REVIEW

Abstract: The movement of a subject is a major problem in MRI experiments and diagnosis. At first, this review introduces a new technology named the “Propeller Technique” which can improve the motion artifact by changing the data sampling method in the K trajectory. Our experience of a case who underwent measurement by Propeller technique is reported and the effect of this technique is explained.

One of the recent hot topics is the appearance of the clinical 3T MR instrument, with its characteristic differences from that at 1.5T. The advantage of 3T is that it facilitates the evaluation of functional and metabolic information using MR spectroscopy (MRS) and functional MRI. The application of proton MRS in clinical cases is shown and the standard method to use proton MRS in a clinical setting is demonstrated. Furthermore, the new techniques, which can measure important metabolites in small amount such as neurotransmitters, was developed using a high signal to noise ratio and frequency resolution, which are advantages of 3T. J. Med. Invest. 53 : 199-203, August, 2006

Keywords: MRI, 3 Tesla, metabolism, function, propeller
2. Application of information on cerebral function and metabolism in clinical diagnosis

The correlation between cerebral function and metabolism has been well established. MRI has become a powerful tool for assessing cerebral function and metabolism. The technique is particularly useful in understanding the effects of neurological disorders on cerebral function and metabolism. MRI can provide images of the brain with high resolution, allowing for detailed examination of cerebral structures and function.

2.1. Cerebral Function and Metabolism

Cerebral function and metabolism are closely related. The brain is a highly active organ, consuming a significant amount of oxygen and glucose. The balance between cerebral oxygen and glucose consumption is crucial for maintaining normal cerebral function. MRI can detect changes in cerebral metabolism, which can provide insights into the mechanisms of neurological disorders.

2.2. Imaging Techniques

MRI is a non-invasive imaging technique that uses magnetic field and radio waves to create detailed images of the brain. MRI can differentiate between different types of tissues and can provide information on the structure and function of the brain. The technique is particularly useful for detecting lesions, tumors, and abnormalities in cerebral metabolism.

2.3. Clinical Applications

MRI is widely used in clinical diagnosis to evaluate neurological disorders. The technique can help in diagnosing conditions such as multiple sclerosis, stroke, and tumors. MRI can also be used to assess the effectiveness of treatments and to monitor the progression of neurological disorders.

In conclusion, MRI is a valuable tool for assessing cerebral function and metabolism. The technique provides detailed images of the brain, allowing for a better understanding of neurological disorders. MRI is widely used in clinical diagnosis and has become an essential part of modern neurological practice.

![MRI images of the brain](a) (b) (c)
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(a)  (b)

(a)  (b)

The images depict various brain scans, likely related to medical research or diagnostics. The associated diagrams or graphs might provide additional context or data related to the brain scans. Without specific text to reference, a detailed analysis or interpretation cannot be provided.
3. New metabolic information measured by the high magnetic field

New trend of MRI diagnosis in the CNS

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(a) (b)
4. Establishment of a new diagnostic system for brain imaging

The establishment of a new diagnostic system for brain imaging involves the development of a new methodological framework. This framework is designed to improve the accuracy and efficiency of brain imaging techniques, thereby enhancing the diagnostic capabilities of medical professionals. The new system builds upon existing technologies while incorporating innovative approaches to address the limitations of current methodologies. By integrating advanced imaging techniques and data analysis algorithms, the system aims to provide more precise and comprehensive insights into brain functions and conditions. This advancement is expected to contribute significantly to the field of neurology, offering improved diagnostic tools for a variety of neurological disorders.