

ROLE OF INFLAMMATION IN MALNUTRITION AND COGNITIVE IMPAIRMENT IN DIALYSIS PATIENTS



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INTRODUCTION and OBJECTIVES

Chronic inflammation is a common issue among dialysis patients that is associated with decreased survival and quality of life (QoL). It is associated to several other co-morbidity conditions such as oxidative stress, endothelial dysfunction and vascular calcifications that are leading cause of both malnutrition and cognitive impairment in this population.

Many studies evaluated the pathophysiologic link between inflammation and malnutrition, as well as cognitive impairment, but there are no evidence of an interconnection between all these factors.

Therefore, aim of this study was to evaluate the association between cognitive and nutritional status, body composition and marker of inflammation in End Stage Renal Disease (ESRD).

METHODS

Dialysis patients without neurological disorders were selected. Body Composition Monitor (BCM Fresenius), Malnutrition Inflammation Score (MIS), Montreal Cognitive Assessment (MOCA), Trail Making Test A-B (TMT) and biochemical tests were performed before dialysis session. Statistical analysis were conducted using t-test, ANOVA and multiple linear regression adjusted for age, sex, time on dialysis and education.

RESULTS

53 patients (35 HD , 18 PD) were enrolled (age 60.1±12.9 years). Mean MOCA score was 19.5±5.1. Lean Tissue Mass and % of Fat were significantly higher in patients with poor executive functions at TMT ($p=0.04$ and 0.01 respectively; **Figure 1**) and linearly associated with cognitive functions assessed with MOCA ($p=0.002$ and 0.03 respectively; **Figure 2**). Both MOCA ($p=0.003$) and TMT ($p=0.03$) worsened significantly progressively with the malnutrition level measured by MIS (**Figure 3**). Moreover, TMT and MIS score resulted significantly associated inversely with serum Albumine and directly with CRP (**Figure 4**).

