Abstract: P3359

Calcium-scoring in asymptomatic persons: is there a difference between 4-slice and 16-slice MSCT? Results in 6.000 consecutive persons

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Background: Calcium scoring with the Multi-Slice CT (MSCT) is increasingly performed for coronary risk assessment. 16-slice MSCT (16-S MSCT) has mostly replaced the older 4-slice CT (4-S MSCT). The question is whether the reference percentile distrubutions obtained with the 4-S MSCT can also be applied to the 16-S MSCT since there are differences in the thickness of the slices (2.5 mm vs. 1.5 mm) and rotation times (500 ms vs. 420 ms). The goal of the study was to compare the results of the 4-S MSCT with those of the 16-S MSCT in a consecutive patient population.

Methods: 6.000 consecutive persons were analyzed, 4.518 with the 4-S MSCT and 1.482 with the 16-S MSCT. The persons were asymptomatic for coronary artery disease (CAD). Image acquisition was prospectively triggered to 60% of the RR-interval to reduce the radiation exposition. The slice thickness of the 4-S MSCT was 2.5 mm (4 x 2.5 mm) and 1.5 mm with the 16-S MSCT (16 x 1.5 mm). The calcium score was calculated according to the Agatston-Score (high risk was defined as a score above the 75th percentile, depending on age and sex).

Results: Women represented 24.5% of the 4-S MSCT group and 27.4% of the 16-S MSCT group. The mean age is shown in the table. Compared to the 4-S MSCT there was a lower calcium score in the 16-S MSCT: Table 1

Conclusions: There is some doubt whether the average percentiles of the calcium score evaluated with 4-S MSCT can be applied to the 16-S MSCT. Today, 4-, 16-, 32-, 40- and 64-slice MSCT are used and probably will need individually percentile distribution curves to avoid a misclassification of asymptomatic persons.

Table 1

	4-slice male	**4-slice female**	**16-slice male**	**16-slice female**
Age	54.4±9.8	58.4±9.9	56.2±10	58.0±8.8
Score (absolut)	227.1±577	83±283	174±378	67.0±266
High risk	23.1%	25.3%	21.1%	21.1%