

硬脂顆粒引致栓塞性缺血性腦中風大鼠模式之核磁共振變化

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Brain MRI in the animal model of embolic stroke induced by solid lipid nanoparticle

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**Objective:** To investigate the findings of brain MRI in acute stage of brain ischemia in the rat model of embolic stroke induced by solid lipid nanoparticle.

**Background** Few rat models of embolic stroke have been developed. In our previous work, we have successfully developed rat model of embolic stroke by Chitin/PLGA mixed nanoparticles. In this work, brain MRI finding was evaluated in new developed rat model of embolic stroke induced by solid lipid nanoparticle immediately after inducing stroke.

**Methods:** Solid-lipid nanoparticle was prepared for suitable melting points to control dissolving time in vivo. We induced embolic stroke immediately after injecting solid-lipid nanoparticle from the indwelling catheter tube into ipsilateral common carotid artery (CCA) via external carotid artery (ECA) in a rat model. Neurologic sign was evaluated immediately after inducing stroke. Brain MRI was checked half an hour after inducing embolic stroke. The neurologic deficit disappeared 3 hours after inducing stroke.

**Results:** Two 0.5 mm round cortex lesions with increased intensity on T2W1 image, but not T1W1 image were found half a hour after inducing stroke in the rat model. Diffused weighted image also showed increased intensity at same location of T2W1, whereas, artifact limited further interpretation.

**Conclusion:** brain MRI may be useful for evaluating acute stage of brain ischemia in a rat model of embolic stroke induced by solid lipid nanoparticles, which got full recovery within 3 hours after inducing stroke.

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