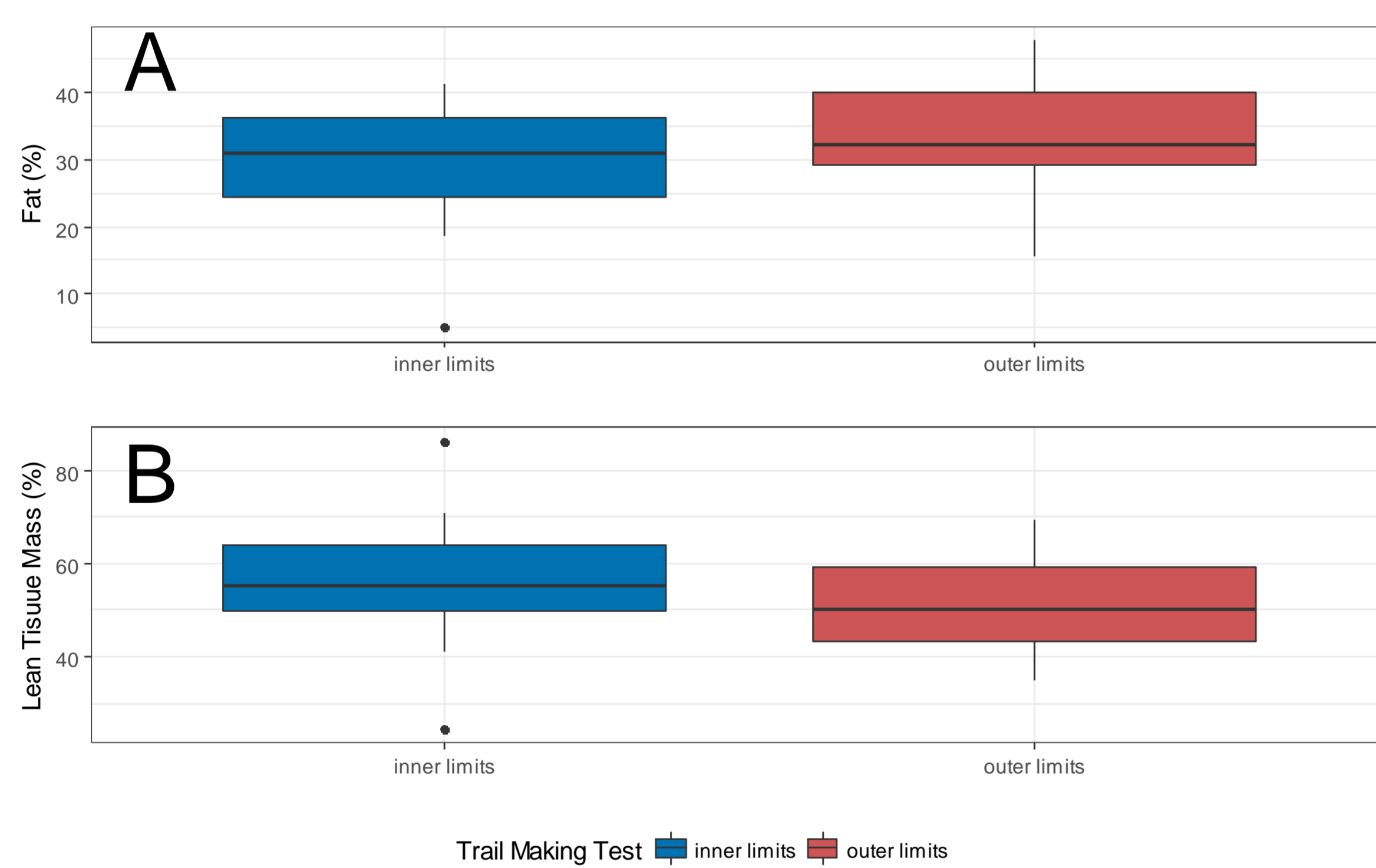


Figure 1. Levels of % of Fat (A) and % of Lean Tissue Mass (B) by TMT results.

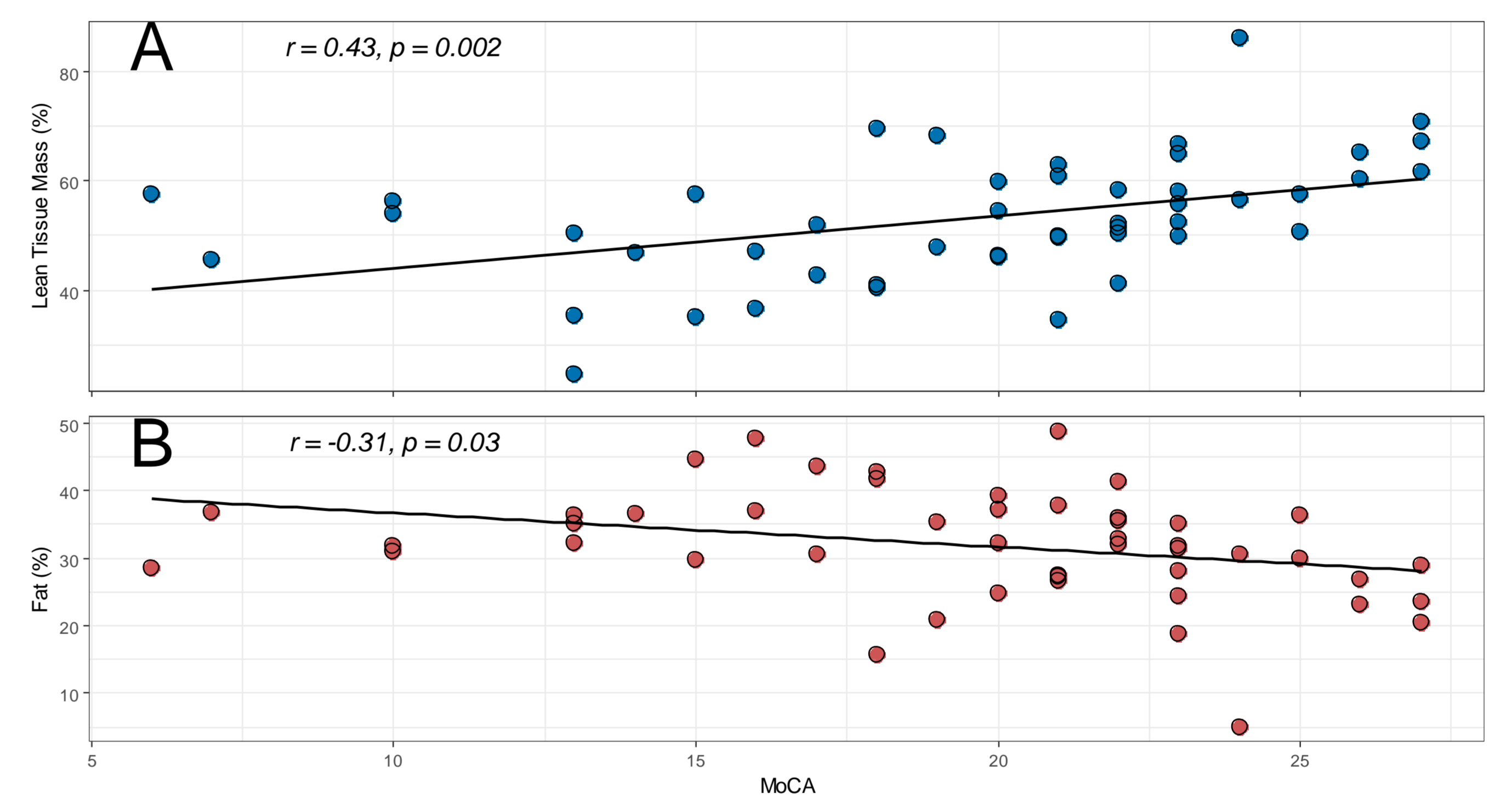


Figure 2. Linear regression between % of Lean Tissue Mass (A) and % of Fat (B) vs MoCA score.

