



初步建立中国人前列腺癌预测的数学模型

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Development of a Nomogram for Predicting Positive Initial Prostate Biopsy Among Chinese Patients

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摘要

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摘要 目的 建立中国人前列腺癌预测模型。方法 对556例疑似前列腺癌患者行前列腺穿刺活检,收集建立模型的变量:患者年龄、前列腺体积、前列腺特异性抗原(PSA)、游离PSA(f-PSA)/总PSA(t-PSA)。将变量通过逐步回归建立回归方程,在此基础上建立穿刺活检阳性的危险评分数学模型,并通过受试者工作曲线下面积来评估该模型的预测价值。结果 556例患者中,205例(36.87%)经前列腺穿刺活检证实为前列腺癌。单因素分析结果显示,患者的年龄、前列腺体积、血清PSA、f-PSA/t-PSA均为建立数学模型的影响因素。对受试者工作曲线的分析结果显示,所建模型的曲线下面积为0.8767,大于患者年龄、前列腺体积、PSA、f-PSA/t-PSA等单因素的0.6397、0.7255、0.7111、0.6973。结论 初步建立具有较高预测价值的前列腺癌预测模型。

关键词: 前列腺癌 数学模型 中国人 超声 前列腺特异性抗原

Abstract: Objective To develop a predictive nomogram for predicting the prostate carcinoma among Chinese population. Methods Totally 556 Chinese male patients who had undergone an initial prostate biopsy in our hospital from July 2004 to February 2009 were enrolled in this study. Variables including age, volume, prostate specific antigen (PSA) level, and free PSA(f-PSA)/total PSA(t-PSA) were collected. Logistic regression analysis was performed to estimate the relative risk. Regression equation was established for variables via stepwise regression, via which a nomogram for assessing the positive biopsy results was established, and then the predictive value of this nomogram was evaluated using receiver area under curve (ROC) analysis. Results Of these 556 patients, cancer was detected in 205 patients (36.87%) via biopsies. Univariate analysis showed that age, prostate volume, PSA levels, and f-PSA/t-PSA were the influencing factors of the nomogram. The risk model performed well in an independent sample, with an AUC ROC of 0.8767, which was significantly larger than that of the prediction based on age (AUC ROC: 0.6397), prostate volume (AUC ROC: 0.7255), PSA (AUC ROC: 0.7111), or f-PSA/t-PSA (AUCROC: 0.6973) alone. Conclusion A preliminary nomogram with high predictive value for Chinese population was successfully established.

Keywords: prostate carcinoma nomogram Chinese ultrasound prostate specific antigen

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