ISSN 3060-4567

THE EFFECTIVENESS OF NOOTROPIC THERAPY IN PATIENTS WITH RHEUMATIC DISEASES: A CLINICAL ANALYSIS

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***Abstract*: Background:** *Rheumatic diseases are often accompanied not only by systemic inflammation and joint dysfunction but also by neuropsychiatric symptoms such as cognitive impairment, chronic fatigue, and mood disorders. These manifestations may significantly reduce patients' quality of life and complicate disease management.*

Objective: This study aims to evaluate the clinical effectiveness of nootropic therapy in patients with various rheumatic diseases and to assess its impact on cognitive function and overall disease course.

Methods: A cohort of patients diagnosed with rheumatoid arthritis, systemic lupus erythematosus, and ankylosing spondylitis was observed. Nootropic agents such as piracetam, citicoline, and phenibut were administered as adjunctive therapy over a 12-week period. Clinical parameters, cognitive test scores, and patient-reported outcomes were analyzed before and after intervention.

Results: The use of nootropic therapy led to statistically significant improvements in cognitive performance, particularly in memory, attention, and mental processing speed. Additionally, patients reported reduced fatigue and improved emotional stability. No severe adverse effects were observed during the course of treatment.

Conclusion: Nootropic agents may represent a promising adjunctive approach in the management of rheumatic diseases, particularly in addressing cognitive and neuropsychiatric comorbidities. Further randomized controlled trials are warranted to confirm these findings and determine long-term efficacy and safety.

ISSN 3060-4567

Keywords: rheumatic diseases, nootropic therapy, cognitive impairment, neuropsychiatric symptoms, piracetam, citicoline

Introduction

Rheumatic diseases, including rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and ankylosing spondylitis (AS), are chronic inflammatory disorders characterized primarily by musculoskeletal involvement. However, beyond joint destruction and systemic inflammation, these conditions are increasingly recognized for their impact on the central nervous system. Cognitive dysfunction, chronic fatigue, anxiety, and depressive symptoms are frequently observed among patients and are often underdiagnosed or overlooked during routine rheumatologic care.

Recent studies suggest that chronic systemic inflammation, persistent immune activation, and long-term corticosteroid use may contribute to neuropsychiatric complications in rheumatic patients. These factors disrupt normal neurotransmission, impair cerebral blood flow, and alter synaptic plasticity, potentially leading to reduced cognitive performance and decreased quality of life.

Nootropic agents, also known as cognitive enhancers, are a class of drugs that have shown promise in improving cognitive function, memory, attention, and neuroprotection in various neurological conditions. Although their use is well-documented in neurology and psychiatry, their application in rheumatology remains relatively unexplored. Given the neuroinflammatory component of rheumatic diseases, nootropic therapy may serve as a valuable adjunct to standard treatment regimens.

This study aims to analyze the clinical effects of selected nootropic drugs in patients with rheumatic diseases and to assess their potential role in mitigating cognitive and neuropsychiatric symptoms. By identifying the therapeutic potential of nootropics in this patient population, we aim to contribute to a more holistic approach in the management of rheumatic disorders.

Methods

ISSN 3060-4567

Study Design and Participants: This clinical observational study was conducted over a 12-week period at a multidisciplinary rheumatology center. A total of 60 adult patients (age 25–65 years) diagnosed with rheumatic diseases—including rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and ankylosing spondylitis (AS)—were enrolled. All patients met the respective classification criteria established by the American College of Rheumatology (ACR) and were in a stable phase of treatment without recent medication changes.

Inclusion Criteria:

- Confirmed diagnosis of RA, SLE, or AS.
- Complaints of cognitive symptoms (e.g., forgetfulness, difficulty concentrating).
- Stable disease activity for at least 4 weeks.
- Nootropics-naive (no prior treatment with cognitive enhancers).

Exclusion Criteria:

- Severe psychiatric illness (e.g., schizophrenia, major depression).
- History of cerebrovascular accident or neurodegenerative disease.
- Current use of psychoactive or nootropic medications.
- Significant hepatic or renal impairment.

Intervention:

Participants received standard rheumatologic therapy (DMARDs, NSAIDs, corticosteroids as needed) along with one of the following nootropic agents:

- **Piracetam** (1,200 mg/day),
- **Citicoline** (1,000 mg/day), or
- **Phenibut** (250 mg twice daily), administered orally for 12 weeks. Choice of agent was based on clinical judgment and patient tolerance.

Assessment Tools: Cognitive function was evaluated at baseline and at the end of the 12-week period using standardized tests:

- **Mini-Mental State Examination (MMSE)** – for global cognitive assessment,

- **Trail Making Test (Parts A and B)** – for attention and executive function,
- **Fatigue Severity Scale (FSS)** – for fatigue assessment,
- **Hospital Anxiety and Depression Scale (HADS)** – for mood evaluation.

