

A Quality Improvement Initiative to Reduce Fluoroscopic Radiation Exposure During Cervical Medial Branch Blocks

Rubela Ray, MD; Kristina Patel, MD

Introduction

Cervical medial branch blocks are commonly performed procedures with rising concerns about cumulative radiation exposure to both patients and providers. This quality improvement (QI) project aimed to evaluate the impact of a standardized fluoroscopy protocol—including low-dose settings and collimation—on total radiation dose without compromising clinical efficacy.

Case Description

A retrospective cohort study compared procedural fluoroscopy time and dose-area product (DAP) between 50 consecutive cervical medial branch blocks performed before the protocol (Standard Group) and 50 after implementation (Intervention Group). Pain relief at 1-week follow-up was recorded using the Numerical Rating Scale (NRS). Statistical comparison employed Wilcoxon rank-sum tests for DAP and Mann–Whitney U for pain scores.

Results

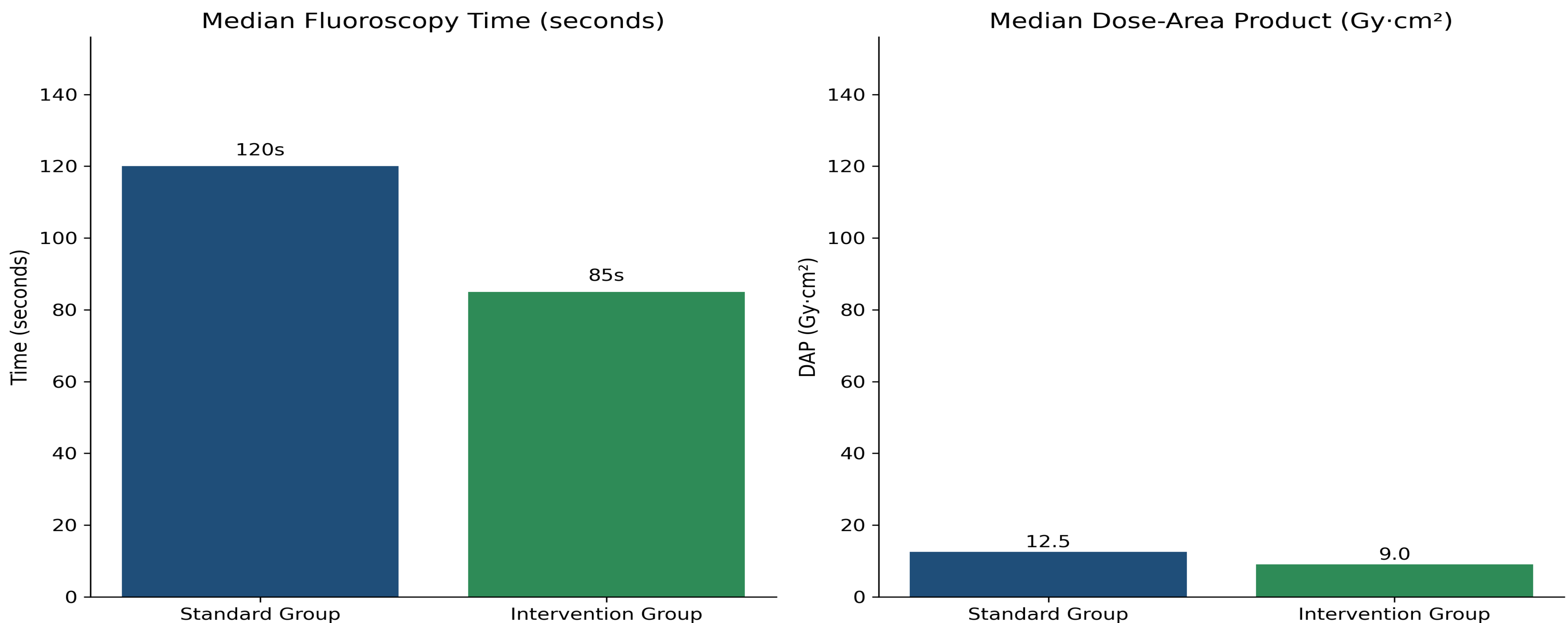
- Median fluoroscopy time decreased from 120 seconds (IQR 100–140) to 85 seconds (IQR 70–110) with protocol use, representing a 29% reduction ($p < 0.001$).
- Median DAP dropped from 12.5 Gy·cm² to 9.0 Gy·cm² (-28%, $p < 0.001$).
- Pain relief ($\geq 50\%$ NRS reduction) occurred in 82% of patients in both groups ($p = 0.87$), indicating no compromise in clinical effectiveness.

Discussion

Implementation of a standardized low-dose protocol significantly reduced radiation exposure during cervical medial branch blocks without impacting therapeutic outcomes. These findings support best practices for radiation safety and may be easily integrated across pain practices to enhance clinician and patient protection.

Conclusions

A standardized fluoroscopy protocol can substantially reduce radiation exposure in cervical medial branch blocks while maintaining clinical efficacy. Adoption of such protocols is recommended to improve safety for both patients and providers.



Contact

Rubela Ray, MD

Email: ray_rubela@yahoo.com