



Lipoprotein subclass analysis by nuclear magnetic resonance (NMR) can be used in risk assessment of atherosclerotic cardiovascular disease (ASCVD). There is little information in the literature regarding phlebotomy tube interferences with NMR testing” Needham et al (2018).

Abstract:

**BACKGROUND:** Lipoprotein subclass analysis by nuclear magnetic resonance (NMR) can be used in risk assessment of atherosclerotic cardiovascular disease (ASCVD). There is little information in the literature regarding phlebotomy tube interferences with NMR testing.

**METHODS:** Pooled human serum was exposed to phlebotomy tubes manufactured by Becton Dickinson (BD), Greiner Bio-One, or Sarstedt. Serum was analyzed on the Axion lipoFIT by NMR assay and by conventional lipid assays performed on a Roche Cobas 8000 system. The effect of incomplete fill volume was also assessed.

**RESULTS:** Analytical interference in NMR lipoprotein subclass results was observed across many different tube types. The 5 ml Greiner Bio-One Z Serum Sep Clot Activator tube correlated the best with non-gel containing serum tubes from BD and Greiner Bio-One. BD SSTs displayed strong interferences across several NMR analytes that were enhanced with decreased tube fill volumes. Interferences were also observed with different sizes of Greiner

Bio-One Z Serum Sep Clot Activator tubes. Interference was generally not observed with conventional lipid testing, although minor interference was found for some tubes with lipoprotein(a) [Lp(a)].

CONCLUSIONS: NMR lipoprotein subclass analysis should be standardized by both tube type and tube size to prevent risk of analytical interference.

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### Reference:

Needham, L.L., Smy, L., Lee, M.A., Kunzler, T.M. and Genzen, J.R. (2018) Phlebotomy tube interference with nuclear magnetic resonance (NMR) lipoprotein subclass analysis. *Clinica Chimica Acta*. November 8th. .

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