Evaluation of patient dose in cardio angiography procedures in Shahid madani hospital, Tabriz, IRAN

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Introduction

• High radiation dose can be delivered to patients during prolonged coronary interventional procedures.

• Interventional cardiology procedures usually consists of fluoro Angiography and Angioplasty and cine Angiography during a general Cardiovascular diagnostic and treatment procedures.
Material & Methods

- A mono-plan flat detector-based angiography system (Philips, BH3000) was used in this study.
- To check the accuracy of time, tube voltage and Dose-area product (DAP) provided by systems, the Diadose (PTW-Freiburg, Germany) dosimeter was used.
Material & Methods

- 236 patients doses in terms of Dose area Product (DAP) was recorded using the angiography system provided data at the end of examination for two techniques of fluoro-angiography and cine-angiography.
Results

• The average DAPs of 23.7 and 91.5 Gy cm$^2$ were estimated for angiography and angioplasty, respectively.

• Average Patient doses for angiography including fluoroscopy, cine acquisition and total dose for angiography were 2, 7.7 and 3.8 times lower than angioplasty procedures, respectively.
Frequency distributions of total patient dose during coronary angiography procedures

(a) Cine-acquisition

(b) Fluoroscopy
Frequency distributions of total patient dose during coronary angiography procedures

[c] Total dose for angiography  
[d] Time of Fluoroscopy
Frequency distributions of total patient dose during coronary angioplasty procedures.

a) Cine-acquisition

b) Fluoroscopy
Frequency distributions of total patient dose during coronary angioplasty procedures.

**c) Total dose for angioplasty**

**d) Time of Fluoroscopy**
Conclusion

The dose of patients during angioplasty procedures was higher compared to other reports. To reduce patient dose, use of the lowest available frame rate, smallest field size are recommended.