

论文

近红外光谱技术结合主成分分析法用于子宫内膜癌的诊断

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摘要:

应用近红外光谱技术结合化学计量学方法研究了子宫内膜癌组织近红外光谱特征提取和早期诊断的可行性. 测定了154例子官内膜组织切片的近红外光谱, 选取适宜的波段和光谱预处理方法进行主成分分析, 很好地区分了癌变、增生和正常子宫内膜组织切片, 并且分辨出处于不同分化期的组织切片, 为子宫内膜癌的早期诊断提供了可靠依据. 该法快速、简便, 有望发展成为一种新型的肿瘤无创诊断方法.

关键词: 子宫内膜癌; 近红外光谱; 主成分分析

Near Infrared Spectroscopy Combined with Principal Component Analysis Applied to Diagnosis of Endometrial Carcinoma

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Abstract:

The feasibility of near infrared(NIR) spectral feature extraction and early diagnosis of endometrial carcinoma were developed by chemometrics methods. Few papers have been reported about the studies on NIR spectra features of endometrial carcinoma so far. In this study, the NIR spectra of 154 specimens of endometrium were collected, and spectral data were analyzed by principal component analysis. In order to improve the classification, selection of wavelength range and spectral pretreatment methods were discussed. The results suggested that samples of malignant, hyperplasia and normal endometrium were classified correctly. Moreover, endometrium at various differentiation stages could also be identified, which provided reliable evidence for early diagnosis in endometrial carcinoma. This approach was proved to be rapid and convenient, which is able to be developed as a non-invasive diagnosis method for cancer.

Keywords: Endometrial carcinoma; Near infrared spectroscopy; Principal component analysis

收稿日期 2009-03-18 修回日期 网络版发布日期

DOI:

基金项目:

国家自然科学基金(批准号: 20875065, 30772322)资助.

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