

## OBJECTIVE

The aim of this study is to assess if patients with episodic migraine have increase musculoskeletal impairments of the cervical spine compared to healthy controls during the 4 the phases of the migraine cycle independently by the presence of neck pain and neck disability.

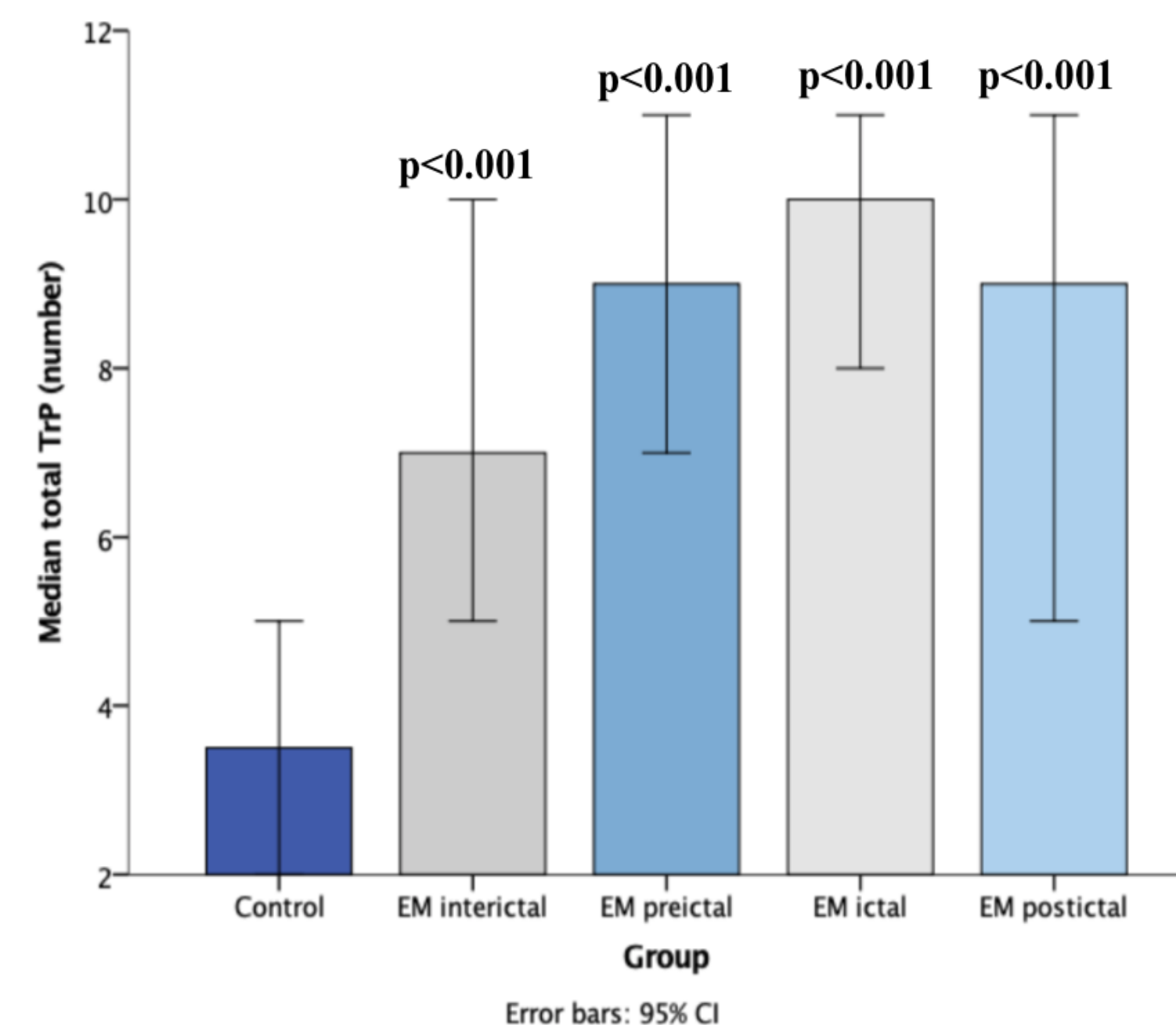
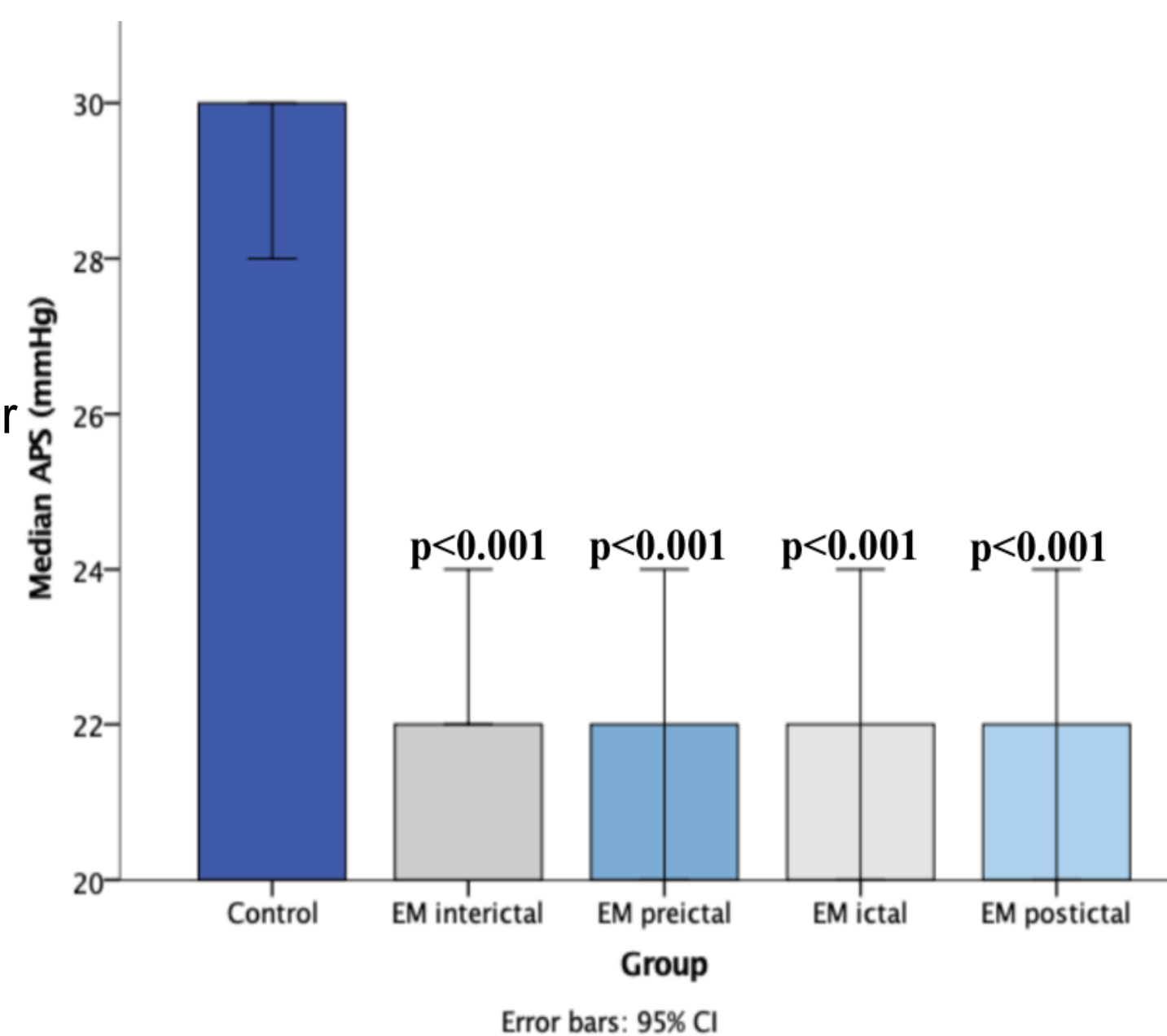
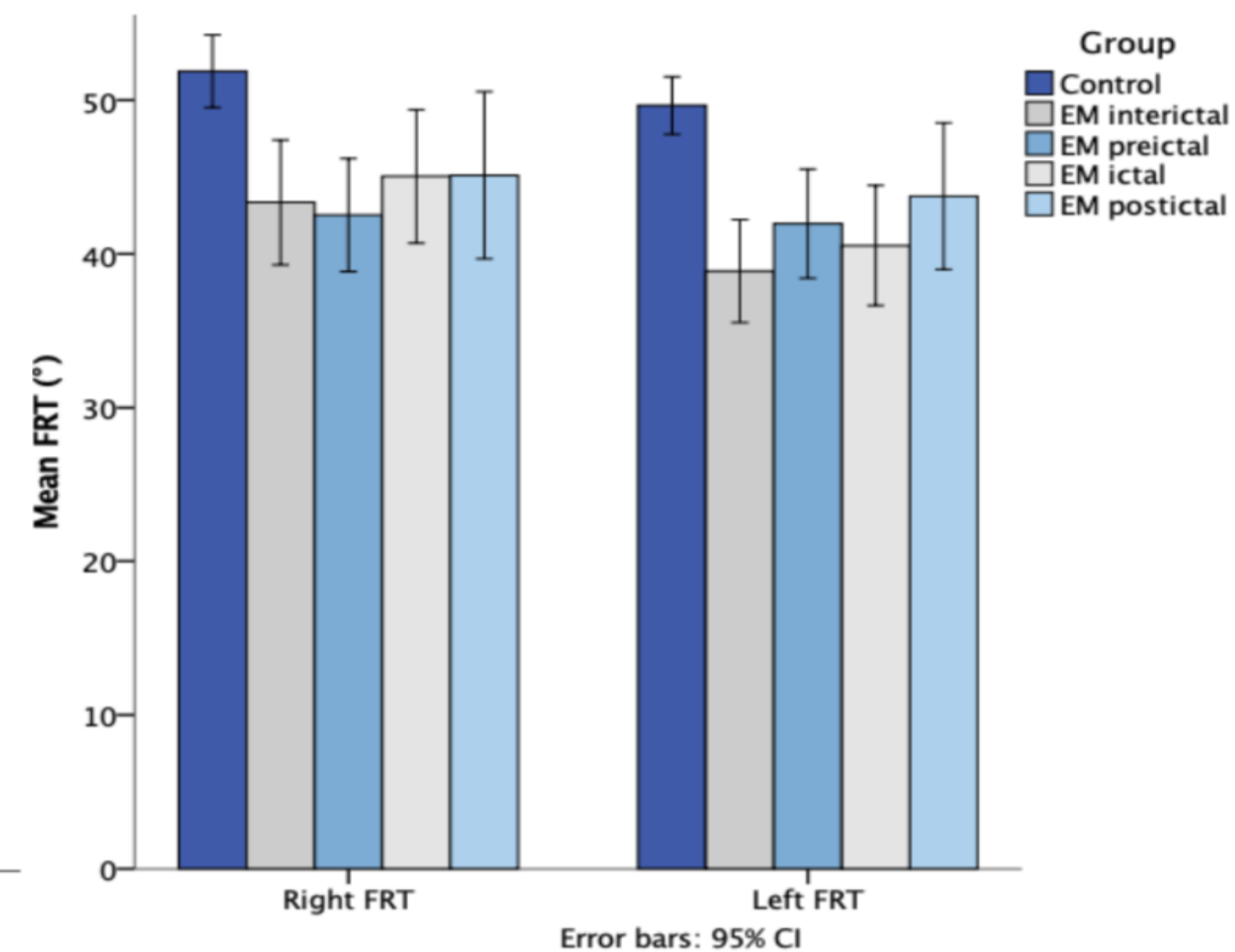
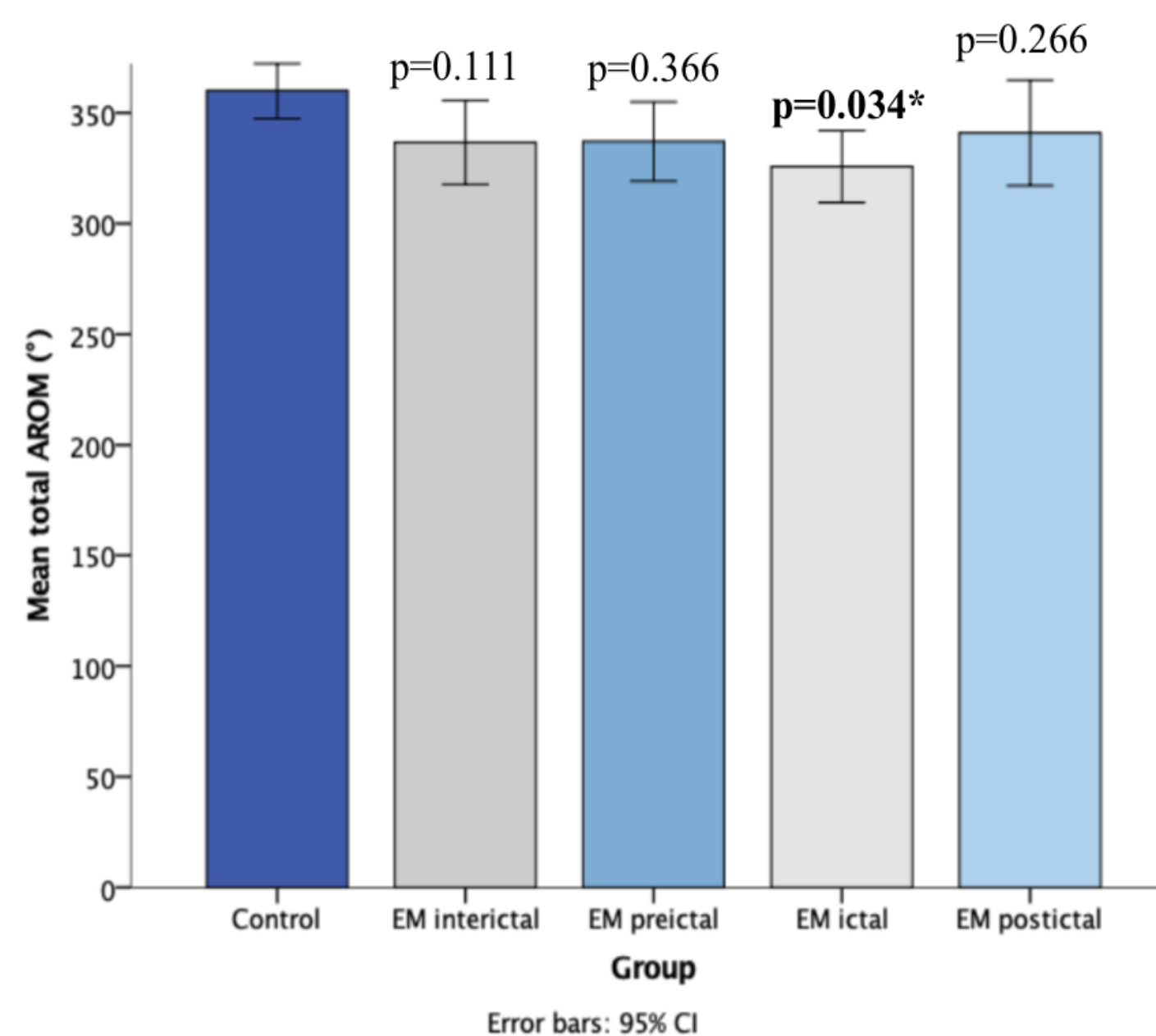
## METHOD

