S05-5 Availability of NMDA receptor antagonist as adjuvant analgesics and therapeutic drugs for drug dependence

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It is well known that ketamine non-selectively antagonizes NR1/NR2A and NR1/NR2B subunit-containing NMDA receptor, while dextromethorphan and ifenprodil antagonize NR1/NR2A and NR1/NR2B subunit-containing NMDA receptor, respectively. We found that ketamine and dextromethorphan, antagonizing NR1/NR2A subunits-containing NMDA receptor, but not ifenprodil induce psychological dependence and psychotomimetic action. Furthermore, we reported that ifenprodil suppresses withdrawal signs in barbital- and diazepam-dependent rats. We also demonstrated that ketamine and ifenprodil suppress development of psychological dependence on morphine in rodents. These findings suggest that ifenprodil may be useful for treatment for drug dependence. On the other hand, neuropathic pains do not always respond to the combined use of a NSAIDs and a strong opioid such as morphine. Ketamine is used most commonly when neuropathic pain does not respond well to standard analgesics together with an antidepressant and an anti-epileptic. However, ketamine have controlled as narcotics by “Narcotics and Psychotropics Control Law” since 2007. Therfore, we focused on ifenprodil, non-narcotics, and found that ifenprodil suppresses neuropathic pain and potentiates morphine-induced analgesic effect. Recently, we also developed alcohol-induced neruropathic pain model, and then demonstrated that ifenprodil inhibits alcohol-induced neruropathic pain. Our findings also suggest that ifenprodil may be useful for treatment for neuropathic pain.