

史卓,宋俊峰,刘金启,于瑞海,赵心明.床旁CR摄影的参数选择与主动防护[J].中国医学影像技术,2012,28(7):1392~1395

床旁CR摄影的参数选择与主动防护

Parameter selection and radiation protection of bedside CR

投稿时间: 2011-11-03 最后修改时间: 2012-03-18

DOI:

中文关键词: [放射学](#) [放射剂量](#) [放射防护](#)

英文关键词: [Radiology](#) [Radiation dosage](#) [Radiation protection](#)

基金项目:

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中文摘要:

目的 定性模拟测量受检者的吸收剂量以及陪伴者、相邻患者、工作人员散射辐射剂量。方法 选择4组曝光指数差异无统计学意义、管电压逐渐升高的摄影条件进行测试;同时1B巡测仪测量距水模边缘50、150、325 cm三点和与射线束垂直的距X线管焦点150、330、430 cm三点的散射辐射剂量;用RTI巴拉库达测试仪分别单次测量水模前、后的辐射剂量,水方的测试点剂量数值基本相同时,测算水模前的入射空气比释动能,并计算出水模吸收剂量。结果 4组摄影条件下的图像质量无统计学差异,且满足临床医师对床旁摄影检查的诊断需求。射线到达IP板剂量基本相同时,模拟陪伴者和操作人员的测试点散射辐射剂量随摄影设置的管电压上升而增加;模体前空气比释动能数值和模体吸收剂量随管电压增加而减少,随焦-片距D的增加而减少。结论 随X线能量改变,受检者吸收剂量,陪伴者、相邻患者以及工作人员散射辐射剂量随之发生相应变化。在床旁摄影过程中,需考虑优先保护参与者。

英文摘要:

Objective To qualitatively explore the absorption dosage of the examinee and the accompanier, neighbors, staff, as well as the dosage of scattering line in the bedside radiography process. **Method** test was done in 4 groups, of which the exposure indexes were indiscrimination, while the tube voltage value increased gradually. The 451B survey meter was used to test two groups' scatter radiation dosage, one group was apart from the water model's edge 50, 150, 325 cm, and the other group was vertical with the X-ray, parallel with the machine's focus point 150, 330, 430 cm. Then the RTI Barracuda tester was used to measure the kerma in front the water model, while the dosage after the water model was identical, and finally the model's absorbed value was calculated. **Results** The image quality under 4 groups of radiography condition were not statistically different, all could satisfy the clinician's needs. The main X-ray reached IP with the same dosage, the companion points' scatter radiation dose increased while the tube voltage value increased, but the model's front kerma and its absorbed dose decreased while tube voltage increased, and the source-image receptor distance was prolonged. **Conclusion** Because of the changes of photography energy, the absorption dosage of subjects, the scattering line radiation dose of accompany person, the neighboring patients and staff ch accordingly. In the bedside radiography process, protection of participants need to be considered in priority.

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