The effect of naloxone administration on CuCl2 treatment effect on the chemical pain induced by formalin in male Wistar rat

Background and Aim: Micronutrients are necessary for human bodies and involved in different reaction and biochemistry process. Reduction or increase in the amount of micronutrients can disrupt normal function of the body. Different micronutrients such as Mg2, Mn2, Zn2 and Cu2 affect the central nervous system and may be effective in pain and inflammation. Our previous study has shown that effective dose of cucl2 which caused analgesia subsequent to chemical pain induced by formalin in rat paw is 10 mg/kg dose. In this study the effect of naloxone on cucl2 analgesic effects was assessed to find any relenship between cucl2 analgesia and opioid system was assed.

Methods: Adult male Wister rats (200–250 g) were used in this study. Animals were divided into 4 groups (control, sham (naloxone), cucl2 and cucl2+naloxan treating animals). Drugs all intra peritoneal injected and pain behavior was assessed by formalin test and data were analysis statistically.

Results: Pain behaviors in control and sham (naloxone) animals due to formalin paw injection were alleviated in cucl2 (10mg/kg, ip) treated animals (p<0.0001, p<0.0001) while naloxone in [cucl2 (10mg/kg) +Naloxone (2mg/kg, ip)] animals reversed the cucl2 analgesia (p<0.0001).

Conclusion: At our previous study it was discussed that copper ions can possibly interfere with opioid system. So increasing the sensitivity of opioid receptors to endogenous opioids in the presence of cu ion is suggested here to investigate, because, naloxone administration convert the cucl2 analgesia.

Keywords: Copper Chloride, analgesia, chemical pain, inflammation