T1 Measurement in PRESS

Sei-Kwon Kang · Bo-Young Choe · Tae-Suk Suh · Hyoung-Koo Lee

Dept. of Biomedical Engineering, College of Medicine, Catholic University

목적 : PRESS is one of the representative sequences in MRS, but still, we do not have the formul describing the steady state magnetization of it. So, we derive the equation of th magnetization as a function of the echo time and the repetition time, and compare it wit phantom experiments.

대상 및 방법 : PRESS consists of three 180 pulses and the additional crusher gradients whic destroy the unwanted coherences of the magnetization. Using the simple vector model, w derive a formula which describes the behaviour of the magnetization in PRESS and compa the results with the phantom experiment. Also, we explore the results of the T1 from STEAM, PRESS and the simple exponential.

결과 : The formula we've obtained describes the magnetization behavior very well and gives better result of fit to the experimental data. Also, the obtained T1 have smaller error bar relative to that of STEAM.

결론 : Considering the better SNR of the PRESS, as long as the long TE is allowed, the PRESS sequence can be used to evaluate the T1 of the metabolites and the formula we derive here gives us better result of fit than that of the usual STEAM.