125 SPINAL CORD GLUTAMATE-GLUTAMINE IS ELEVATED IN MS RELAPSE

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Background 1.5Tesla 1H-magnetic resonance spectroscopy (MRS) demonstrates reduced spinal cord (SC) N-acetyl-aspartate (NAA) following SC relapses in MS but it remains unknown whether glutamate-glutamine (Glx) metabolism is also affected, as in the brain. Using 3Tesla MRS, we quantified Glx following SC relapse and assessed the clinical relevance of metabolite changes.

Methods SC metabolites were quantified in 20 RRMS patients (14F; mean age 41 yrs.) within 4 weeks of cervical SC relapse and 22 controls (17F; mean age 44 yrs.) using a cardiac-gated PRESS sequence; TE=30 ms; MOIST water suppression on a 3T Philips scanner. MSFC and EDSS scores were obtained for patients.

Results SC NAA was reduced ($p=0.023$) and Glx was elevated ($p=0.036$) compared to controls. In patients, higher EDSS scores were independently predicted by higher creatine ($p=0.032$) and choline ($p=0.041$) and longer timed walk was independently predicted by higher creatine ($p=0.002$), myoinositol ($p=0.025$) and choline ($p=0.044$).

Conclusions Higher choline, creatine and myoinositol are associated with disability and may reflect important pathological processes. Elevated Glx wasn't predictive of disability but may cause excitotoxicity and hinder recovery; longitudinal study is therefore needed.