

运用Logistic回归模型评价超声征象、造影模式等多因素在甲状腺结节良恶性鉴别诊断中的价值

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Title: Evaluation of multiple factors such as ultrasound sign and contrast mode in differential diagnosis of benign and malignant thyroid nodules using Logistic regression model

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摘要: 目的: 筛选出能够鉴别甲状腺结节良恶性的一般资料与部分二维声像图特征, 建立Logistic回归模型, 评价年龄、性别、甲状腺自身抗体、超声造影模式在甲状腺结节良恶性鉴别诊断中的价值。方法: 对总计153个结节的超声二维检查、超声造影增强模式结合对应患者的年龄、性别进行回顾性分析, 以病理结果为金标准, 建立回归模型。比较纳入方程中各变量的OR值以及方程的ROC曲线及其面积, 以评价回归模型的预测准确性及诊断价值。结果: 经过Logistic逐步回归分析, 共筛选出6个具有统计学意义的变量, 包括年龄、造影增强模式、结节内钙化、形态及回声、纵横比, 其中造影增强模式的OR值高于其他自变量。Logistic回归模型对甲状腺结节良恶性预报的准确率为91.5% (140/153), 敏感度为93.2%, 特异度为88.7%, 曲线下面积为0.970。结论: 本研究的Logistic回归模型可以较好的预测甲状腺恶性结节的可能性, 其中以超声造影增强模式具有优势, 联合患者年龄可对鉴别诊断甲状腺结节良恶性有重要临床意义。

Abstract: Objective: To screen out general information and partial two-dimensional sonographic features that can distinguish benign and malignant thyroid nodules, and establish Logistic regression model to evaluate the value of age, gender, thyroid autoantibodies and contrast-enhanced ultrasound in differential diagnosis of benign and malignant thyroid nodules. Methods: A total of 153 nodules by two-dimensional ultrasound examination, combined with contrast-enhanced ultrasound and corresponding patients' age and gender were retrospectively analyzed. The pathological results were used as gold standard to establish a regression model. The OR values of the variables included in the equation and the ROC curves and areas of the equations were compared to evaluate the prediction accuracy and diagnostic value of the regression model. Results: After Logistic stepwise regression analysis, six statistically significant variables were screened, including age, contrast enhancement mode, nodular calcification, morphology and echo, aspect ratio, of which the OR value of contrast enhancement mode was higher than other independent variables. The accuracy of the Logistic regression model for the prediction of benign and malignant thyroid nodules was 91.5% (140/153). The sensitivity was 93.2%. The specificity was 88.7%, and the area under the curve was 0.970. Conclusion: The Logistic regression model of this study can predict the possibility of malignant nodules in thyroid gland better. The contrast enhanced mode has the advantage. Combined with the age of the patient, it has important clinical significance for the differential diagnosis of benign and malignant thyroid nodules.

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