

Assessment of diastolic function using 16-frame ^{201}Tl -gated myocardial perfusion SPECT

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Diastolic function assessments using 16-frame ^{201}Tl -gated myocardial perfusion SPECT was made by Nagamichi et al. [1]. The time-to-peak filling (TTPR) in no-defect group is 195.8 ± 97.6 ms by using QGS software. On the other hand, TTPR obtained by $^{99\text{m}}\text{Tc}$, which is reported by Japanese Society of Nuclear Medicine, is 167 ± 38 ms in all the subjects (aged 58 ± 15) [2]. The other reports from US shows TTPR is 165 ± 22 ms [3]. The values obtained by ^{201}Tl (195 ± 97.6 ms) is not only higher but also has a bigger standard deviation, indicating the limitation of the measurement by ^{201}Tl acquisition at 15 s per projection and 16 frames per R-R interval. Quantitative measurement depends on the type of radionuclide used. It is expected that ^{201}Tl images will be more blurred than $^{99\text{m}}\text{Tc}$ images, due to both to increased account of Compton scatter associated with ^{201}Tl and the use of a smoother pre-reconstruction filter.

Keen investigation to establish the standard of diastolic function by nuclear technique is absolutely needed.

References

1. Nagamichi S, Wakayama H, Fujita S, Nishii R, Kamimura K, Kiyohara S, et al. Assessment of diastolic function using 16-frame ^{201}Tl gated myocardial perfusion SPECT: a comparative study of QGS2 and pFAST. *Ann Nucl Med*. 2008;22:115–22.
2. Nakajima K. Normal value for nuclear cardiology: Japanese databases for myocardial perfusion, fatty acid and sympathetic imaging and left ventricular function. *Ann Nucl Med*. 2010; 24:125–35.
3. Akincioglu C, Berman DS, Nishina H, Kavanagh PB, Slomka PJ, Abidov A, et al. Assessment of diastolic function using 16-frame $^{99\text{m}}\text{Tc}$ -sestamibi gated myocardial perfusion SPECT: normal values. *J Nucl Med*. 2005;46:1102–8.

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