Statistical Analysis: Descriptive statistics were used to summarize demographic and baseline characteristics. Paired *t*-tests or Wilcoxon signed-rank tests were applied to compare pre- and post-treatment scores. A *p*-value of <0.05 was considered statistically significant. All analyses were performed using SPSS version 25.0.

Results

A total of 60 patients completed the 12-week study period, with no significant dropouts. The cohort included 24 patients with rheumatoid arthritis (RA), 20 with systemic lupus erythematosus (SLE), and 16 with ankylosing spondylitis (AS). The mean age of participants was 47.3 ± 10.2 years, and 72% were female.

Cognitive Function

At baseline, mild to moderate cognitive impairment was observed in 65% of patients based on MMSE scores (mean MMSE = 25.1 ± 2.4). After 12 weeks of nootropic therapy, a statistically significant improvement in MMSE scores was recorded across all subgroups (mean MMSE post-treatment = 27.3 ± 1.8; $p < 0.01$).

The **Trail Making Test** (TMT) also showed improved performance:

- **TMT-A** completion time decreased by an average of 21%, indicating enhanced attention and visual scanning.
- **TMT-B** time decreased by 18%, reflecting better executive functioning and mental flexibility ($p < 0.05$).

Fatigue and Mood

According to the **Fatigue Severity Scale (FSS)**, mean scores dropped from 5.6 ± 1.1 to 4.1 ± 0.9 ($p < 0.01$), suggesting a marked reduction in fatigue levels.

The **Hospital Anxiety and Depression Scale (HADS)** demonstrated the following:

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- Anxiety subscale: decreased from 10.3 ± 2.6 to 7.1 ± 2.3
- Depression subscale: decreased from 9.7 ± 2.9 to 6.4 ± 2.1

Both reductions were statistically significant ($p < 0.01$).

Tolerability and Safety

All nootropic agents were well tolerated. Mild and transient side effects (e.g., headache, irritability, gastrointestinal discomfort) were reported in 12% of patients but did not necessitate discontinuation. No serious adverse events occurred during the study.

Conclusion

This clinical analysis demonstrates that the adjunctive use of nootropic agents in patients with rheumatic diseases may provide significant cognitive and neuropsychiatric benefits. Over a 12-week period, patients receiving nootropic therapy exhibited measurable improvements in memory, attention, executive function, fatigue levels, and mood. These findings highlight the potential of cognitive enhancers such as piracetam, citicoline, and phenibut as supportive treatments in the multidisciplinary management of rheumatic disorders.

Given the increasing recognition of cognitive and psychological burdens in rheumatic patients, nootropic therapy may represent a valuable strategy for enhancing quality of life and functional outcomes. However, larger-scale randomized controlled trials are warranted to further validate these preliminary observations and to establish long-term safety and efficacy profiles.

REFERENCES

1. Bartels, C. M., Lumley, M. A., & Kaplan, J. R. (2019). Rheumatoid arthritis and cognition: Emerging concepts and clinical implications. *Current Rheumatology Reports, 21*(8), 41. https://doi.org/10.1007/s11926-019-0847-4

2. Saletu, B., Grunberger, J., & Linzmayer, L. (2010). The effects of nootropics on cognitive performance in patients with chronic illnesses. *Neuropsychobiology, 62*(1), 1–10. https://doi.org/10.1159/000315091

ISSN 3060-4567

3. Appenzeller, S., & Costallat, L. T. L. (2018). Cognitive impairment in systemic lupus erythematosus: Advances in pathogenesis and clinical management. *Lupus*, *27*(10), 1588–1596. https://doi.org/10.1177/0961203318788163

4. Malykh, A. G., & Sadaie, M. R. (2010). Piracetam and piracetam-like drugs: From basic science to novel clinical applications to CNS disorders. *Drugs*, *70*(3), 287–312. https://doi.org/10.2165/11319230-000000000-00000

5. Rojas, J. I., & Patrucco, L. (2017). Citicoline for the treatment of cognitive impairment in neurological disorders: A systematic review. *Journal of Neurological Sciences*, *375*, 196–199. https://doi.org/10.1016/j.jns.2017.01.068

6. Matchanova, L., & Simonov, Y. (2020). The neuropsychological profile of patients with ankylosing spondylitis and the role of supportive therapies. *Rheumatology International*, *40*(4), 593–601. https://doi.org/10.1007/s00296-019-04471-2

7. Fuchs, T. A., & Runkel, J. (2021). Fatigue in rheumatic diseases: Mechanisms and management. *Nature Reviews Rheumatology*, *17*(8), 500–512. https://doi.org/10.1038/s41584-021-00616-3