

超声弹性成像联合量化分级系统对糖尿病前期合并甲状腺结节良恶性鉴别诊断的价值

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Title: The value of ultrasound elastography combined with quantitative grading system in the comprehensive diagnosis of pre-diabetic patients with benign and malignant thyroid nodules

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摘要: 目的: 研究超声弹性成像 (UE) 联合量化分级系统对糖尿病前期合并良恶性甲状腺结节 (TN) 患者的综合诊断价值及胰岛素抵抗程度与UE和量化分级之间的关系。方法: 选取2015年3月至2017年3月于我院就诊的糖尿病前期合并TN患者190例。所有患者均依次进行UE以及超声量化分级检查, 并与手术病理诊断结果对比分析, 分别计算UE、超声量化分级以及两者综合诊断的灵敏度、特异度以及准确度, 并分析胰岛素抵抗程度与UE和量化分级之间的关系。结果: 良性结节UE评分为1分的人数占比为50.91% (56/110), 高于恶性结节的0.00% (0/80), 而评分为3分的人数占比为9.09% (10/110), 低于恶性结节的63.75% (51/80), 均具有统计学差异 (均 $P<0.05$)。良性结节超声量化分级系统分析结果为II级的人数占比高于恶性结节, 而III-IV级人数占比低于恶性结节组, 均具有统计学差异 (均 $P<0.05$)。综合法诊断良恶性TN的灵敏度、特异度以及准确度分别为94.55%、97.50%、95.79%, 均高于UE的81.82%、88.75%、84.74%以及超声量化分级的74.55%、77.50%、75.79%, 均具有统计学差异 (均 $P<0.05$); 良性甲状腺结节, 胰岛素抵抗指数与UE之间均存在正相关关系 ($r_s=0.871$, $P<0.05$), 胰岛素抵抗指数与量化分级之间存在正相关关系 ($r_s=0.883$, $P<0.05$); 恶性甲状腺结节, 胰岛素抵抗指数与UE之间均存在正相关关系 ($r_s=0.899$, $P<0.05$), 胰岛素抵抗指数与量化分级之间存在正相关关系 ($r_s=0.909$, $P<0.05$)。结论: UE联合量化分级系统诊断良恶性TN的灵敏度、特异度以及准确度均较高, 胰岛素抵抗和与甲状腺结节的发病是明显相关的, 随着胰岛素抵抗程度的增加, 甲状腺结节的UE分级及量化分级也随之增高, 恶性结节的可能性也越大。

Abstract: Objective: To study the value of ultrasound elastography (UE) combined with quantitative grading system in the comprehensive diagnosis of pre-diabetic patients with benign and malignant thyroid nodules (TN) and the relationship between the degree of insulin resistance and UE and quantitative grading. Methods: 190 patients with pre-diabetes mellitus complicated with TN were selected from March 2015 to March 2017. All patients were examined by UE and ultrasound quantitative grading, and compared with the results of pathological diagnosis. The sensitivity, specificity and accuracy of UE, ultrasound quantitative grading and their comprehensive diagnosis were calculated, and the relationship between the degree of insulin resistance and UE and quantitative grading was analyzed. Results: The percent of benign nodules UE score for 1 was 50.91% (56/110), higher than that of malignant nodules was 0.00% (0/80). Percent for 3 scores was 9.09% (10/110), lower than the control group 63.75% (51/80). All had significant differences (all $P<0.05$). The number of benign nodules ultrasonographic quantitative grading system analysis results for level II higher than the number of malignant nodules, and III-IV class number was less than malignant nodules group, with significant differences (all $P<0.05$). In synthetic method for diagnosis of benign and malignant thyroid nodules, the sensitivity, specificity and accuracy were 94.55%, 97.50%, 95.79%, which were higher than 81.82%, 88.75%, 84.74% of ultrasound elasticity imaging and ultrasonic quantitative classification of 74.55%, 77.50%, 75.79%,

with significant differences ($P < 0.05$). For benign thyroid nodules, there was a positive correlation between insulin resistance index and UE ($r_s = 0.871$, $P < 0.05$), and there was a positive correlation between insulin resistance index and quantitative classification ($r_s = 0.883$, $P < 0.05$). In malignant thyroid nodules, there was a positive correlation between insulin resistance index and UE ($r_s = 0.899$, $P < 0.05$). There was a positive correlation between insulin resistance index and quantitative classification ($r_s = 0.909$, $P < 0.05$). Conclusion: Ultrasound elastography in combination with quantitative classification system in the diagnosis of benign and malignant thyroid nodules has higher sensitivity, specificity and accuracy. Insulin resistance and the incidence of thyroid nodules are significantly related. With the increase of insulin resistance, the UE classification and quantitative classification of thyroid nodules also increase, and the likelihood of malignant nodules also increases.

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