

A national approach of reference level in some routine angiography procedures in Iran

**B. Fasaei^{*1}, R. Paydar¹, N. Ahmadi Jeshvaghane¹, H.R. Khosravi^{1,2}, A.Rashidi¹,
M.R. Deevband¹, A. Karamloo¹, A. pakniat¹, A.Bitarafan Rajabi³**

¹ National radiation Protection Department, Iranian Nuclear Regulatory Authority, Tehran, Iran

² Nuclear Science Research School, Nuclear Science and Technology Research Institute, Tehran-Iran

³Rajae Heart Hospital, Tehran-Iran

****Presenting author: fasaeipbf@yahoo.com***

INTRODUCTION

- Increasing number of procedures are being performed using X-rays to guide interventions in the body. X-rays are used to continuously monitor the process resulting in prolonged exposure sometimes of the order of hour or more. Repeated procedures on the same patient have been responsible for radiation exposure reaching the level of deterministic effects. Initially it was cardiologists but now urologist, gastroenterologists, neurologists, anesthetists are performing interventional procedures.
- It is imperative that close watch is put on cases with potential to have deterministic effects such as those undergoing therapeutic interventions like angioplasty etc.

Purpose

- Evaluation of dose area product (DAP) in interventional procedures is one of the most important issues for assessment of the patient and occupational exposures. This work carried out according to method of Task 1 under IAEA project.

Method

- In this study, 3455 adult patients were monitored at one of the most important central cardiac intervention hospital in Iran. DAP value of patients and Fluoroscopic Time (FT) were recorded by Physicists of center during 6 month (Aug 2009-Jan 2010). This information were measured by calibrated DAP meter of angiography equipments. Different procedures were studied such as CAD (Coronary artery disease), PDA (Patent Ductus Arteriosus), ASD (Atrial Septal Defect) and PTMC (Percutaneous Transluminal Mitral Commissurotomy).

Results

- The average of DAP value and FT for each procedure is presented in figure 1 and figure 2 respectively. Maximum and minimum DAP value and FT were measured in PDA and CAD procedure respectively. The national reference level for CAD, PDA, ASD and PTMC procedures were suggested equal to 36.5, 183, 86.2 and 70.3 Gy.cm² respectively