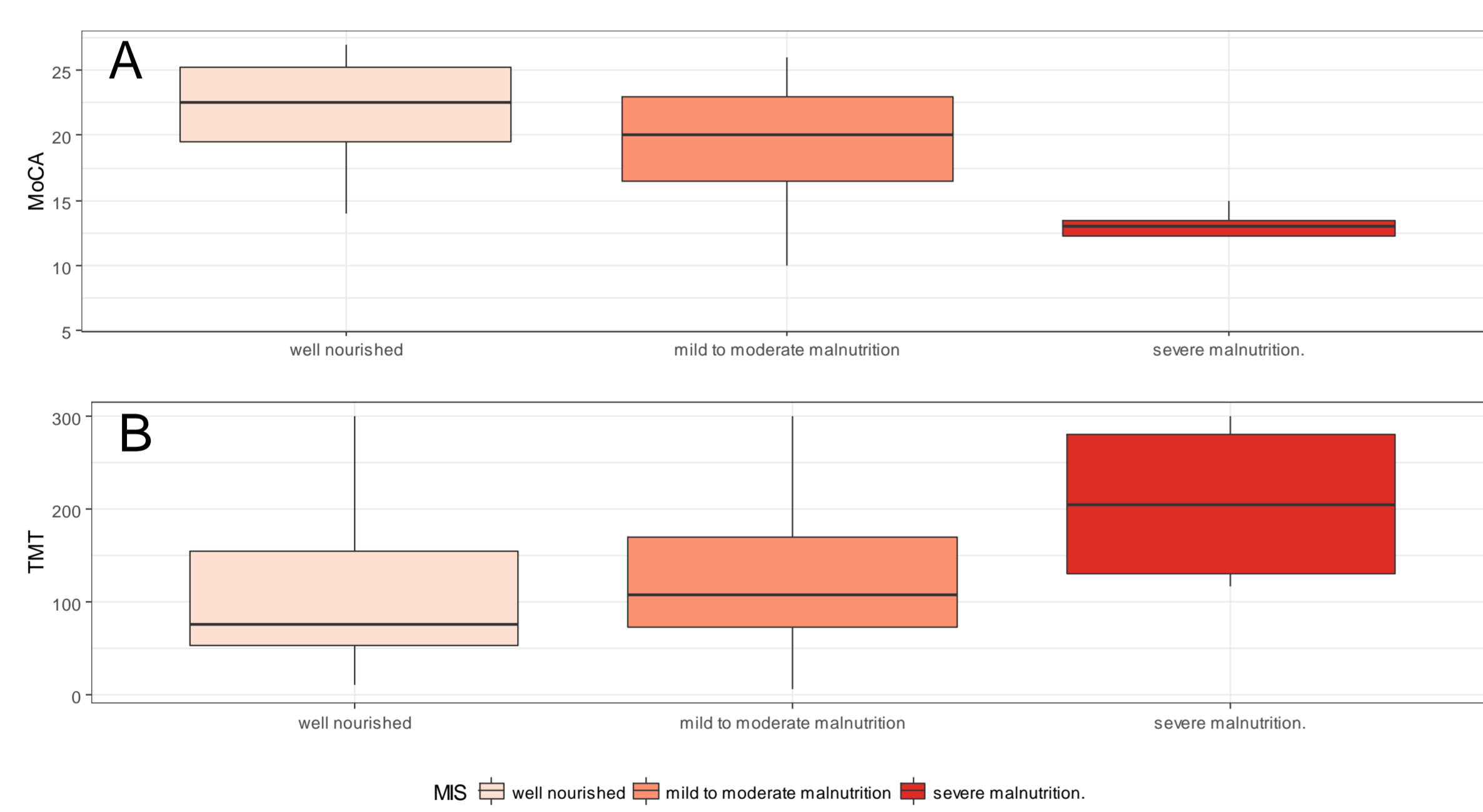


Figure 3. MoCA score (A) and TMT results (B) by Malnutrition Inflammation Score.

