Case Report

Evaluating Cognitive Outcomes in Iron-Deficient Adolescents Using MoCA Under Individualized Homeopathic Intervention: A Case-Based Study

S. Bidwalker[1], Gunnu Sridevi[2*]

[1]HOD, Department of Repertory, HU, Jaipur, Rajasthan, India
[2]MD(H), Phd Scholar, HU, Jaipur, Rajasthan, India
[*]Corresponding author email: **sridevigunnu@gmail.com**

International Archives of Integrated Medicine, Vol. 12, Issue 8, August, 2025.
Available online at http://iaimjournal.com/
ISSN: 2394-0026 (P) **ISSN: 2394-0034 (O)**
Received on: 2-8-2025 **Accepted on:** 21-8-2025
Source of support: Nil **Conflict of interest:** None declared.

DOI: **10.5281/zenodo.16920228**

How to cite this article: S. Bidwalker, Gunnu Sridevi. Evaluating Cognitive Outcomes in Iron-Deficient Adolescents Using MoCA Under Individualized Homeopathic Intervention: A Case-Based Study. Int. Arch. Integr. Med., 2025; 12(8): 1-4.

Abstract

Background: A frequent nutritional illness among Adolescents is iron-deficiency anemia (IDA), which is frequently linked to cognitive deficits like poor attention, memory loss, and impaired executive function. Despite the fact that standard iron supplementation remains the foundation of treatment, new data indicates that customized homeopathic treatment may have a place in this field. The Montreal Cognitive Assessment (MoCA) is a proven, reliable method for identifying minor cognitive impairments and monitoring treatment outcomes.

Clinical Features: Tiredness, difficulty in concentration, irritability, and academic underachievement are typical symptoms of iron deficiency in adolescents. The MoCA, which provides objective evaluation of cognitive areas like visuospatial skills, executive function, memory, language, attention, and orientation, is utilized for cognitive mapping in addition to hematological studies.

Case Report: We present the case of a 16-year-old girl with recorded iron deficiency anaemia (hemoglobin 9.1 g/dL, serum ferritin 9.5 ng/mL) and accompanying cognitive impairment (MoCA score 21/30). Without the use of traditional iron supplements, the patient received customized homeopathic therapy along with dietary counseling. Serial MoCA assessments at 4 and 8 weeks revealed a gradual improvement to 25/30 and 28/30, respectively, which corresponded to clinical recovery and hematological normalization (hemoglobin 11.6 g/dL, ferritin 19 ng/mL).

Conclusion: This study shows that the MoCA may be a simple and useful cognitive screening tool for monitoring treatment response in iron-deficient teenagers who are receiving homeopathic care. This case highlights the usefulness of MoCA mapping in identifying minor cognitive shifts in adolescent anemia and emphasizes the possible role of homeopathy in iron-deficient adolescents receiving homeopathic care.

Key words

Iron deficiency anaemia, Cognitive improvement, MoCA Scale, Adolescent girls, Homeopathy, Case report.

Introduction

Adolescents all around the world suffer from iron deficiency anemia, which causes poor diet, high needs, and blood loss, all of which compromise growth, memory, and focus [1, 2]. The possible use of homoeopathic therapy in the treatment of iron deficiency anemia is essential for the development of integrative medicine. Despite increased awareness nationally and globally as well as recent government intervention programs, the rate of anemia among Indian women has remained over 45% since 1990, and anemia continues to be strongly linked to iron deficiency. Researchers have started looking into alternative treatments, such as homoeopathy, as a result of this disparity in the efficacy of therapy [4]. A 16-year-old girl with IDA was assessed using the Montreal Cognitive Assessment (MoCA), a well-known instrument for identifying cognitive impairments. Her hematologic and cognitive health both improved with dietary modifications and individualized homeopathic therapy, without the use of traditional supplementation. This article seeks to use a case study to demonstrate how effective homeopathic care is at treating cognitive levels of IDA in teenage girls.

Case report

Patient Profile

A 16-year-old girl came to the outpatient clinic with complaints of ongoing exhaustion, poor focus, impatience, and a clear drop in academic performance during the previous three months. The patient stated that they had no noteworthy prior medical history, chronic conditions, or recent infections. Her monthly periods lasted six to seven days and were somewhat severe, but they were consistent. Recent weight loss, iron supplementation, or gastrointestinal haemorrhage was not documented.

Clinical Examination

The patient was hemodynamically stable during the physical examination, but appeared pale. Her BMI was in the acceptable range for her age and height. There was no evidence of neurological impairments, organomegaly, or lymphadenopathy. Although the patient admitted having trouble concentrating during class and conversations, she was cooperative and aware of time, location, and who she was. **Table – 1** represents baseline and follow-up investigations.

