measurements. By the means of this model, the factors affecting repeated measurements were eliminated and the formula of the correlative coefficient was obtained. **Results**: When a real example was given, the correlative coefficient was 0.3645. The coefficient was similar as that of each repeated measurement. **Conclusion**: This method is effective and practical for the correlative analysis of repeatedly measured data. Its effect is better than that of the ordinary least square and the generalized least square analyses.

Key words repeated measurement; correlative analysis; semiparametric regression

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一氧化氮对大鼠胃窦肌间神经丛胆碱能神经的影响

Effects of nitric oxide on cholinergic nerves of myenteric plexus in gastric antrum of rats

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一氧化氮是胃肠道主要的非胆碱能非肾上腺素能抑制性神经递质,它在胃肠道分布广泛且含量较高。形态学研究表明一氧化氮可能影响其它神经递质的释放[1]。本试验拟通过观察正常大鼠注射一氧化氮供体硝普钠后胃窦肌间神经丛内胆碱能神经变化,间接了解一氧化氮对乙酰胆碱合成的影响。

1 材料与方法

健康 Wistar大鼠 24只,雌雄各半,体重 250~350 g,随机分为 3组,每组 8只:① 正常对照组;② 一氧化氮组,每天腹腔注射硝普钠 0.5 mg/kg,3/d;③ 左型精氨酸甲脂(L-NAME)组,每天腹腔注射 L-NAME 15 mg/kg,2/d。

4周后将各组大鼠用 3%戊巴比妥钠麻醉后取出全胃,向胃内灌注适量 4%的多聚甲醛液后放入固定液中固定 12 h,再放入 30%蔗糖液脱水。将胃窦剪成 0.4 cm×0.8 cm大小的组织块,胃窦粘膜表面固定后呈绒毛状,粘膜及粘膜下层连接较紧密,可用钟表镊一块撕掉,根据平滑肌纤维走向判断出斜肌层和环肌层并依次撕去,即得到附于纵肌之上的肌间神经丛。采用 Kamovsky-Root's直接法显示胆碱能神经。

采用 MD20型真彩色图像分析仪进行图像分析,于 25倍物镜下每个标本随机取 3~5个视野,计算阳性神经平均面密度(目标面积占统计面计的百分比),反映阳性神经在铺片中的含量。

统计学处理采用单因素方差分析。

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2 结果

光镜下,正常大鼠胃窦肌间神经丛中的胆碱能神经纤维呈"树根状"或"网状"分布,其神经节较粗,阳性神经元胞体较多;节间纤维相对细小,有少许阳性神经元散在分布。L-NAME组的胆碱能神经分布与正常组类似,而一氧化氮组胃窦肌间神经丛内胆碱能神经节更粗大,阳性神经元胞体密集,体积较大,其节间纤维也增粗。

图像分析显示,一氧化氮组胆碱能神经平均面密度为(26.75±4.72)%,正常对照组为(22.04±5.80)%,两组比较,相差显著($P<0.05$);L-NAME组为(21.17±4.00)%,与正常组比较,无显著差异。

3 讨论

一氧化氮能调控神经释放乙酰胆碱,但不同的动物和不同组织在不同实验条件下其结果不一样[2]。在胃肠道,学者们对一氧化氮是促进还是抑制乙酰胆碱释放意见不一,Katalina[3]认为一氧化氮的作用是双向的,基础状态下,一氧化氮供体明显促进豚鼠肌间神经元释放乙酰胆碱,且与浓度成正相关;局域性电刺激时,一氧化氮却抑制乙酰胆碱释放。

本试验以大鼠为研究对象,通过观察胃窦肌间神经丛胆碱能神经含量变化间接了解乙酰胆碱的变化。注射硝普钠后,大鼠胃窦肌间神经丛内胆碱能神经节增大,胞体密集,节间束增粗;图像分析也表明一氧化氮组胆碱能神经平均面密度较正常组高,故认为一氧化氮能促进大鼠胃窦肌间神经元合成乙酰胆碱。

近来有作者认为 L-NAME能抑制毒蕈受体,但如果对胆

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型进行预后分析。但我校目前还未建立此软件,不能开展此项工作。Davis等[1]对上百篇有关骨肉瘤预后的文章进行分析评述,不论是单因素分析,还是多因素分析,结果都不尽相同。我们采用多元直线回归和多元逐步回归模型,从某种程度上损失了截尾数据这个协变量的信息。但在没有 Cox回归软件的情况下,采用 Kaplan-Mier生存曲线,log-rank时序检验有意义的一些单因素进行多元直线回归和多元逐步回归,其结果仍有一定的临床意义。

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Analysis of prognostic factors of human osteosarcoma with multivariate regression

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Abstract **Objective**: To analyze the prognostic significance of sex, age, tumor site, tumor size, mitotic count, DNA content AgNORs count, PCNA grading, KiS1 grading and mast cell count for osteosarcoma with multivariate regression. **Methods**: Univariate analysis including Kaplan-Meier survival curve and Log-rank test and multivariate analysis including multivariate linear regression and multivariate partial regression were used. **Results**: A significant regression equation was obtained as following: $F = 12.575$, $r = 0.7134$ and $P < 0.0001$. Partial regression revealed that the most useful prognostic factors for osteosarcoma were DNA ploidy and DI value, tumor size, tumor site, KiS1 grading and AgNORs count. **Conclusion**: Certain indices denoting the activity of cellular proliferation of osteosarcoma are useful to its prognosis.

Key words osteosarcoma; multivariate regression; prognosis

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碱能神经具有阿托品样作用,乙酰胆碱合成应当增加,本实验未发现 L-NAME有促进乙酰胆碱合成作用,故认为 L-NAME并无抑制毒蕈受体作用,于 Prast[4]结论一致。

总之,我们通过实验发现一氧化氮能促使胃窦肌间神经元合成乙酰胆碱,并认为 L-NAME并无拮抗毒蕈受体作用。

关键词　一氧化氮;胆碱能神经;乙酰胆碱

中图法分类号　R333.2　　文献标识码　B

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