

神经起步点产生的一种新型簇放电节律——阵发周期1节律

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实验中发现了神经起步点产生的一种新型的簇放电节律——阵发周期1节律。其特征如下：连续周期1放电与休止期(quiescence)轮流出现；非周期性，连续放电持续期、连续放电次数以及休止期有较大变异性；位于周期1节律和静息状态之间。具有较长周期的伪单色噪声激励的FHN(FitzHugh-Nagumo)模型可以产生类似的阵发周期1节律。模型和实验中的阵发周期1节律的统计特征、变化规律和所处的参数区间相类似。这表明：阵发周期1节律是由与伪单色噪声类似的长时程振荡激励引起的。

A NOVEL BURSTING IN THE EXPERIMENTAL NEURONAL PACEMAKER, INTERMITTENT PERIOD 1 SPIKING

A novel bursting, intermittent period 1 spiking, was observed in the experimental neuronal pacemaker. It showed the characteristics as follows: First, its spike trains randomly transiting between continual period 1 spiking and intermittency. Second, the duration of the intermittency, the duration and the number of the continual period 1 spikes exhibited large variability, indicating that the firing pattern was not periodic. Last, it lay between period 1 spiking and at rest. Intermittent period 1 spiking similar to experiments was simulated in the FHN(FitzHugh-Nagumo) model driven by quasi-monochromatic noise (QMN) with a long basic period. The statistical character, the changing regularity and the parameter region of two intermittent period 1 spiking were similar. The results showed that the intermittent period 1 spiking might be induced by an oscillation similar to the QMN with a long basic period.

关键词

簇放电(Bursting); 阵发(Intermittent); 自发放电(Spontaneous discharge); 节律(Rhythm); 动作电位间期(Interspike intervals); 随机自共振(Autonomous stochastic resonance)