Apr 6th, 6:30 PM - 8:00 PM

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THE EFFECTS OF IBOTENIC ACID INDUCED LESIONS OF THE MEDIAL AMYGDALA ON MALE RAT SEXUAL BEHAVIOR: A PILOT STUDY

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The amygdala, a sexually dimorphic site of androgen concentration, has been proposed to be an area responsible for integration of chemosensory information allowing for conditions of optimal sexual performance in the male rat. The medial nucleus of the amygdala (MeA) receives this behaviorally-relevant information from the accessory olfactory bulb (AOB) via the olfactory tract. The medial preoptic area (MPOA), "the final common pathway" in the control of male sexual behavior, is relayed this information from the MeA via two pathways, the stria terminalis (ST), and the ventral amygdalo- fugal pathway (VAP). Electrolytic lesions of the MeA, VAP, or the ST induce profound deficits in male copulatory behavior. Immunocytochemical studies have reported large numbers of substance P (sP) cell bodies and fibers within the MeA and ST. Indeed, the overlapping distribution of sP and androgen accumulating neurons within the MeA suggest the possibility that sP neurotransmission originating from the MeA may be of primary importance in the integration of olfactory information from the AOB. The MeA can be divided cytoarchitectonically into the medial nucleus posterodorsal (MePD), and medial nucleus posteroventral (MePV). Substance P immunoreactive (sP-ir) cell bodies are highly concentrated within the MePD. Consequently, the purpose of this study is to examine the effects of neurochemical lesions induced by the neurotoxin ibotenic acid of the MePD on male rat sexual behavior. We suspect a decrease in sexual behavior will occur, and we theorize that this deficit will be caused at least in part due to the destruction of the sP-ir pathway.

Sexually experienced adult male rats will be randomly divided into two groups. Group 1 will receive bilateral injections of .3ul (10ug/1ul) ibotenic acid into the MePD. Group 2 will receive bilateral injections of phosphate buffered saline and serve as a sham group. A variety of parameters of male sexual behavior will be measured 5-7 days following surgery to determine the effects of the ibotenic acid-induced lesions on male sexual behavior.