Venlafaxine

Indications

Venlafaxine may be more appropriate for patients with spinal cord injury presenting with depression and/or nociceptive pain. Despite the potential associated consequences of a prolonged hospital stay, higher cost, and controversial reports regarding the lowering of bone mineral density in the elderly, antidepressants may improve patient satisfaction and quality of life following surgery, and reduce postoperative pain and risk of delirium. The preoperative treatment of preexisting psychiatric diseases, such as anxiety and depression, can improve outcomes for patients with spinal cord injury-related disabilities; however, a preoperative platelet function assay is advocated prior to major spine surgical procedures to protect against significant intraoperative blood loss, as serotonergic antidepressants (e.g., selective serotonin reuptake inhibitors) and bupropion can increase the likelihood of bleeding intraoperatively due to drug-induced platelet dysfunction [1)].

Venlafaxine showed adequate safety for SCI [2)].

Remission of traumatic brain injury-induced compulsions during venlafaxine treatment [3)].

Antidepressant mechanism

Although thought as a serotonin and norepinephrine reuptake inhibitor (SNRI), the antidepressant mechanisms of venlafaxine remain unknown. Previous reports have shown the role of peroxisome proliferator-activated receptor α (PPARα) in depression. In a study, Chen et al. investigated whether the antidepressant-like effects of venlafaxine require PPARα. They first examined whether repeated venlafaxine administration reversed the effects of chronic unpredictable mild stress (CUMS) and chronic restraint stress (CRS) on PPARα in the hippocampus and medial prefrontal cortex (mPFC). Then, the pharmacological inhibitors of PPARα, GW6471 and MK886, were used to assay if the protecting effects of venlafaxine against chronic stress were prevented by PPARα blockade. Furthermore, gene knockdown of PPARα by AAV-PPARα-shRNA was also used. It was found that venlafaxine treatment fully restored the decreasing effects of CUMS and CRS on the hippocampal PPARα expression. Pharmacological inhibition of PPARα significantly attenuated the antidepressant-like effects of venlafaxine in mice. Moreover, gene knockdown of hippocampal PPARα also fully abolished the antidepressant-like actions of venlafaxine in mice. Collectively, hippocampal PPARα is an antidepressant target of venlafaxine. [4)].

The aim of astudy was to determine whether venlafaxine (VLX; a classical SNRI) regulates TPH and other key enzymes responsible for the synthesis and metabolism of monoaminergic transmitters in rats with chronic unpredictable stress (CUS). The present results suggested that CUS-exposed rats exhibited decreased locomotor activity in the open-field test and increased immobility time in the forced swim test, as compared with the controls. Pretreatment with VLX (20 mg/kg) significantly increased locomotor activity and reduced immobility time in the CUS-exposed rats. In addition, VLX (20 mg/kg) treatment prevented the CUS-induced reduction in tyrosine hydroxylase and TPH expression in the cortex and hippocampus. Furthermore, VLX alleviated the CUS-induced oxidative stress in the serum, cortex and hippocampus. However, VLX administration did not have an effect on indoleamine-2,3-dioxygenase overexpression in the hippocampus. It was therefore concluded that the

regulation of abnormalities in the synthesis and metabolism of monoaminergic transmitters may be associated with the antidepressant effects of VLX, suggesting that multimodal pharmacological treatments can efficiently treat depression. [5)]

Venlafaxine, reduced seizure-induced respiratory arrest (S-IRA) incidence, but higher doses were ineffective [6)].

Mirtazapine and venlafaxine are drugs of second choice on the treatment of tension-type headache [7)].

Venlafaxine XR is highly effective in the treatment of depression in Huntington's disease, although it may produce unpleasant side effects. Further studies are required to establish the most suitable treatment for depression in HD [8)].

Horner's syndrome unmasked by venlafaxine [9)].

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