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MRI Imaging Sequence for Improved Contrast Using a Reference Image

Value Proposition

Cardiac MRI is a useful tool in the diagnostic arsenal of clinical practitioners with an estimated 2 million procedures performed annually in the United States. The detail provided by this imaging modality is crucial in determining cardiac muscle death and vessel occlusion. For clinical diagnosis of the above, gadolinium is used enhance contrast between regions with high/low perfusion. Phase-sensitive inversion recovery (PSIR) imaging sequences are utilized to provide realistic contrast. However, conventional PSIR processing suffers from poor signal-to-noise ratio (SNR) and an abundance of bright artefacts that hamper accurate diagnosis. Therefore, the development of additional software tools is necessary to mitigate these imaging challenges to improve diagnosis.

Technology

This invention is a processing algorithm that mutes artefact presentation and improves noise quality in PSIR images. It is able to accomplish this without any additional processing time or equipment. These properties make this technique particularly helpful in patients who have survived a myocardial infarction (MI) episode.

Other Applications

There is preliminary literature evidence that suggest that this type of procedure may also be useful in the detection of multiple sclerosis (MS) cortical lesions.

Advantages

- Improved image contrast and SNR without a dramatic increase in scan time.
- Possibility for rapid dissemination into thousands of established MRI equipment-software interfaces currently in operation inside the healthcare system.