Intervention

Phosphoric acid 200C was chosen as the treatment after repertorization and constitutional examination because of its effects on mental fatigue, poor memory, difficulty concentrating, and weakness following loss of vital fluids (in this case, menstruation).

Dosage: Phosphoric acid 200 is administered every 15 days for three months.
Follow-up: Routine assessment every 30 days

Discussion

The impact of IDA on adolescents is significant as it hinders brain oxygenation and neurotransmitter activity, leading to lower academic achievement and learning potential [7, 8]. The patient in this instance had typical indications of IDA-related cognitive deterioration [3].

Table – 1: Investigations: Baseline vs. Follow-Up.

Parameter	Baseline (Week 0)	Week 4	Week 8	Interpretation
Hemoglobin (Hb)	9.1 g/dL	10.4 g/dL	11.6 g/dL	Improvement toward normal range; mild anemia resolved by week 8
Serum Ferritin	9.5 ng/mL	14.2 ng/mL	19.0 ng/mL	Increase indicating replenishment of iron stores
MoCA Score	21/30	25/30	28/30	Cognitive improvement in attention, recall, and executive function
MoCA – Attention	3/6	4/6	6/6	Full improvement
MoCA – Delayed Recall	1/5	2/5	4/5	Partial improvement
MoCA - Language	1/3	2/3	3/3	Full improvement
MoCA - Visuospatial	3/5	4/5	4/5	Mild improvement
Fatigue Severity Score	8/10	5/10	3/10	Significantly reduced

The gradual normalization of hematological variables without traditional iron supplementation, along with notable cognitive gains monitored by MoCA, is noteworthy. Dietary changes alone can sometimes lead to the spontaneous resolution of mild IDA, but the observed cognitive course points to the potential for a synergistic effect from homeopathic treatment.

The Montreal Cognitive Assessment (MoCA) was helpful in objectively charting the patient's cognitive baseline and tracking her response to therapy over time. Her gradual improvement in MoCA scores matched her clinical recovery and the normalization of her iron indicators [5, 6].

Since homeopathy treats each patient on an individual basis, the patient's physical, psychological, and emotional symptoms dictate the course of therapy [9]. Phosphoric acid is frequently used to treat instances of mental fatigue, forgetfulness, and anemia-induced exhaustion - making it a suitable choice for this case [10].

According to the study, the MoCA can serve as a basic and beneficial cognitive screening agent for monitoring homeopathic treatment response in adolescents who are having IDA. However, as a single-subject report, these findings cannot be generalized. RCT studies are needed to validate the reproducibility and efficacy of homeopathic intervention in similar cases [11].

Conclusion

This case underscores the utility of the Montreal Cognitive Assessment (MoCA) as a practical, non-invasive tool for detecting and monitoring cognitive impairment in adolescents with iron-deficiency anemia. It also suggests that individualized homeopathic treatment, when guided by constitutional prescribing, may contribute to improvements in both cognitive function and hematological parameters in affected individuals. The observed neurocognitive recovery highlights the potential role of homeopathy as a supportive therapeutic modality in managing IDA. However, to establish its efficacy and broader clinical relevance, further research involving larger sample sizes and controlled trials is essential.

References

1. Beard JL. Iron deficiency alters brain development and functioning. J Nutr., 2003; 133(5 Suppl 1): 1468S–1472S.
2. McCann JC, Ames BN. An overview of evidence for a causal relation between iron deficiency during development and deficits in cognitive or behavioral

function. Am J Clin Nutr., 2007; 85(4): 931–945.
3. Lozoff B, Georgieff MK. Iron deficiency and brain development. Semin Pediatr Neurol., 2006; 13(3): 158–165.
4. Khushboo Saiyed, NITHI AYOG: Anemia alert: Is the Government aiming for cost-effective interventions? https://www.niti.gov.in/anemia-alert-government-aiming-cost-effective-interventions
5. Oberbaum M, et al. Homeopathy and the treatment of infectious diseases. Homeopathy, 2003; 92(3): 133–138.
6. Swayne J. International Dictionary of Homeopathy. Churchill Livingstone; 2000.
7. Bhatnagar M, et al. Effect of iron deficiency on cognition in adolescent girls. Indian J Nutr Diet., 2017; 54(4): 420–425.
8. Halterman JS, et al. Iron deficiency and cognitive achievement among school-aged children and adolescents in the United States. Pediatrics, 2001; 107(6): 1381–1386.
9. Vithoulkas G. The Science of Homeopathy. Grove Press; 1980.
10. Boericke W. Pocket Manual of Homeopathic Materia Medica. B. Jain Publishers; 2005.
11. Mathie RT, et al. Randomised placebo-controlled trials of individualised homeopathic treatment: systematic review and meta-analysis. Syst Rev., 2014; 3: 142.