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Seltzer Water as an Alternative Beverage to Reduce Interfering Extracardiac Activity in Myocardial Perfusion Imaging

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OBJECTIVES

Physiologic radiotracer uptake from the gastrointestinal tract can degrade myocardial perfusion imaging (MPI). Uptake just inferior to the left hemidiaphragm can falsely decrease counts in the inferior myocardial segments secondary to reconstruction artifact, leading to a suboptimal study and decreasing the confidence of the interpretation. In this study, we tested whether the ingestion of seltzer water can decrease confounding gastrointestinal activity and improve interpretation confidence. Several studies in the literature have studied the effect of seltzer on gastrointestinal uptake with mixed results, but largely encouraging.

METHODS

For a period of four weeks, all patients undergoing MPI were offered seltzer water between tracer injection and SPECT imaging for both rest and stress image acquisition. Screenshots of the images during the test period were tested against studies performed four weeks prior when standard beverage options were offered. Three readers who read nuclear medicine studies routinely rated these studies on five-point scale based on visible bowel activity causing artifact and decreasing interpretation confidence. For the initial analysis, the scale was further divided into whether confidence of the interpretation was decreased by gastrointestinal uptake and analyzed by Fischer's exact test. Data was analyzed as a group and for individual readers.

RESULTS

58 cases with seltzer and 96 cases without seltzer were analyzed. The mean rating of cases with seltzer was 0.29 points lower than without seltzer in the entire data set, representing less artifact and increased interpretation confidence. For each reader, the mean score improved by 0.37, 0.23, and 0.29 points with seltzer. The administration of seltzer was associated with a more confident read when the data was analyzed as a group as well as for two of the three physicians when analyzed by Fischer's exact test.

CONCLUSION

Ingestion of seltzer water was associated with a more confident interpretation of MPI. As such, seltzer water should be encouraged over the standard beverage choices for MPI patients.