OPTIMIZED RADIO-DIAGNOSTIC WORK-UP OF ER-PATIENTS COMBINING WHOLE BODY MULTISLICE CT AND A NEW PATIENT TRANSFER BOARD ("CRITICAL CARE BOARD")

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PURPOSE

The availability of MultiSlice CT has reduced the actual scan time to a minimum, rarely exceeding 60 seconds per body region. "Whole body" scans including intermittent patient repositioning and intravenous contrast enhancement now can be performed within 5 to 10 minutes. Rather than data collection, patient transfer and positioning has become a rate limiting step particularly for polytraumatized ER-patients. To speed transfer to and positioning onto the CT table, we developed and evaluated a new transfer board ("critical care board" / "CCB"), enabling "en-bloc"-transfer of patient and life-support equipment.

MATERIALS AND METHODS

To facilitate patient transfer and positioning procedures the CCB was equipped with specific holding devices, enabling the "en-bloc"-transfer of patient and monitoring / life-support equipment (IV-bags, respirator, perfusors etc). To determine the advantages the CCB was assessed on 50 acute trauma-patients. Those were placed on the CCB directly in the ER including controlled arrangement of all necessary equipment, and then transferred to the CT room, where they underwent whole body CT examination. Transfer-times between patient arrival in the ER and completing of the radiological diagnostic procedures were measured and compared to those determined in a population of 50 acute trauma patients examined without the CCB. With arms placed beside the body the CT examination commenced with scans of the skull and the neurocranium (a) and of the cervical spine (b). Then the arms were repositioned above the head; after subsequent administration of an intravenous contrast agent the examination proceeded with scans of the thorax and the upper abdomen in an arterial phase (c) and finally of the entire abdomen and the pelvis in a venous phase (d).

RESULTS

The CCB enabled the "en-bloc transfer of ER-/ICU-patients and support equipment. The handling of the CCB was easy, intuitive and safe. It had no adverse effect on X-ray and CT image quality. Transit-times between arrival of trauma patients in the ER and completing the radiological diagnostic procedures including CT were reduced from an average of 39 to 33 minutes (15 %, $p<0.05$). The isolated in-room-times in the CT were reduced from an average of 18 to 14 minutes (22 %, $p<0.05$). The acceptance by the medical staff was high.

CONCLUSION

The CCB is a simple device capable of significantly shortening patient transfer and positioning times. It accelerates the diagnostic management of ER-patients and increases CT patient throughput.