suggests to adopt a screening protocol on the basis of 12-lead ECG, the only proved to be effective.

References


Two basic questions usually neglected: the definition of the technical parameters and contrast injection

In their article published online on 19 April 2005, Leschka et al. shared the first experience of the new 64-slice MSCT. The adequate sample size and evaluation of performance without beta-blocker make the article of high reference value. However, we have several questions to the authors.

First, the authors mentioned that the scanner was a 64-MSCT with only 32-detector rows. About the collimation, though the z-sharp technology is used, the total collimation will not be doubled. The actual coverage of the collimation should be 32 × 0.6 mm, but the authors chose to represent it as 64 × 0.6 mm², which is not uniformly recognized way. To our knowledge, the z-sharp technology increases the sampling rate and decreases the aliasing along the z-axis, which contributes to good z-axis quality but not coverage.

Secondly, the definition of the pitch is also confusing. The generally used definition of spiral pitch is the table feed divided by the sample size and evaluation of performance. The analysis and methodology are good in this article; in the near future, the article is likely to be cited frequently. However, as the technology itself is one of the main points in the study, a more precise description of the technical parameters will make this article even better.

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Two basic questions usually neglected: the definition of the technical parameters and contrast injection: reply  

We thank Lee et al. for their interest in our work. The authors raise the point that the technology itself would be one of the main points of the study and that a more precise description of the technical aspects of 64-slice CT should have been provided. The aim of our study was to report the first clinical experience with the recently introduced 64-slice CT for evaluating patients with suspected coronary artery disease and to assess the diagnostic accuracy of this new technique in comparison with invasive coronary angiography. It was not the purpose to report on technical details and 64-slice CT scanner properties, as this has been already done by Flohr et al. 

The 64-slice CT scanner used in our study uses a periodic motion of the focal spot, resulting in double sampling in longitudinal z-direction. With a basic detector collimation of \(32 \times 0.6 \text{ mm}^2\) and double sampling technique, 64 overlapping \(0.6 \text{ mm}\) slices per rotation are acquired corresponding to the sampling scheme of a \(64 \times 0.3 \text{ mm}^2\) detector. A recent technical study demonstrates this technique to provide high z-axis resolution especially in cardiac CT scan protocols, which require very low pitch values.

In accordance with the previously described technical principles, we used the term ‘slice collimation’ to distinguish this characteristic of the 64-slice CT system from the term ‘detector collimation’.

We do agree with Lee et al. that the definition of pitch is table feed divided by total detector coverage. Although the focal spot motion increases the amount of samples acquired per projection, the detector coverage per rotation is still determined by the physical width of the used detector rows. Therefore, the physical coverage of the detector equals \(19.2 \text{ mm}\) based on \(32 \times 0.6 \text{ mm}^2\) detector collimation. The pitch used was 0.24 with a rotation time of \(0.37 \text{ s}\), resulting in a table speed of \(4.6 \text{ mm/rotation}\) and \(12.4 \text{ mm/s}\). Compared to the previous 16-slice CT scanners, this represents a significant enhancement of the table speed, thus reducing breath-hold times from 16 to 20 s with 16-slice CT scanners to \(\sim 10\)–\(12\) s with the used 64-slice CT scanner.

The 64-slice CT scanner used has an adaptive array detector design with 40 detector rows, the 32 central rows having a collimated slice width of \(0.6 \text{ mm}\) and the eight outer rows a collimated slice width of \(1.2 \text{ mm}\). For coronary CT angiography, all inner 32 detector rows are used.

We thank Lee et al. for their considerations about contrast injection technique. In our study, there was no dependency between the heart rate and the low vessel opacification in distal coronary segments. No segment down to the diameter of \(1.5 \text{ mm}\) had to be excluded from analysis because of poor image quality. Therefore, we consider our 64-slice CT protocol as highly robust and being diagnostic even in patients with no beta-blockers and high heart rates. It should be always aimed at an optimization of the contrast injection technique, particularly for improved visualization of distal segments in patients with higher heart rates. However, no systematic study verifying the assumption of Lee et al. has been published until now.

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Heart rate reduction through lifestyle modification

We read with great interest the article of Diaz et al., reporting on the long-term prognostic value of resting heart rate. In the accompanying editorial of Palatini, the role of heart rate as a strong predictor in subjects with coronary artery disease is emphasized. Palatini further points to the important fact that beta-blocking therapy in survivors of myocardial infarction or patients with congestive heart failure was effective only in subjects with high heart rate.