智能最佳管电压扫描联合自动管电流调节技术降低成人胸部**CT**扫描辐射剂量

CARE kV combined with CARE Dose 4D techniques for decreasing radiation dose of chest CT scanning in adult

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中文摘要：

　　目的　探讨智能最佳管电压扫描(CARE kV)联合自动管电流调节(CARE Dose 4D)技术降低胸部CT扫描辐射剂量的价值。方法　将114例接受胸部CT检查的患者随机分为2组,A组(50例)同时开启CARE Dose 4D及CARE kV,B组(64例)只开启CARE Dose 4D进行扫描,比较2组图像质量(平均CT值、噪声、SNR、CNR、主观评分等)及辐射剂量。结果　与B组相比,A组CT剂量加权指数(CTDIvol)减少约30.29%,剂量长度乘积(DLP)减少约30.41%,有效剂量(ED)减少约30.36%(P均<0.05)。A组图像噪声高于B组,差异有统计学意义(P<0.05),而2组平扫、增强图像除B组脊柱后方肌肉SNR高于A组(P<0.05)外,平均CT值、SNR、CNR差异均无统计学意义(P均>0.05),图像质量评分均在4.5分以上,病变检出率差异无统计学意义(P均>0.05)。结论　胸部CT扫描时,联合使用CARE kV和CARE Dose 4D技术,可获得优质图像,并降低辐射剂量。

英文摘要：

Objective To explore the value of CARE kV combined with CARE Dose 4D techniques in decreasing radiation dose of adult chest CT scanning. **Methods** Totally 114 patients underwent chest CT scanning were divided into two groups randomly. Patients in group A (n=50) underwent chest CT scanning with CARE kV combined CARE Dose 4D techniques, while in group B (n=64) underwent chest CT scanning with CARE Dose 4D technique. The imaging quality (mean CT value, noise, SNR, CNR, scores and so on) and radiation dose between the two groups were compared, respectively. **Results** Compared with group B, the average volume CT dose index (CTDIvol) in group A decreased by 30.29%, dose length product (DLP) decreased by 30.41%, and effective dose (ED) decreased by 30.36% (all P<0.05). The image noise in group A was higher than that in group B. SNR, CNR, mean CT values, enhanced CT value in ascending aorta, pulmonary artery and muscles trunk were not statistically different between the two groups (all P>0.05), except SNR on the muscles trunk in group B was higher than that in group A (P<0.05). The scores of image quality were all over 4.5, and the difference of lesion detection rate had no statistically significant between the two groups(all P>0.05). **Conclusion** In chest CT scanning, CARE kV combined with CARE Dose 4D techniques not only promises high quality images, but also decreases radiation dose.

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