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含川芎嗪UW液保存不同时间对异体神经再 到:

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Title: Regenerative effect of rat allograft nerves preserved in
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at 4 °C

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摘要: 目的 探讨在4 °C条件下用含川芎嗪的UW液保存不同时间后大鼠异
体神经再生的影响, 阐明川芎嗪在短期内能促进异体神经再生。 方
法 取3月龄雄性清洁级成年健康Wistar大鼠56只(受体), 体质量
200~250 g, 随机数字表法分为A、A'、B、B'、C、C'、D组, 每组
8只。取3月龄雄性清洁级成年SD大鼠24只(供体), 体质量200~250
g, 切取双侧坐骨神经干约15 mm, 共取48条神经, 经生理盐水冲洗后
随机放入24根冻存管中(每根冻存管含2条供体神经), 随机分为6组,
于4 °C条件下, 任选3组分别经含川芎嗪的UW液分别保存4、6、12周
后, 作为实验A、B、C组神经修复供体, 剩余3组用不含川芎嗪的UW液
分别保存4、6、12周后, 作为对照A'、B'、C'组神经修复供体。D
组为新鲜自体神经移植组。术后4、8、12周行大体观察, 术后12周行电
生理检测, 光镜、电镜观察神经再生情况。 结果 术后12周检

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测腓肠肌湿质量、电生理情况，A、D两组优于其他组，但D组优于A组，组间有统计学差异($P<0.05$)。术后12周移植神经段行HE染色光镜观察结果显示，C组及C'组炎症反应最重且空泡变性最为明显，D组炎症反应最轻，镜下见A、D两组神经纤维排列较规则。术后12周行透射电镜检测结果显示，A、D两组再生的有髓神经纤维较多，并可见少许无髓神经纤维，髓鞘完整，呈同心圆排列，细胞器丰富；B组镜下情况差于A组，C、C'组再生的有髓神经纤维较少，并见结缔组织结构。结论 在4周内保存异体神经，川芎嗪可改善其神经再生效果。

Abstract: **Objective** To investigate the regeneration of peripheral nerve allografts after being preserved in University of Wisconsin solution (UW solution) containing tetramethylpyrazine (TMP) for different times at 4 °C. **Methods** Fifty-six Wistar rats (male, weighing 200 to 250 g) were divided into 7 groups randomly, A, A' , B, B' , C, C' and D groups ($n=8$) and were inflicted with sciatic nerve defect. The sciatic nerve allografts were collected from another 24 SD rats (3-month-old, weighing 200 to 250 g) and then preserved in UW solution containing TMP (for A, B and C groups) or not (for A' , B' and C' groups) at 4 °C for different time intervals (4, 6 and 12 weeks), and then employed to repair the sciatic nerve defect of Wistar rats. The rats from group D were treated with fresh sciatic nerve autografts and served as control. In 4, 8 and 12 weeks postoperatively, the function of affected limb was observed. The weight, morphological and electric neurophysiology of gastrocnemius were measured and observed in 12 weeks postoperatively. **Results** With respect to the electrophysiological values as well as gastrocnemius weight, the results of groups A and D were better than the other groups, and those of group D were superior to those of group A ($P<0.05$). Pathological observation in 12 weeks after transplantation indicated that the sciatic nerves of groups C and C' were in severe infection and obvious structural disorders with vacuolar degeneration. And the infection was slightest in group D. Microscopic and transmission electron microscopic observation showed that in groups A and D, the nerve fibers were in well-arrangement, and there were more regenerative medullated nerve fibers, with integrated myelin in concentric circles and abundant organelles. The condition in group B was worse than that in group A. There were few regenerative medullated nerve fibers in groups C and C' . **Conclusion** TMP exerts its protective effect on