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Prone versus supine myocardial gated SPECT (GSPECT) in the evaluation of ventricular volumes, ejection fraction and myocardial perfusion

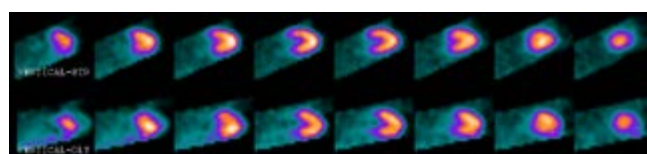
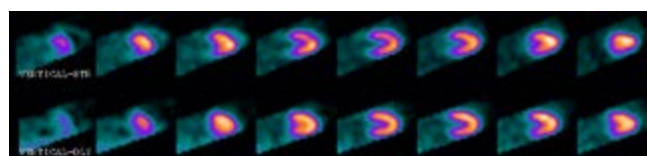
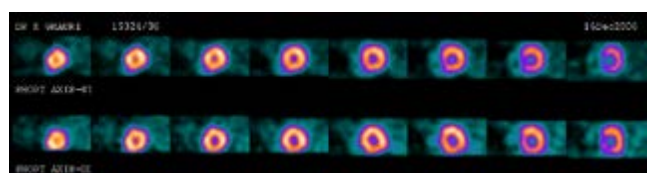
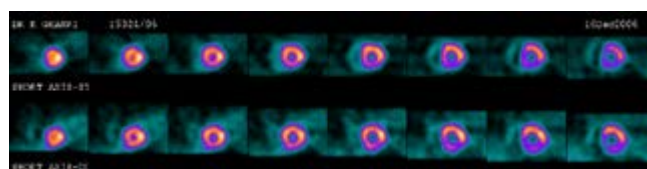
Hamid Amer¹ and Khalid Khorshid²

¹King Abdulaziz Hospital for National Guards, Saudi Arabia

²Pakistan Institute of Engineering and Applied Sciences, Pakistan

Attenuation of cardiac activity by soft tissue during acquisition by the gamma camera is one source of difficulty with interpretation of Myocardial Perfusion Imaging (MPI). Prone imaging has been used as a method to eliminate attenuation artifacts and consequently improving the diagnostic accuracy. The aim of this study is to observe the effects of prone position during Gated SPECT cardiac acquisition in improving the accuracy of the diagnosis through elimination of inferior wall attenuation artifacts and the impact on various cardiac parameters particularly ventricular volumes and ejection fraction. Methods: 32 patients selected randomly underwent two-day protocol for stress and rest MPI in supine and prone positions. Acquisition was done in a 180° elliptical orbit, starting at 45° (RAO) for supine and prone positions, in 64 steps, 15 sec each, and 8 frame gating per step. Percentage uptake of the tracer was calculated using 17-segment model and level of agreement were calculated to assess MPI. Results: Higher inferior wall activity was observed in prone position compared to supine position in stress and rest MPI ($63\% \pm 15.13\%$ vs. $55.6\% \pm 12.7\%$) and ($62\% \pm 11.7\%$ vs. $56.6\% \pm 10.71\%$), respectively. Level of agreement between both positions in stress and rest MPI was moderate ($K=0.56$ and $K=0.60$, respectively). EDV, ESV and SV for prone acquisitions were significantly lower than supine acquisitions in the stress and rest MPI ($P < 0.024$ and $P < 0.002$ respectively). Conclusion: Prone Gated SPECT MPI can be utilized as an effective way

for attenuation correction along with supine MPI if required. The differences in quantitative cardiac parameters in both positions were attributable to physiological alterations.



Biography

Hamid Amer has completed his Master Degree from PIEAS, Pakistan. He received the European (FEBNM), Asian (FANMB) and American Board of Nuclear Cardiology (DCNBC). He is the Associate Consultant at King Abdulaziz Hospital, a tertiary 300 bed capacity and well known hospital in the eastern province in Saudi Arabia. He has presented many papers in national and international conferences and published in reputed journals.

amerha@ngha.med.sa

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