

论著

硫喷妥钠对大鼠不同脑区ATP酶活性的影响

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摘要 目的 探讨硫喷妥钠对大鼠不同脑区ATP酶活性的动态影响, 是否与麻醉作用有关。方法 采用 δ SD大鼠40只, 随机分为5组, 生理盐水($10 \text{ mL} \cdot \text{kg}^{-1}$, ip)对照期组及给硫喷妥钠($30 \text{ mg} \cdot \text{kg}^{-1}$, ip)后的诱导期组、麻醉期组、恢复期组、清醒期组。断头取脑, 用分光光度法测定大脑皮层、脑干、海马和纹状体 Na^+ , K^+ -ATP酶、 Ca^{2+} -ATP酶活性。结果 给硫喷妥钠后大脑皮层的 Na^+ , K^+ -ATP酶活性在诱导期和恢复期显著降低, 而 Ca^{2+} -ATP酶活性在诱导期和麻醉期显著升高, 到清醒期时, 两种酶活性均恢复到对照期组水平; 脑干的 Na^+ , K^+ -ATP酶、 Ca^{2+} -ATP酶活性在给硫喷妥钠后诱导期、麻醉期和恢复期均显著低于对照期组, 直至清醒期仍与对照组有显著性差异, 而以诱导期最低。海马、纹状体的 Na^+ , K^+ -ATP酶和 Ca^{2+} -ATP酶活性则在整个麻醉期间无明显变化。结论 硫喷妥钠的全麻作用可能与其影响大脑皮层和脑干的ATP酶活性有关。

关键词 [硫喷妥钠](#) [腺苷三磷酸酶](#) [脑](#)

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Effects of thiopental sodium on ATPase activities in different brain regions of rats

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Abstract

AIM To investigate whether the dynamic changes of ATPase activities induced by thiopental sodium are related to its anesthetic effect. **METHODS** Forty SD rats were randomly divided into five groups (control, induction, anesthesia, restoration, awake). Thiopental sodium ($30 \text{ mg} \cdot \text{kg}^{-1}$, ip) or normal saline ($10 \text{ mL} \cdot \text{kg}^{-1}$, control group) was intraperitoneally injected respectively. The activities of Na^+ , K^+ -ATPase and Ca^{2+} -ATPase were measured by spectrophotometric analysis. **RESULTS** Thiopental sodium treatment decreased the Na^+ , K^+ -ATPase activity of cortex in rats significantly in phases of induction and restoration, while Ca^{2+} -ATPase activity of cortex was increased significantly in phases of induction and anesthesia, and the two ATPases restore to the level of control in awake phase. After administration of thiopental sodium, Na^+ , K^+ -ATPase and Ca^{2+} -ATPase activities of brain stem were significantly lower than those in control group, even in awake phase. The activities of ATPases of hippocampus and striatum were changed little. **CONCLUSION** The central inhibitory effects of thiopental sodium may be related to the changes of the activities of Na^+ , K^+ -ATPase and Ca^{2+} -ATPase in cortex and brain stem of rats.

Key words [thiopental sodium](#) [adenosine triphosphatase](#) [brain](#)

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