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双能CT血管成像虚拟平扫对评价蛛网膜下腔出血的应用价值

郭 兴,丁 伟,秦慧娟*

长治医学院 附属和平医院影像科，山西长治 046000

Application of Virtual Non enhanced Images in Evaluating Subarachnoid Hemorrhage by Dual energy Computed Tomography Angiography

GUO Xing, DING Wei, QIN Hui-juan*

Department of Radiology, Peace Hospital, Changzhi Medical College, Changzhi, Shanxi 046000, China

摘要 参考文献 相关文章

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摘要 目的 探讨虚拟平扫技术在头部扫描应用的可行性，及对评价自发性蛛网膜下腔出血的应用价值。方法为探明发病原因，对43例自发性蛛网膜下腔出血患者行双能CT扫描并行CT血管成像,使用Liver VNC处理程序，经参数调整，对双能扫描图像进行处理，使用配对t检验对虚拟平扫图像和常规平扫图像信噪比进行对照，以常规平扫图像为金标准计算使用虚拟平扫图像诊断蛛网膜下腔出血的准确性，对虚拟平扫图像是否满足诊断要求做出质量评分。结果虚拟平扫的信噪比（3.96±0.52）明显低于常规平扫（8.63±0.53）（ t=43.18，P =0.000）。虚拟平扫诊断蛛网膜下腔出血的敏感度、特异度、准确度以患者为单位分别为:97.05%、100%、97.67%，以病灶为单位分别为:94.64%、 100%、98.97%。在是否满足评价要求的质量评分中，得3分6例、2分27例、1分2例。结论虚拟平扫图像相对常规平扫图像具有较强的噪声，但能够满足诊断要求，对蛛网膜下腔出血的评价具有较高的准确性。

关键词： 双能CT 蛛网膜下腔出血 虚拟影像

Abstract: Objective To investigate the feasibility of virtual non-enhanced images in evaluating the spontaneous subarachnoid hemorrhage (SAH) by dual-energy computed tomography angiography. MethodsDual-energy computed tomography angiography was performed in 43 SAH patients.Virtual non-enhanced images were obtained by using Liver VNC software. paired*t*-test was performed to compare the signal to noise ratio between the conventional plain scan and virtual non-enhanced images. Diagnostic accuracy for SAH by virtual non-enhanced imags was calculated by using the conventional plain scan images as a gold standard. Quality score was calculated to evaluate whether virtual non-enhanced images can meet the imaging requirements of SAH. ResultsThe signal to noise ratio was 8.63±0.53 among plain scan images and 3.96±0.52 among virtual non-enhanced images (*t*=43.18,*P*=0.000) . The sensitivity, specificity, and accuracy of virtual non-enhanced imaging in diagnosing the SAH were 97.05%, 100%, and 97.67% in per-patient analysis, and were 94.64%, 100%, and 98.97% in per-lesion analysis. The quality scores were 3 in six patients, 2 in 27 patients, and 1 in two patients. ConclusionsVirtual non-enhanced images can meet the clinical requirements of diagnosis, althought it has more intensive noise than conventional plain scan images. Furthermore, it has higher accuracy in evaluating SAH.

Keywords: dual-energy computed tomography subarachnoid hemorrhage virtual imaging

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Corresponding Authors: 郭兴 Email: gxlyr910@sina.com

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