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Study on the correlation of stereometric nuclear volume with histological grading in the prognosis of osteoblastic sarcoma

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Abstract Twenty cases of osteoblastic sarcoma were studied retrospectively with the stereometric method in order to provide objective morphometric data for the histological grading of the tumor. After standard fixation, embedding, sectioning and hematoxylin eosin staining, the average nuclear volume $\bar{V}_v$ was determined with the formula as follows:

$$\bar{V}_v = n'/3 \cdot L_o^3$$

In the formula, L_o stands for the distance between 2 points resulting from the interception of a testing line through a nucleus. It was found that the $\bar{V}_v$ of osteoblastic sarcoma varied from 85 to 765μm^3 and was consistent to the prognosis predicted with the Price's grading of sarcoma.

It is believed that the determination of the stereomtric nuclear volume of osteoblastic sarcoma is able to provide an objective criterion for the prognosis of the tumor.

Key words osteoblasts sarcoma; stereometry; nuclear volume

不同状态下血管和神经力学特性与形态的相关性研究

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生物软组织是构成生命有机体的重要部分,对它进行力学研究,已从离体向在体、活体发展。本研究的第一部分:根据生物软组织的特点,遵循力学的基本的原理,设计了 HLC-I 型生物活组织力学试验机,为实现活体、半活体和离体生物软组织的拉伸和压力试验,该机设计有弦式加载定向器、轴向拉伸定向器、管道器官定位器和程控压力发生器。设计了载荷与位移的同步记录的装置,PC-I 型程控照相机快门驱动器和 JP-I 型快速动态图像分析系统。本研究的第二部分:以大白鼠坐骨神经(SCN)为实验对象,进行活体、半活体和离体单轴拉伸试验。结果表明:

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The release of polyamines and excitatory amino acid during cerebral ischemia and reperfusion

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Abstract The dynamic changes of the contents of polyamines and excitatory amino acid in the hippocampus during cerebral ischemia and reperfusion were observed in rats. It was found that the content of putrescine was increased and the release of excitatory amino acid elevated during reperfusion, and the increase of putrescine could be stopped when the antagonist of NMDA receptor of excitatory amino acid, that is, MK-801, was administered.

These facts suggest that the metabolic disturbance of polyamines in closely related to the release of excitatory amino acid and modulated by NMDA receptors. The combination of polyamines with excitatory amino acid may play an important role in the ischemic damage of the brain.

Key words polyamines; amino acids; reperfusion injury; MK-801

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活体 SCN 的轴向本构方程(在 $\sigma=0\sim36$kPa)基本服从虎克定律,半活体和离体的轴向本构方程为指数函数关系,但材料常数 X_3 之间有显著性差异。以兔肠系膜上静脉(SMV)为实验对象,进行活体和离体的不同状态力学试验,提出了确定管道状器官应力应变计算的初始内压和初始直径的标准,和容变(ω)-张力(T)关系的新概念。结果表明,正常活体组和腹腔神经丛阻滞组的本构方程(在 $\sigma=0\sim75$kPa)基本上服从虎克定律,但材料常数之间均有显著性差异;离体不同条件下的本构关系均为指数函数关系,但至少有一个材料常数之间有显著性差异,X_1 为温度敏感因素,X_2 为平滑肌活性因素。ω-T 关系表明活体组为直线相关,而离体组为对数相关。急性门脉阻塞后,压力(P)-时间(t)之间的关系均为指数函数。但正常活体组和腹腔神经丛阻滞组系数相比较,有显著性差异,达到压力峰值(Pm)的总时程(Tm)的均值相比较,有显著性差异,而两组 Pm 均值的比较,无显著性差异。表明腹腔神经丛的纤维,对门脉血流动力学有调节作用。基于上述结果本文提出了条件力学行为和综合力学行为的新概念。

关键词 活体;生物力学特性;形态学;坐骨神经;肠系膜上静脉

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