Dysregulation of *in vivo* nucleus accumbens dopamine and calcium dynamics in response to natural rewards in a model of subchronic ketamine exposure.

Poster

Neurobiología de enfermedades - Neurobiology of disease

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Subchronic administration of dissociative substances like ketamine induces persistent functional alterations in ventral striatal dopaminergic and cellular circuits, affecting motor and motivational behaviors. Here, we simultaneously characterized the *in vivo* temporal dynamics of dopamine (DA) release and neuronal calcium activity in the nucleus accumbens (NAcc). Mice underwent stereotaxic surgery for microinjection of adeno-associated viral vectors (AAVs) expressing GCaMPf and RdLight in the NAcc. Animals received daily injections of ketamine (30 mg/kg, i.p.) or saline for 10 days. Locomotor activity was evaluated in an open field test on days 1, 5, and 10 (60 min baseline followed by 60 min post-injection). On day 11, subjects were exposed to a natural reward (chocolate) during fiber photometry recording (20 fps). Behavioral results showed progressive alterations in post-injection locomotion across days in ketamine-treated mice compared to controls. On day 11, chocolate consumption evoked transient, temporally coupled increases in calcium and DA signals within the NAcc. However, preliminary trends indicate a notable kinetic divergence between groups, suggesting that subchronic ketamine pretreatment generates a signature of dopaminergic hyperactivation and atypical calcium modulation in response to the natural stimulus. These findings suggest that subchronic ketamine exposure not only induces motor sensitization but also alters the functional processing of rewarding stimuli in the striatum, validating multiplexed fiber photometry to map persistent

functional network adaptations.

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