E-Poster

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The Role of Hsp72 and Heart Rate Variability in Assessing Rehabilitation Efficacy for Inflammatory Rheumatism

Topic: Miscellaneous

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BACKGROUND

Heat shock protein 72 (Hsp72) is a molecular chaperone that protects cells under stress by facilitating protein folding, preventing aggregation, and enhancing survival. It also modulates inflammation and immune responses. Heart rate variability (HRV) and coherence score (CS) are established methods to evaluate autonomic nervous system (ANS) function and balance. This study aimed to investigate the effects of a natural factor-based rehabilitation program on immune-inflammatory biomarkers and ANS balance in patients with inflammatory rheumatism.

METHODS

Forty patients with inflammatory rheumatism participated in a 20-day rehabilitation program at the Institute Dr. Simo Milosevic. The program incorporated physical therapies based on healing mud and mineral waters. Serum samples were collected before and after rehabilitation to measure Hsp72 and C-reactive protein (CRP) levels, while sedimentation rate was analyzed as an additional marker of inflammation. ANS activity was assessed using the emWave Pro device, which measured coherence score and levels during 10-minute medium-level sessions. Coherence levels were classified as low, medium, or high, reflecting the degree of wavelike activity in HRV.

RESULTS

The rehabilitation program resulted in a significant increase in Hsp72 levels ($p < 0.031$), accompanied by reductions in CRP ($p < 0.004$) and sedimentation rate ($p < 0.03$). HRV coherence metrics improved, with significant increases in total coherence score ($p < 0.029$) and the percentage of time spent in high coherence ($p < 0.047$). Before rehabilitation, Hsp72 and CRP were significantly correlated ($p < 0.004$), but this relationship was not observed post-rehabilitation. These findings indicate that the rehabilitation program positively influenced inflammatory and autonomic markers, contributing to overall health improvements in patients.

CONCLUSION

Natural factor-based rehabilitation significantly modulates immune-inflammatory responses, as evidenced by increased Hsp72 levels and improved HRV coherence. Reduced CRP and sedimentation rates further confirm its anti-inflammatory effects. This comprehensive approach effectively restores ANS balance, emphasizing its potential to improve the quality of life and health outcomes in inflammatory rheumatism patients.

Statement of Disclosures

None

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