

Retrospective Analysis of X-Ray Usage in Vascular Access Procedures

Authors: Daniel Derylo, F. Qureshi, M. Derylo

Affiliation: *Vascular Access Centers of Illinois*

Purpose:

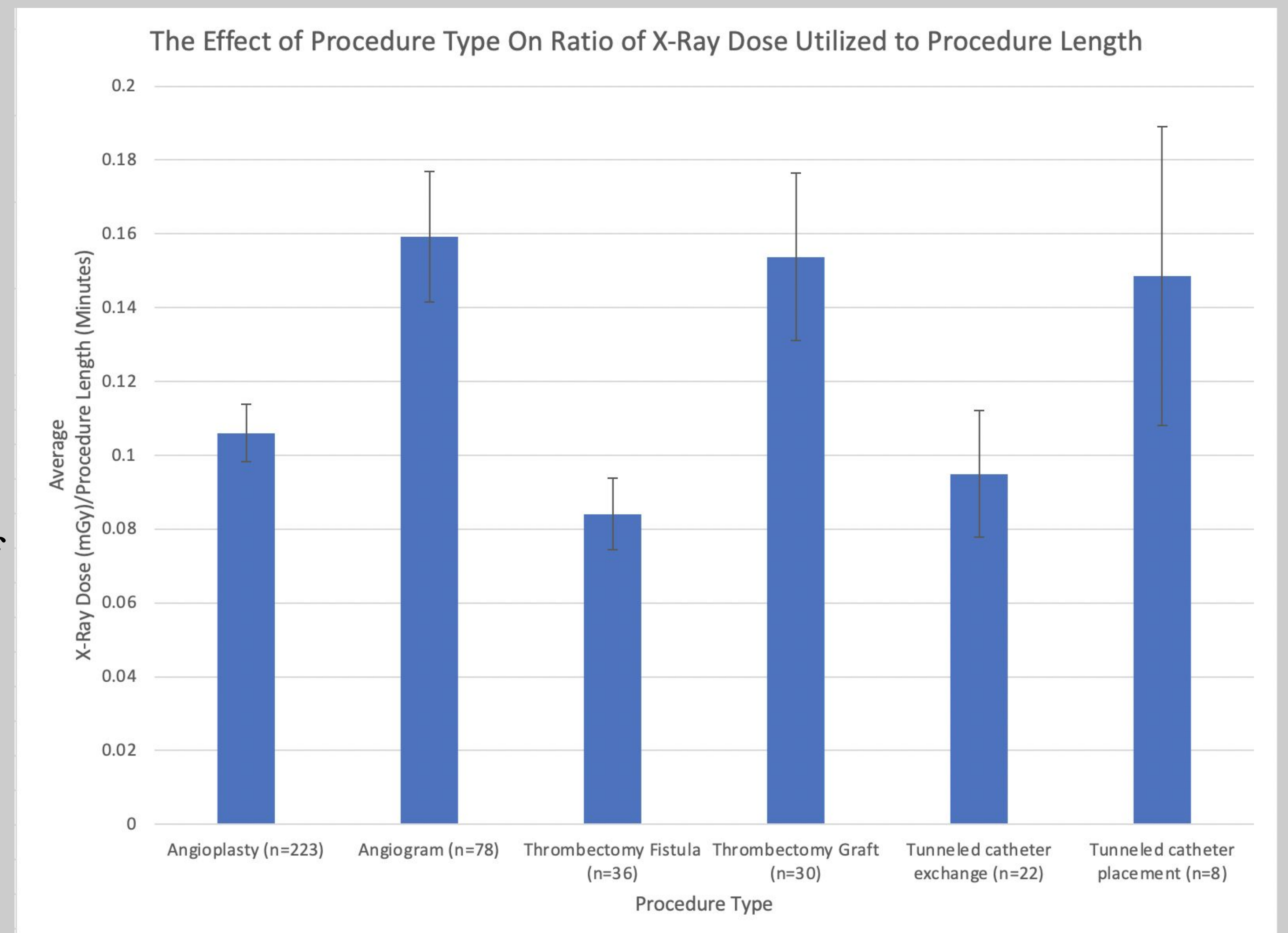
To determine if differing interventional procedure types result in any noticeable differences in the amount of radiation released from the C-Arm per unit of time.

Background:

This study utilizes radiation data from the procedures conducted by a single interventionalist over the span of 4 months, from 8/29/20 to 12/29/20. 397 procedures were analyzed altogether, including angioplasties (n=223), angiograms (n=78), thrombectomies of the fistula (n=36), thrombectomies of the graft (n=30), tunneled catheter exchanges (n=22), and de-novo tunneled catheter placements (n=8). These procedures were all performed on a C-Arm with a maximum frame rate setting of 4 fps. To conduct this study, the ratio X-Ray dose in milligray (mGy) to procedure length in minutes was calculated for each procedure. The means of these ratios were then obtained for each procedure type, resulting in an average radiation dose (mGy) to procedure length (min) values for each procedure type.

Results:

The average ratios of radiation dose (mGy) to procedure length (min) with standard error of mean bars are presented in the bar graph below.



Conclusion:

The study reveals that certain procedure types, such as plain angiograms and thrombectomies of AVG have higher average ratios of radiation dose to procedure time in our setting. This analysis may prompt interventionalists to be more conscious of C-Arm usage for certain procedures that tend to result in greater radiation exposure.