

Negative Contrast Agents for MRCP: In-vitro and In-vivo Evaluation of Beverages Popular in South East Asia.

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Purpose

To investigate the feasibility of using beverages popular in SEA as a gastrointestinal oral negative contrast agent to null the bowel signal during MR cholangiography (MRCP).

Methods:

A search of the USDA Nutrient Database for Standard Reference was performed to look for fruits and beverages with high manganese content. In-vitro experiments were conducted on 10 types of potential drinks to determine which had T1 relaxation times close to or less than blueberry juice. Pineapple juice, fresh soyabean milk, Ovaltine and instant tea were chosen for their high manganese content and short T1 relaxation times. 10 healthy volunteers were imaged with a single shot fat spin echo pulse sequence. Pre- and post-negative oral contrast MRCP scans were obtained on each occasion. Each volunteer consumed 4 drinks each on 4 different occasions, giving a total of 40 studies. Comparisons were made between pre and post oral contrast MRCPs for each drink.

Results

Tea had the highest manganese content and the shortest T1 relaxation time, followed by ovaltine, fresh soyabean milk and pineapple juice. Common bile duct and pancreatic duct visualization was moderately improved in volunteers who drank pineapple juice and fresh soyabean milk and markedly improved in those who drank tea and Ovaltine.

Conclusion

Tea, Ovaltine, soyabean milk and pineapple juice are cheap, effective, readily available and safe oral negative contrast agents in suppressing the fluid signal from bowel structures and improving the visualization of the biliary tree in MRCP.