

Low Dose Cardiac CT- Can We Routinely Achieve The Very Low Radiation Doses That Are Reported

John Hoe

Mt Elizabeth Hospital, Singapore

Over the past few years radiation doses associated with cardiac CT have been dramatically reduced and submSv scans are commonly reported .The reduction in doses is due to several factors but mainly due to use of lower kVp, scanning during very short range of the R-R interval during diastole using prospective ECG gating, availability of Iterative reconstruction (IR) of data by CT scanner vendors. IR ,which can be model based or based on hybrid techniques, is a method of computer based reconstruction of acquired scan data that reduces doses by allowing lower mAs to be used ,and the resultant noisy images are reconstructed as less noisy images .

However in daily clinical practice ,doses vary widely between sites .Very often betablockers are not used and this results in need for larger scanning range in R-R interval and higher doses. Ectopics, arrhythmias and atrial fibrillation are also very common and scans acquired will result in a higher radiation dose .Many sites also have not updated their CT scanners to higher end scanners and do not have IR software installed.

Although radiation doses in routine cardiac CT are not as low as reported in the literature, they are still much lower than previously and usually similar to the general population one years background radiation exposure. Its important however to keep trying to reduce doses by making use of the available technology and ensuring appropriate clinical indications are met prior to scanning.