Coronary CT Radiation Reduction - The Lehigh Valley Health Network Experience

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**Background**

Efforts to reduce radiation exposure in medical imaging are underway nationwide and has become a large focus for our institution.

Cardiac computed tomography (CCT) is an important method employed for noninvasive coronary artery assessment.

Several dose reduction strategies have been recently developed to reduce radiation exposure with variable success.

We sought to evaluate the effect of iterative reconstruction (IR) and prospective gating (PG) compared with traditional filtered back projection (FBP) to reduce radiation exposure.

**Methods**

Consecutive patients referred for CCT between Jan 2010 to July 2011 at our facility were included.

Radiation reduction methods for each patient were recorded.

Dose-length product was recorded for each patient and the effective radiation dose in millisieverts (mSv) was calculated.

**Results**

85 patients were identified, 65% male, 35% female) Mean and median radiation dose were 13.36±7.21 mSv and 13.24(8.5-15.7) mSv.

Mean radiation exposure by FBP=17.85 ±6.87, IR without PG=10.77±3.54 mSv, IR with PG=4.33±1.51 mSv.

A significant radiation reduction was observed when comparing FBP with IR without PG (p=<0.0001) and IR with PG (p=<0.0001).

The median radiation doses per month at our center decreased from 15.52(13.38-20.04) to 3.93(3.41-5.16) mSv over the duration of the study enrollment with increased use of prospective gating and iterative reconstruction techniques.

**Conclusions**

Radiation reduction techniques have resulted in significantly reduced radiation exposure during CCT at our facility.

IR in combination with PG results in substantial reduction in radiation, improved patient care and enhanced clinical utility of CCT.