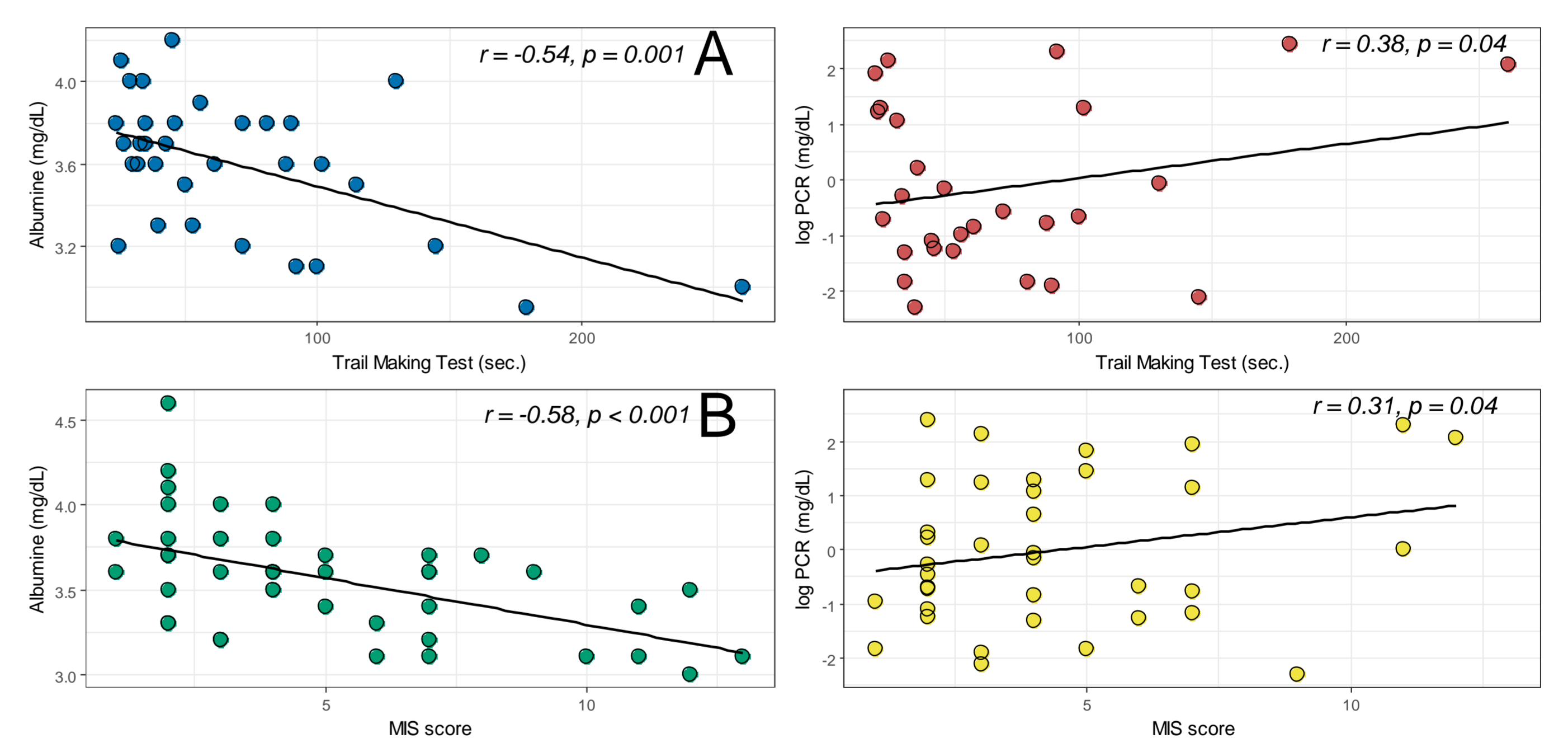


Figure 4. Linear regression between Albumine and PCR vs TMT results (A) and MIS score (B)

CONCLUSIONS

OUR RESULTS SHOWED THE PRESENCE OF A STRONG ASSOCIATION BETWEEN INFLAMMATION INDEX, MALNUTRITION, COGNITIVE PROFILE AND BODY COMPOSITION. THEREFORE, ASSESSMENT OF NUTRITIONAL STATUS AND COGNITIVE FUNCTION COULD HAVE POSITIVE IMPACT ON PATIENT CARE AND QOL. FURTHER STUDIES ARE NEEDED TO BETTER EXPLAIN THE PATHOPHYSIOLOGIC MECHANISMS LINKING INFLAMMATION, MALNUTRITION AND COGNITIVE IMPAIRMENT.

REFERENCES

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