Anxiety therapy with enhanced potency and reduced potential for abuse

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Technology description

MARKETS ADDRESSED:
This discovery provides the key to improved therapy for patients currently taking benzodiazepines. This large market includes approximately 40 million Americans suffering anxiety disorders, one of many conditions treated with benzodiazepines. Insomnia, another indication, affects approximately 60 million Americans.
The opportunity to provide a combination therapy for the treatment of first-line anxiety and in addiction-prone patients exists.
Benzodiazepines, such as Valium, were first introduced in the 1960's and remain first-line treatment in anxiety disorders, as well as insomnia, agitation, seizures, and alcohol withdrawal. The clinical utility of benzodiazepines is restricted due to side effects such as disruptions in motor function and abuse liability, particularly when combined with other drugs or alcohol.
Using primate models, the lab of Dr. Rowlett has identified a way of reducing many of the side effects associated with benzodiazepines while enhancing potency. By delivering a reduced dose of a benzodiazepine in combination with a neuroactive steroid, a supra-additive anxiolytic effect is achieved, increasing the therapeutic window while reducing the likelihood of abuse. Since the GABAA receptor, the target of benzodiazepines, has an additional neurosteroid binding site, two small molecules can bind allosterically.
Monkey models were used to assess two different of responses. Using a sample benzodiazepine and a sample neurosteroid, the mixture showed a synergistic effect, i.e. the small amount of benzodiazepine administered with the neurosteroid displayed the same efficacy as a much greater dose of pure benzodiazepine. Liability for abuse was observed via the ability to self-administer. In this procedure, the mixture had a negatively synergistic effect on abuse.

Advantages

A novel drug combination of benzodiazepines and neuroactive steroids for a synergistic anxiolytic effect, increasing the therapeutic window and reducing the potential for abuse.

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