The mu-opioid receptor agonist remifentanil induces acute dysphoria irrespective of its analgesic properties

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Mu-opioidergic agonists are believed to induce euphoria, whereas kappa-agonists are thought to lead to dysphoria. Our study investigated mood effects of remifentanil, a mu-receptor opioid agonist, in healthy male volunteers. Moreover, we examined interactions between mood and pain. Three conditions were investigated in 21 volunteers: saline, 0.05 and 0.15 microg kg(-1) min(- 1) remifentanil. Each condition was investigated during non-painful heat and during painful heat stimulation. Mood was measured with the von Zerssen's mood scale (Bf-S score) and pain intensity using a Visual Analogue Scale (VAS). High Bf-S scores are reflecting discontent and dysphoria. Changes were tested for significance using a linear mixed model approach. Remifentanil significantly increased Bf-S scores during painful heat (+91.4%), indicating a negative mood effect, although it reduced VAS scores of painful heat intensity (-49.0%). The type of sensory stimulation (non-painful versus painful) had no effect on mood. There was no interaction between remifentanil dose and type of stimulation. Our results provide evidence for negative mood effects of remifentanil. These effects occur with and without pain. Taken into account that remifentanil reduces pain, one could have expected analgesia-related amelioration of mood instead. In clinical practice, these remifentanil effects should be considered and a comedication might be advisable.
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