

论文

双源CT双能量肺动脉成像在肺动脉栓塞中的应用

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摘要:

目的 探讨双源CT双能量肺动脉血管成像在肺动脉栓塞诊断中的应用价值。方法 20例怀疑肺动脉栓塞患者行双能量肺动脉血管成像(A组), 获得140kV、80kV及两者融合的3组横断面原始图像, 将140?kV和80?kV两组图像输入双能量后处理软件(DE), 获得DE灌注图像(DEPI); 将融合图像输入三维软件获得血管MPR图像(V-MPR), 分析DEPI与V-MPR直接显示栓子的差别及二者结合的优势; 回顾分析另16例已确诊肺动脉栓塞患者64层螺旋CT胸部CTA图像(B组), 由2位医师对2组血管MPR图像质量进行肉眼观察评价。结果 肉眼观察A组与B组图像质量、DEPI与V-MPR图直接显示肺动脉干及叶肺动脉内栓子差异均不明显, 直接显示段及亚段肺动脉内栓子差异显著; DEPI中肺动脉干、叶动脉及部分段肺动脉内栓子均引起低灌注区, 其余段及亚段肺动脉内栓子未见明显灌注改变。结论 DSCT双能量肺动脉血管成像能清晰显示栓子, 与64层螺旋CT图像质量无差别, 可同时对接塞后肺组织的血流进行评价。

关键词: 灌注; 肺栓塞; 体层摄影术, X线计算机; 双源CT

Application of dual energy pulmonary angiography with dual-energy CT in pulmonary embolism

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Abstract:

Objective To assess the value of dual energy pulmonary angiography (DECTPA) with dual-source CT (DSCT) in pulmonary embolism (PE). Methods Twenty patients (group A) suspected of PE underwent DECTPA with DSCT in dual energy mode attube voltages of 140 and 80?kV, and three kinds of axial images were acquired, which were 80kV, 140kV and merged images. The dual energy lung perfusion image (DEPI) was generated through dual energy software (using 140kV and 80kV images), while vascular multi-planar reformation (V-MPR) images were generated through DECT 3D software (using merged images). The difference in directly showing emboli by using DEPI and V-MPR and the advantage of DEPI combined with V-MPR were analyzed. Another sixteen cases (group B) of PE of thorax CTA with 64 slice spiral CTwere reviewed retrospectively. Image quality of the two groups was independently evaluated by two radiologists who were skilled in image post processing. Results 1) There was no difference in image quality between the two groups. (2) There was no difference in directly detecting emboli of pulmonary artery trunks and lobar arteries, but there was a difference in directly detecting emboli of segmental and sub-segmental arteries. (3) In DEPI, emboli of pulmonary artery trunks, lobar arteries and partial segmental arteries resulted in perfusion defect of lung tissue, while other segmental and sub-segmental arteries did not result in perfusion defect. Conclusion DECTPA can show emboli as clearly as 64 slice spiral CT does in pulmonary embolism, and it can also assess blood perfusion of injured lung -tissue.

Keywords: Perfusion; Pulmonary embolism; Tomography, X-ray computed; Dual-source CT

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