

基于小波变换的单次诱发电位信号时频分析

张佳华*、杨仲乐
中南民族大学生物医学工程研究所

比较小波变换和平均叠加两种方法提取“模拟自然阅读”刺激模式下的诱发电位信号，分析其时频特性，并进行脑功能源分布定位分析。结果显示，采用平均叠加法来提取和分析诱发电位信号，损失了某些重要的诱发电位成分，且其功能源分布定位反映的只是等效功能源的静态过程；而使用小波变换和脑功能源定位来提取和分析单次诱发电位信号，既能观察到丰富的诱发电位成分，又能反映脑功能源的实时动态活动过程。这表明，小波变换下的时频分析是脑电信号处理的一种可行的新方法。

TIME-FREQUENCY ANALYSIS OF SINGLE-SWEEP EVOKED POTENTIALS BASED ON WAVELET TRANSFORM

To estimate and analyze evoked potentials (EP) obtained from Imitation of Natural Reading stimulus paradigm, single-sweep EP based on wavelet transform was compared with averaged EP in time and frequency domain. And the localization of brain functional source was applied. The results showed that averaged EP might lose some essential components and the analysis of brain functional source localization could only reflect the static process of equivalent brain functional source. But single-sweep EP based on wavelet transform with the localization of brain functional source could obtain ample information of EP, and reflect real-time dynamic process of brain functional source. It suggested that time-frequency analysis of single-sweep EP based on wavelet transform is a new effective method processing electroencephalograph signal.

关键词