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## Effect of orexin B infusion into nucleus accumbens on anxiety and exploratory behavior in Wistar rats

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Orexins have been located in several parts of brain, particularly in the hypothalamus and parts of diencephalon. Orexins have been implicated roles in ingestive behavior, role in sleep, wakefulness and other modalities of activities in animals. It is known that nucleus accumbens is a large nuclear mass involved in appetitive behavior and addiction. In order to evaluate the orexinergic manipulation of nucleus accumbens on anxiety related parameters, we carried out studies by infusing orexin B and its antagonist into nucleus accumbens. We used Wistar albino rats weighing  $200 \pm 20$  g at the time of selection. Orexin B was infused bilaterally, using Harvard Pico plus pump, placing the cannula in nucleus accumbens by stereotaxic technique and tested in the open field. Parameters such as time spent in the peripheral squares, central square, defecation score, rearing, grooming were recorded meticulously. Similar recording was done following infusion of orexin B antagonist (TCS-OX2-29) into nucleus accumbens in the next experiment. The infusion of orexin B into nucleus accumbens rats made significantly more ( $p < 0.001$ ) central square entries compared to controls. There was also a significant increase ( $p < 0.001$ ) in time spent in central squares ( $28 \pm 0.73$ ) compared to controls ( $20 \pm 1.15$ ). But treatment didn't show any alteration in the number of rearing, grooming ( $p > 0.05$ ) and fecal excreta. The infusion of orexin B antagonist (TCS-OX2-29) into nucleus accumbens made significantly fewer ( $p < 0.01$ ) central squares entries compared to controls. There was also a significant decrease ( $p < 0.001$ ) in time spent in central squares compared to controls but didn't show any alteration in the number of rearing, grooming and fecal excreta. The results of this study reveal that the orexin infusion decreased anxiety and increased exploratory behavior in the rats.

### Biography

Ganaraja B has completed his MSc in Medical Physiology and PhD in Neurophysiology from Mangalore University and Manipal University, India, respectively. He is additional Professor of Physiology at Kasturba Medical College, Mangalore, Manipal University, India. He has also worked as Assistant Professor at AIMST University, Malaysia between 2002 and 2005. He has published more than 50 papers in reputed journals and guided four PhD students in neurophysiology of ingestive behavior, addiction and herbal medicine in memory.

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