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Summary

IMPLEMENTATION OF A BEHAVIOURAL RADIATION REDUCTION PROTOCOL FOR ENDOSCOPISTS AND RADIOGRAPHERS TO ACHIEVE THE LOWEST REPORTED DOSE AT ERCP

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A standardized fluoroscopy protocol involving optimized equipment settings, patient positioning, and communication between endoscopists and radiographers reduced median radiation dose by 75% during ERCP procedures.

KEY POINTS

- The intervention reduced median Air Kerma from 5.27 mGy to 1.33 mGy and median dose area product from 1.35 Gy.cm^2 to 0.33 Gy.cm^2, both statistically significant reductions of 75% ($p<0.0001$).
- Median fluoroscopy time improved by 41%, from 42 seconds to 24 seconds ($p<0.0001$), and the diagnostic reference level for fluoroscopy time under protocol conditions was 38 seconds.
- The protocol achieved a dose area product diagnostic reference level of 0.79 Gy.cm^2, which the authors describe as the world's lowest, compared to international reference levels of 3-40 Gy.cm^2.
- The protocol minimized the negative influence of sphincteroplasty, malignancy, and individual endoscopist variability on radiation doses that had been identified in pre-intervention multivariate analysis.
- The study was conducted over 10 months with 274 successful ERCPs using the same equipment and core group of surgeon-endoscopists; the authors conclude the protocol is easy to adopt and applicable to any ERCP environment.

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