Background: Studies suggest that miRNAs are involved in the development of pain hypersensitivity in chronic morphine tolerance. The present study was examined the miRNA expression profile of morphine tolerant rats.

Methods: Male Wistar rats were implanted with an intrathecal catheter and connected to a mini-osmotic pump, used for either morphine (15 µg/h) or saline (1 µl/h) infusion for 5 days. On day 5, all rats received nociceptive tail-flick test then the lumbar enlargement of the spinal cord were removed to measure miRNA expression.

Results: Long-term morphine infusion induced antinociceptive tolerance and up-regulated 40 miRNAs and down-regulated 140 miRNAs expression in rat morphine-tolerant spinal cord dorsal horn.

Conclusions: The results find that the 180 miRNAs contributes to the development of morphine tolerance. We suggest that, these miRNAs expression and targeted mRNA may underlie the neuroadaptation that mediate tolerance to the analgesic effect of morphine.

Keywords: miRNA, morphine-tolerance, pain hypersensitivity.

References