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64排螺旋CT对伴有钙化的冠状动脉狭窄诊断准确性的多中心研究

Diagnostic accuracy of 64-detector row CT in coronary artery stenosis caused by calcified coronary artery plaques: A multicenter study

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中文摘要:

评价64排螺旋CT在不同情况下对冠状动脉钙化病变所致狭窄的诊断准确性。方法 收集165例经CT冠状动脉成像(CTCA)检查发现冠状动脉钙化并至少1个主要分支狭窄>50%的患者,分别以个体、冠状动脉主支、节段、病变狭窄程度及钙化斑块形态为分析对象,测量Agatston积分(ACS)和狭窄率。以冠状动脉造影(CAG)作为标准,通过绘制ROC曲线来判定不同情况下CTCA的诊断价值并确定最佳的诊断切点。结果 以个体为分析对象,ROC曲线下面积为0.791,以ACS值113.5为切点时诊断准确性最高。以冠状动脉主支为分析对象,对右冠状动脉及其分支狭窄的诊断效果最佳,ROC曲线下面积为0.897。以冠状动脉节段为分析对象,对RCA1段狭窄诊断准确性最高,ROC曲线下面积为0.894。以钙化斑块形态为研究对象,ROC曲线下面积仅在0.601~0.667之间,诊断价值较低。CTCA对狭窄程度<50%的狭窄诊断价值较大,曲线下面积为0.856。结论 CTCA中,钙化对不同主支、不同节段及不同狭窄程度冠状动脉狭窄的诊断准确性影响不同;钙化斑块的形态不是影响诊断准确性的主要因素。

英文摘要:

Objective To evaluate the diagnostic accuracy of coronary artery stenosis caused by calcified coronary artery plaques with 64-detector row CT under different conditions. **Methods** Totally 165 patients with coronary artery calcification accompanied by one or more branches stenosis more than 50% detected with computed tomography coronary angiography (CTCA) were collected. The Agatston calcium score (ACS) and stenosis rate were calculated based on per-patient, per-vessel, per-segment, various stenosis degree and different morphology of calcification as the analysis object, respectively. The measurement results of coronary angiography (CAG) were taken as the gold standard. The diagnostic accuracy was evaluated with receiver operating characteristic (ROC) curves which were created to assess the diagnostic value and to determine the diagnostic cutoff level (threshold). **Results** When per-patient analyzed, the greatest diagnostic accuracy rate was obtained with ACS threshold of 113.5, and the area under curve (AUC) value of ROC was 0.791. With the analysis object of per-vessel, the greatest diagnostic accuracy rate was found in right coronary artery and its sub-branches, and the AUC value was 0.897. Per-segment analyzed, the highest accuracy rate was obtained in RCA1 segment, and the AUC value was 0.894. When the analysis object was the morphology of calcification, the range of AUC value was merely 0.601—0.667, while the diagnostic value was rather low. The highest accuracy of CTCA was obtained in stenosis less than 50%, and the AUC value was 0.856. **Conclusion** Coronary artery calcification has different influence on the diagnostic accuracy rate of coronary artery stenosis with CTCA in various situations. Moreover, the morphology of the calcification may not be the main impact factors of the diagnostic accuracy.

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