

Natureza do trabalho: Resumo

TÍTULO

HYPOTHALAMIC SEXUAL DIFFERENTIATION IN RATS

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RESUMO

Introduction: The hypothalamus is an important integrative center of information that ensures homeostasis, coordination of visceral functions and initiation of behaviors, as the reproduction. **Review of Literature:** In mammals, including humans, there are several structural and functional sexual differences throughout the brain, especially in the hypothalamus and surrounding anatomical structures that sustain physiological and behavioral sexual dimorphism. These regions may differ in size or volume (for example, the sexually dimorphic nucleus of the preoptic area - SDN-POA is higher in males and anteroventral periventricular nuclei - AVPV that is larger in females) and even as the expression of estrogen receptors which are associated with masculinization and defeminization these regions. The development and differentiation of the brain involve a series of events that begin during pregnancy and continue during the first hours of postnatal life in rodents. Steroid hormones are essential for sexual differentiation of the brain during early development. At puberty, these hormones activate specific endocrine and behavioral responses sex organized during development. In male rats, the testosterone surge on days 18-19 of gestation and again during the first hours after birth causes masculinization of the brain and defeminization, permanent actions that support typical copulatory behaviors of male and patterns of gonadotropin secretion. The masculinization of the hypothalamus is dependent on testosterone, however, this process is due to its metabolism by the action of the enzyme cytochrome P450 aromatase, estrogen originating in the central nervous system. Exposure of both testosterone as estradiol induces numerous changes in the brain, such as nuclear volume, and complexity of neuronal morphology of astrocytes, which are necessary for reproduction into adulthood. **Conclusão:** Thus, during the period of brain sexual differentiation, testosterone or its metabolites are fundamental for masculinization and defeminization of sexual behavior, for establishment of gonadotropin secretion patterns, and also for various morphological indices. In the absence of testosterone or its metabolites, sexually dimorphic structures and functions are feminized.