Purpose:

Imaging is one of the most important methods to diagnose cardiovascular and especially coronary artery diseases. The advent of multislice CT in recent years has made new capabilities for medical imaging. Coronary CT angiography as a new imaging method is performed with these devices. Despite of many advantages with it, patients absorbed dose is relatively high in coronary CT angiography, Then study on various aspects of absorbed dose to patients seems to be necessary. The aim of this study was to evaluate absorbed dose to patient's skin, thyroid and eye during coronary CT angiography and to compare it with the same organ doses in conventional angiography.

Methods:

A number of 67 patients referring to Isfahan's Azzahra(s) and Sina hospitals for coronary CT angiography imaging were investigated to evaluate absorbed dose to their skin, thyroid and eyes. Organs absorbed dose was obtained via measurement by TLD. One pair GR-200 type TLDs were used for each organ dose measurement. TLDS were calibrated using Co 60 source before measuring. Absorbed dose to each organ considered to be as average of TLDs readout. Coronary CT angiography was performed either by 64 rows detectors CT lightspeed VCT in Azzahra(s) or Philips model in Sina hospitals.

Results:

The average of absorbed dose to skin, thyroid and eye during coronary CT angiography was 8.32± 1.73, 2.06± 1.68 and 0.3± 0.16 cGy, respectively. Absorbed dose to the same organs during conventional coronary angiography was 6.64± 9.30, 0.15± 0.17 and 0.03± 0.03 cGy, respectively. There is a significant differences in absorbed dose to these organs between coronary CT angiography and conventional angiography(p<0.001). absorbed dose to skin ranges between 5.15-12.22 cGy for CT angiography and between 0.07-39 cGy in conventional angiography.

Conclusions:

Absorbed dose to skin is higher than two other organs(thyroid and eye) due to direct irradiation. There is a significant variation in absorbed dose to skin for both CT and conventional angiography and it is greater for conventional angiography. Absorbed dose to organs is higher for CT angiography rather than conventional angiography. Radiation absorbed dose depends on various imaging selected parameters such as kVp and mAs, then, technicians play an important role on it. To decrease adsorbed dose to patients as low as possible they must be educated very well and implement what have learned in practice.