]

PTSD pathogenesis involves altered hypothalamic-pituitary-adrenal axis function; sustained stress results in decreased levels of circulating glucocorticoid. This is a consequence of enhanced negative feedback and increased glucocorticoid receptor sensitivity, which is evidenced by results of abnormal dexamethasone suppression tests.[1] Downregulation of corticotropin-releasing hormone (CRH) receptors in the pituitary glands and increased CRH levels have been documented in PTSD patients.[1,4] An association between high CRH levels and an increase in startle response explains the exaggerated startle response observed in patients with PTSD. Higher circulating glucocorticoid has the opposite effect[4]; there is an inverse relationship between the daily level of glucocorticoid and startle amplitude. A low level of circulating glucocorticoid promotes recall of frightening events that results in persistent re-experiencing of traumatic memories.[2,3]

Glucocorticoids in PTSD

Glucocorticoid administration reduces psychological and physiological responses to stress.[3] Exogenous glucocorticoid administration affects cognition by interacting with serotonin, dopamine, and γ-aminobutyric acid by actions on the amygdala, medial prefrontal cortex, and hippocampus.[2,3] Research among veterans with and without PTSD recorded a decrease in startle response after administration of a single dose of 20 mg of hydrocortisone.[4] Results of a large study documented that one dose of hydrocortisone administered at >35 mg can inhibit threatening memories and improve social function.[3] Hydrocortisone is linked to anxiolytic effects in healthy persons and patients with social phobia or panic disorder.[3,4] Because treatment of PTSD with antidepressants and benzodiazepines often is ineffective,[5] glucocorticoids may offer a new pharmacotherapy option. Glucocorticoids have been

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prescribed as prophylactic agents shortly after an acutely stressful event to prevent development of PTSD.[4] Hydrocortisone is not FDA-approved to treat PTSD; informed consent, physician discretion, and close monitoring are emphasized.

Glucocorticoid use in mitigating PTSD symptom emergence is under investigation. Research suggests that just one acute dose of hydrocortisone might benefit patients prone to PTSD.[3,4] Further study is needed to establish whether prescribing hydrocortisone is efficacious.

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Research suggests that PTSD might benefit from just one acute dose of hydrocortisone

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