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The variations of cellular viability of 4℃ preserved embryonic cerebral cortical tissue of rabbits

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Abstract Cerebral cortical tissue from rabbit fetus of 23～24 gestation was preserved in saline or iloprost solution (50 ng/ml) at 4℃. Cell suspension of the prepreserved and postpreserved cerebral cortex of rabbit fetus was prepared with mechanical method and the viability of the cells was examined with the fluorescent stain with PI of different concentrations through flow cytometry and with trypan blue exclusion. It was found that iloprost solution exerted more potent protection on the embryonic cerebral cortical tissue than saline. Nevertheless, the viability of the cortical cells was inevitably decreased when the preservation was prolonged and that the fluorescent stain with PI in different concentrations through flow cytometry was more sensitive and accurate to examine the cellular viability than trypan blue exclusion. Further investigation is imperative to elucidate the problem of cellular viability of preserved rabbit cerebral cortex.

Key words cerebral cortex/rabbit fetus; preservation; cellular viability; iloprost; PI

不同组织移植治疗成体大鼠脊髓损伤的实验研究

Experimental studies on the treatment for injuries of the spinal cord in adult rats with different tissue transplants

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从形态发育学、电镜定量分析、脊髓电生理、免疫组织化学及分子生物学角度,就同种异体胚胎脊髓、同种异体坐骨神经和自体肌肉等不同移植物在大鼠成体脊髓中的存活、发育过程;对损伤脊髓再生修复,神经毡结构重筑和脊髓电生理特性恢复的影响以及移植后内源性神经生长因子(NGF)及其受体(NGFR)的变化规律进行了研究。结果表明:组织移植对损伤脊髓的修复有一定促进作用,神经组织的移植修复作用较非神经组织为好,而在神经组织中,又以低分化的胚胎脊髓移植为佳。胚胎脊髓植入损伤脊髓后,可在宿主脊髓内继续分化发育,并与宿主建立良好的结构联系,其分化发育的过程,在本实验条件下不受宿主病理环境的影响。坐骨神经移植后,最终可能通过存活的雪旺氏细胞与宿主建立一定的结构联系,移植的肌肉组织难以在宿主脊髓中长期存活。不同组织移植,对损伤脊髓神经毡内再生突触的数量及成熟度有较大影响,脊髓神经毡内的突触密度随愈合时间的延长逐渐增加,移植组突触密度的增加明显快于非移植组,而移植组中,又以胚胎脊髓移植组的突触密度增加最快。组织移植对再生突触的结构比例无明显作用,在再生的突触中,首先以Ⅰ型突触为主,此后Ⅰ型突触数量逐渐增加。从突触接触和囊泡类型来看,新生突触主要为轴-树型和胆碱能型突触。胚胎脊髓移植后脊髓感觉诱发电位的改变明显好于其它移植和非移植组,不同肌群的诱发肌电(EMG)的恢复改变不同,距损伤移植平面近的肌群EMG恢复较快,神经组织(胚胎脊髓、坐骨神经)移植后,EMG的恢复较非神经组织移植和不移值组为好。不同组织移植可以促进和在一定时间内增加损伤脊髓中内源性NGF及NGFR mRNA的表达和NGF多肽的合成;胚胎脊髓植入后早期,能在宿主脊髓内表达和合成NGF及NGFR。内源性NGF在移植后的损伤脊髓中可能对宿主脊髓和移植物起保护和趋化诱导突触再生的双重作用;不同移植条件下,内源性NGF及NGFR的表达主要在脊髓前角神经元。

关键词 脊髓损伤;组织移植;胚胎脊髓;神经生长因子;神经生长因子受体

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