The purpose of this study was to reduce radiation exposure during pediatric central venous line (CVL) placement by implementing a radiation safety process including a radiation safety briefing and a job-instruction model with a preradiation time-out” Choi et al (2018).

Abstract:

PURPOSE: The purpose of this study was to reduce radiation exposure during pediatric central venous line (CVL) placement by implementing a radiation safety process including a radiation safety briefing and a job-instruction model with a preradiation time-out.

METHODS: We reviewed records of all patients under 21 who underwent CVL placement in the operating room covering 22 months before the intervention through 10 months after 2013-2016. The intervention consisted of a radiation safety briefing by the surgeon to the intraoperative staff before each case and a radiation safety time-out. We measured and analyzed the dose area product (DAP), total radiation time pre- and postintervention, and the use of postprocedural chest radiograph.

RESULTS: 100 patients with valid DAP measurements were identified for analysis (59 preintervention, 41 postintervention). Following implementation of the radiation safety process, there was a 79% decrease in median DAP (61.4 vs 13.1 rad*cm², P < 0.001) and a 73% decrease in the median radiation time (28 vs 7.6 s, P < 0.001). Additionally, there was a significant reduction in use of confirmatory CXR (95% vs 15%, P < 0.01). CONCLUSION: A preoperative radiation safety briefing and a radiation safety time-out supported by a job-instruction model were effective in significantly lowering the absorbed doses of radiation in children undergoing CVL insertion. TYPE OF STUDY: Case-control study. LEVEL OF EVIDENCE: Level III.

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