080. CAN CREATINE SUPPLEMENTATION IMPROVE BODY COMPOSITION AND OBJECTIVE PHYSICAL FUNCTION IN RHEUMATOID ARTHRITIS PATIENTS? A RANDOMIZED CONTROLLED TRIAL

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Background: RA is characterized by muscle wasting (rheumatoid cachexia), which contributes to substantial reductions in strength and impaired physical function. Current DMARD and biologic therapy fail to restore muscle mass or reduce fat mass. In healthy individuals, oral creatine (Cr) supplementation has been shown to increase lean mass (LM) by stimulating muscle protein synthesis, and to improve performance via the augmented LM and enhanced production of ATP (i.e. energy). The objective of this double-blind randomized control trial was to investigate whether Cr supplementation has similar benefits in RA patients.

Methods: Forty RA patients with stable disease underwent 12 weeks oral supplementation of either Cr [n = 18, 12 females, 62.3 (10.5) years] or placebo [n = 22, 15 females, 58.1 (10.6) years]. For those randomized to Cr, a 5-day loading phase of 20 g Cr (4 x 5 g)/day was followed by a maintenance dose of 3 g/day for the remainder of the supplementation period. The placebo was a glucose drink with similar flavouring and colouring to the Cr mixture. Body composition (total and regional LM and fat mass) was estimated by DXA, with appendicular LM (ALM; the summed LM of the arms and legs) used as a surrogate measure of total muscle mass. Intracellular (ICW) and extracellular water (ECW) was determined by bioelectrical impedance spectroscopy. Objective physical function was assessed by sit-to-stand in 30 s (STS-30), 8-foot-up-and-go (UG), 50-foot-walk (50 W), handgrip strength (HGS) and isometric knee extensor strength (IKES). All assessments were performed at baseline (pre-supplementation), week 12 (post-supplementation) and week 24 (12 weeks post-supplementation). Data was analysed using repeated measures ANOVA and is presented as means (S.D.).

Results: Twelve weeks of Cr supplementation increased ALM [0.48 (0.13) kg, P = 0.002] and total LM [0.57 ± 0.27 kg, P = 0.049] without increasing fat mass [0.38 (0.37) kg, P = 0.321]. The DXA changes in LM were corroborated by increases in ICW [0.56 (0.17) l, P = 0.005, r = 0.556, P = 0.032]. No body composition changes were seen in the placebo group. IKES [n = 41.8 (13.6), +13.0%, P = 0.009] and HGS [n = 19.4 (9.0), +7.6%, P = 0.051] were both increased, and subsequently maintained 12 weeks after supplementation had ceased, in the Cr group. No change in these strength measures occurred in the placebo group. No change in the physical function measures: STS30, UG or 50 W were observed in either group. Similarly, disease activity (DAS for 28 joints) remained unchanged throughout the trial in both groups.

Conclusion: Oral Cr supplementation significantly enhanced muscle mass and strength in RA patients. No treatment-related adverse side effects were reported, suggesting that Cr supplementation is a safe, widely acceptable, cheap and reasonably effective adjunct treatment for rheumatoid cachexia.

Disclosure statement: The authors have declared no conflicts of interest.