

田桂湘,李智贤,钟丹妮,曾佳.声触诊组织量化技术评价新生大鼠缺氧缺血性脑损伤[J].中国医学影像技术,2012,28(12):2109~2112

声触诊组织量化技术评价新生大鼠缺氧缺血性脑损伤

Virtual touch tissue quantification for elastic assessment of hypoxic-ischemic brain damage in newborn rats

投稿时间: 2012-08-17 最后修改时间: 2012-09-27

DOI:

中文关键词: [缺氧缺血](#) [脑损伤](#) [声触诊组织量化](#) [大鼠](#)

英文关键词: [Hypoxic-ischemic](#) [Brain injury](#) [Virtual touch tissue quantification](#) [Rats](#)

基金项目: 国家“十一五”科技支撑计划课题项目(2007BAI07A17-11)。

作者	单位	E-mail
田桂湘	广西医科大学第一附属医院超声科, 广西 南宁 530021	
李智贤	广西医科大学第一附属医院超声科, 广西 南宁 530021	gxydlzx@163.com
钟丹妮	广西医科大学第一附属医院新生儿科, 广西 南宁 530021	
曾佳	广西医科大学第一附属医院超声科, 广西 南宁 530021	

摘要点击次数: 314

全文下载次数: 103

中文摘要:

目的 探讨声触诊组织量化(VTQ)技术评价新生大鼠缺氧缺血性脑损伤(HIBD)程度的可行性。方法 7日龄Wistar新生大鼠30只,麻醉后分离右侧颈总动脉,随机分为3组。单纯缺血组10只,结扎颈总动脉;窒息组10只,结扎颈总动脉,术后恢复1 h置于缺氧箱中,持续缺氧30 min;对照组10只,分离颈总动脉后未予结扎。应用VTQ技术分别测量术前和术后12、24、48、72 h各组大鼠的脑组织VTQ值。实验结束后处死大鼠,取出脑组织行病理检查。结果 随着缺血时间延长,单纯缺血组和窒息组大鼠的VTQ值逐渐增高。单纯缺血组VTQ值在术后72 h明显高于术前及对照组。窒息组VTQ值在术后24 h明显增高,从术前的(0.65±0.04)m/s上升至术后72 h的(0.76±0.07)m/s。病理检查可见窒息组右侧大脑皮层、海马等区域神经细胞减少,尤以海马区域更为明显;胶质细胞反应性增生,脑间质及血管周围水肿明显,室管膜区及脑室周围的脑实质内可见红细胞。结论 随着缺氧缺血时间延长,大鼠脑损伤加重,其脑组织的VTQ值逐渐增高。VTQ技术可用于评价新生大鼠HIBD程度。

英文摘要:

Objective To evaluate the feasibility of virtual touch tissue quantification (VTQ) in assessing brain change of newborn rats with varying degrees of hypoxic-ischemic brain damage (HIBD). **Methods** The right common carotid artery of 30 healthy 7-day-old Wistar neonate rats was separated under anesthesia. Then the rats were randomly divided into ischemia group ($n=10$, the right common carotid artery was ligated), asphyxia group ($n=10$, 1 h after ligation of right common carotid artery, the rats were put in a box of 8% hypoxia for 30 min) and control group ($n=10$, no ligation was performed after anesthesia). VTQ was measured before and 12 h, 24 h, 48 h and 72 h after surgery in three groups. The rats were executed after experiment, and pathological features of the brain were observed under microscope. **Results** In ischemia and asphyxia group, VTQ increased with ischemia time prolonged. Within 72 h after surgery, VTQ values in ischemia group was higher than pre-operation and control group. VTQ values in asphyxia group increased from (0.65±0.04)m/s before surgery to (0.76±0.07)m/s at 24 h after surgery. Pathologic results showed that nerve cells reduced in the right cerebral cortex and hippocampus of asphyxia group, especially in the right hippocampus. The gliocytes proliferated reactively, edema occurred in interstitial tissue of brain and perivascular tissues, and a small amount of red blood cells could be observed in ependymal area and the periventricular parenchyma. **Conclusion** With the time of hypoxic-ischemia passing by, brain injury gradually increases, and VTQ values of the brain also increase in rats. It is feasible to evaluate the degree of HIBD in newborn rats with VTQ technique.

[查看全文](#) [查看/发表评论](#) [下载PDF阅读器](#)

您是第6336325位访问者

版权所有:《中国医学影像技术》期刊社

主管单位: 中国科学院 主办单位: 中国科学院声学研究所

地址: 北京市海淀区北四环西路21号大猷楼502室 邮政编码: 100190 电话: 010-82547901/2/3 传真: 010-82547903

京ICP备12000849号-1

本系统由北京勤云科技发展有限公司设计