**Fig1: The average of DAP (cGy.cm2)
for some routine procedures**

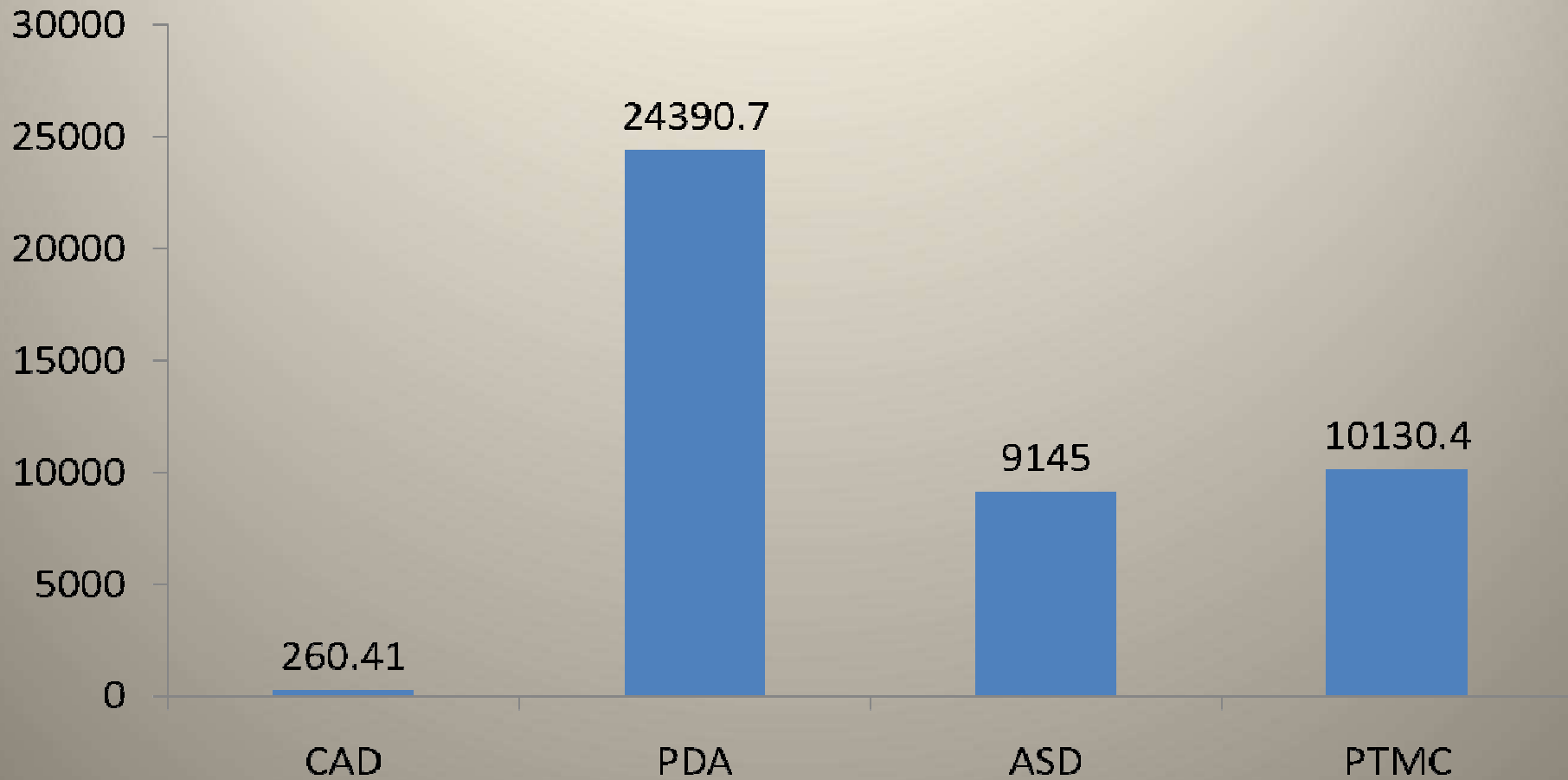
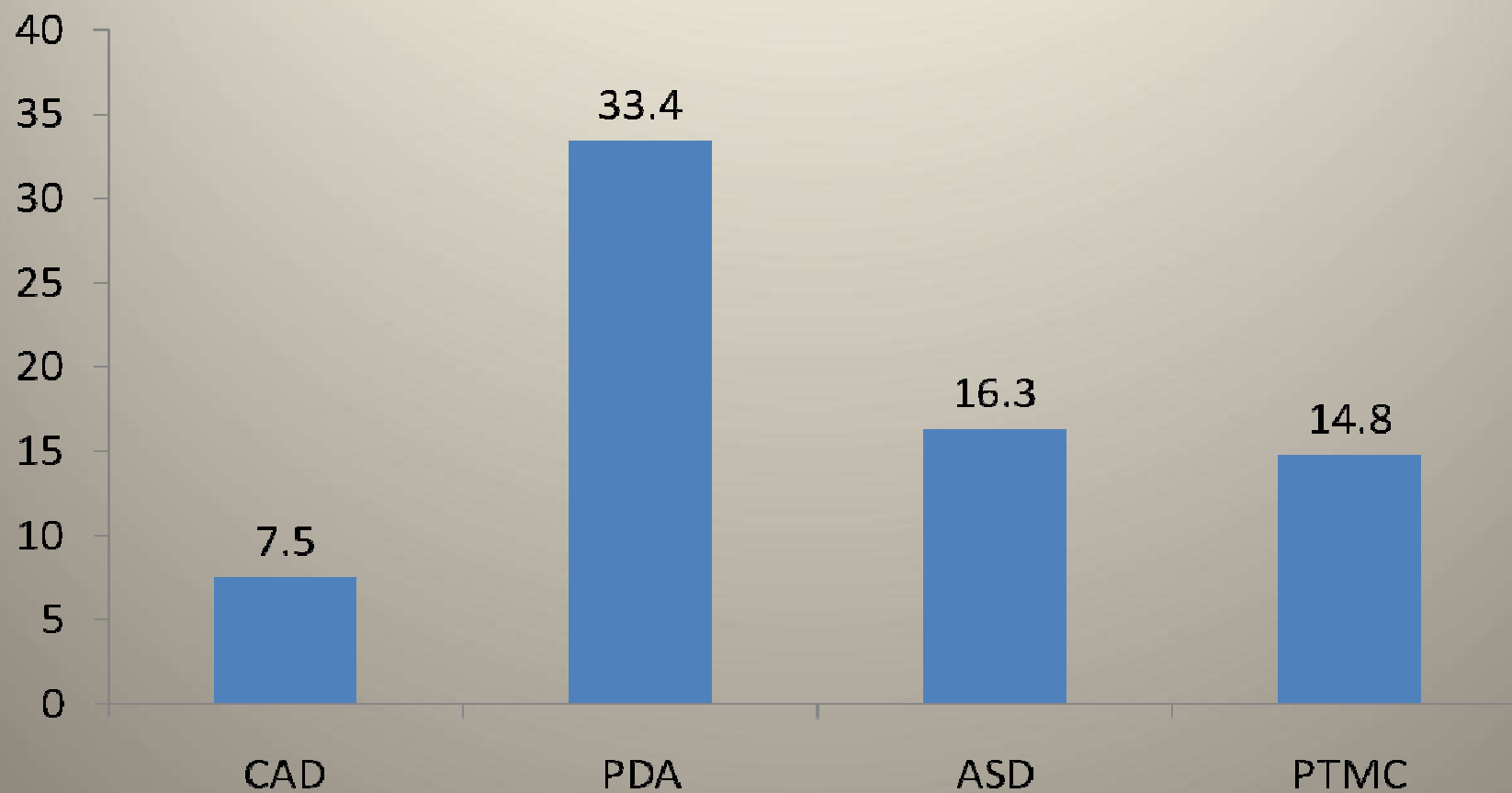


Fig2: The average of FT (min) for some routine procedures



Conclusions

- This is the first study to evaluate patient dose according to DAP and FT in Iran. In fact it is needed to carry out comprehensive study for extraction of national guidance levels for all interventional procedures in Iran. Obviously, it is possible to reduce the patient dose with Q.C. of angiography equipment, training, optimization.