In this multicenter cross-sectional, observational study, episodic migraine (EM) patients and healthy controls aged 18-65 were included. The following musculoskeletal impairments were assessed:

- Cervical active range of movement (AROM) in flexion, extension, left-right lateral flexion, and left-right rotation
- Craniocervical flexion test (CCFT) (measured with the activation pressure score (APS))
- Flexion rotation test (FRT)
- Total number of active and latent trigger points (TrPs)
- Total number of symptomatic upper cervical spine vertebral segments
- Pressure pain threshold (PPT) over the upper cervical spine vertebral segments

The quality of life was assessed with the SF-36 questionnaire.

A linear regression model using the variable group to predict the results was performed, adjusting for possible confounders (gender, age, BMI, Neck disability index, use of preventive drugs, and symptomatic drugs in the 24 hours before the evaluation).



## RESULTS

42 Control, 32 interictal EM, 34 Preictal EM, 25 Ictal EM, and 23 postictal EM were included. The total AROM ( $p=0.034$ ) were lower only in ictal EM compared to healthy controls, with no other differences ( $p>0.063$ ). Healthy controls had higher CCFT score ( $p<0.001$ ), lower left and right FRT ( $p<0.047$ ), lower number of total TrPs ( $p<0.001$ ), and lower number of symptomatic upper cervical spine vertebral segments ( $p<0.001$ ) compared to EM patients in all phases with no differences in neck PPT ( $p>0.096$ ).

Further, higher the number of active TrPs and symptomatic upper cervical spine vertebral segments, worse the quality of life (both,  $p<0.04$ ).

## CONCLUSION

EM patients in all phases of the migraine cycle, independently of the presence of neck pain and neck disability, have reduced functionality of deep cervical flexors muscles and restricted passive range of motion of the upper cervical spine, higher number of trigger points, and a higher number of symptomatic upper cervical spine vertebral segments. No neck hyperalgesia was observed in any of the phases. The active range of motion was impaired only in the ictal phase, suggesting that a migraine attack could cause a transitory reduction in functionality of the neck movement. Finally, a greater number of painful musculoskeletal impairments in the cervical spine, are related to a worse quality of life