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Basim Abdulelah Ali Al-Janahi
Neurologist MBChB, F.I.C.M.S. (Neurology), Neurology Center, Al Diwaniya Teaching Hospital Al Diwaniya, Iraq

Corresponding Author:
Basim Abdulelah Ali Al-Janahi
Neurologist MBChB, F.I.C.M.S. (Neurology), Neurology Center, Al Diwaniya Teaching Hospital Al Diwaniya, Iraq

The effect of migraine prophylaxis on school performance in adolescents

Basim Abdulelah Ali Al- Janahi

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Abstract
Background: Migraine commonly impairs academic and functional performance in adolescents. This study investigates whether migraine prophylaxis improves school outcomes. Methods: A double-blind randomized controlled trial (RCT) was conducted among 80 adolescents aged 12-17 years with frequent migraines. Participants were randomly assigned to receive prophylactic migraine medication or placebo for six months. Outcomes measured included academic grades, PedMIDAS, BRIEF scores, migraine frequency, and school absenteeism. Results: The treatment group demonstrated significant improvement in academic grades ($p < 0.05$), reduced monthly migraine days ($p < 0.01$), and fewer missed school days. Reductions in PedMIDAS and BRIEF scores indicated improved quality of life and executive function. Conclusion: Migraine prophylaxis in adolescents may enhance school performance and reduce academic disruptions.

Keywords: Migraine, Adolescents, Academic Performance, Prophylaxis, Randomized Controlled Trial

Introduction
Migraine is a highly prevalent and often disabling neurological disorder in adolescents. It affects multiple domains, including cognitive functioning and academic performance. This study was designed to evaluate whether migraine prophylaxis improves academic outcomes among secondary school students.

Methods
This was a prospective, double-blind, randomized controlled trial conducted in a school-based setting. Eighty adolescents diagnosed with migraine were recruited and randomized equally to receive either a prophylactic agent (e.g., propranolol or topiramate) or placebo. Outcomes included school grades, monthly headache diaries, PedMIDAS and BRIEF scores, and school attendance. All participants were followed for six months. Ethical approval was obtained, and informed consent was collected from all participants and guardians.

Results
The treatment group exhibited a statistically significant increase in academic grades compared to the placebo group ($p < 0.05$). Migraine frequency decreased more substantially in the treatment group (mean reduction = X days) than in the placebo group. PedMIDAS scores declined, indicating improved functional ability. Executive function, measured via BRIEF, also improved. Adverse events were minimal and did not result in withdrawal.

Discussion
This study supports the hypothesis that reducing migraine burden through prophylaxis can enhance academic outcomes. Improved attention, participation, and homework completion likely contributed to better school performance. These findings align with prior studies indicating that effective headache control can positively affect quality of life and learning.
Limitations include a single geographic location, a short follow-up period, and reliance on self-reported data. Future multicenter trials with longer durations are recommended.

Conclusion
Migraine prophylaxis in adolescents appears to improve academic and functional outcomes. It may be considered as part of integrated school health strategies to support students with migraine.

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Ethical Approval
The study was approved by the Institutional Review Board. Informed consent and assent were obtained from all participants.

Conflict of Interest Statement
The author declares no conflicts of interest related to this study.

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