INTRODUCTION

Diagnosis of musculoskeletal diseases is one of the most common indication for magnetic resonance imaging with multiplaner capability coupled with contrast resolution make MRI ideally suited for imaging of the musculoskeletal system.

Magnetic Resonance Spectroscopy (MRS) is an application of Magnetic Resonance Imaging (MRI). It is a noninvasive analytic technique that has been used to provide information about metabolic and biochemical processes occurring within tissues. (1)

MRS may be performed as an adjunct to MRI. The possibility of combining the advantages of MRI in delineating anatomical and pathological information with the ability of MRS to provide functional and biochemical changes under different pathological conditions. (2)

The technique of MRS is based on the same physical principals as MRI; the detection of energy exchange between external magnetic fields and specific nuclei within atoms.

In MRI the emitted radiofrequency is based on the spatial position of the nuclei, while MRS detects the chemical composition of the scanned tissue, so any change in the chemical environment which is called the chemical shift, will give rise to a different MR signal.

The information produced by MRS is displayed graphically as a spectrum with peaks consistent with the various chemicals detected. (3)

The use of magnetic resonance spectroscopy has become more wide spread as cost and availability has improved. It has been demonstrated that magnetic resonance spectroscopy of human skeletal muscle can play a significant role in:

(1) Understanding healthy muscle metabolism and the mechanisms of muscle fatigue.

(2) Understanding the effects of disease on muscle metabolism and function.

(3) Distinguishing neoplastic from non neoplastic lesions.

(4) Monitoring the therapeutic intervention.

(5) The confirmation of disease diagnoses. [4]

31-Phosphorous magnetic resonance spectroscopy and water-suppressed localized ^{1}H spectroscopy techniques are used. [5]