

RECURRENT HEADACHE IN ADOLESCENTS: RISK FACTORS, CLINICAL FEATURES, AND MODERN PREVENTIVE APPROACHES

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Abstract

Recurrent headache is a common health problem among adolescents and can significantly affect academic performance, emotional well-being, sleep, and social activities. During adolescence, rapid physical development, hormonal changes, academic pressure, irregular sleep, prolonged screen exposure, dehydration, and psychological stress may contribute to the onset or worsening of headache. Migraine and tension-type headache are among the most frequent primary headache disorders in this age group. Although headaches are often benign, recurrent or severe symptoms require appropriate clinical assessment to exclude secondary causes. Prevention should focus on identifying individual triggers, maintaining regular sleep and nutrition, adequate hydration, physical activity, limiting excessive screen exposure, and addressing psychological stress. This article reviews the major risk factors associated with recurrent headache in adolescents and discusses practical preventive strategies that can improve daily functioning and quality of life.

Keywords: adolescents, headache, migraine, tension-type headache, lifestyle, stress, sleep, prevention, screen time, psychological factors.

Introduction

Headache is one of the most frequently reported neurological symptoms during adolescence. It may occur occasionally or develop repeatedly over months or years. For some adolescents, headaches are mild and short-lasting, while others experience recurrent attacks that interfere with school attendance, concentration, family relationships, and participation in social activities.

Adolescence is characterized by significant biological, psychological, and social changes. Pubertal development, changing sleep patterns, increasing academic responsibilities, and greater independence can influence health behavior. Adolescents may frequently skip breakfast, drink insufficient amounts of water, remain awake late at night, or spend several hours using smartphones and computers. These behaviors can contribute to headache development.

Primary headache disorders, particularly migraine and tension-type headache, represent important causes of recurrent headache. However, headaches may also occur secondary to infections, visual problems, medication use, head trauma, hypertension, or other medical conditions. Therefore, appropriate assessment is necessary when symptoms are persistent, progressive, or unusual.

Common Types of Headache in Adolescents

Migraine is characterized by recurrent attacks that may be associated with moderate or severe head pain, nausea, vomiting, and sensitivity to light or sound. Physical activity may worsen the symptoms, and some adolescents may prefer to rest in a quiet and dark environment during an attack.

Tension-type headache is another common presentation. It is often described as a pressing or tightening sensation rather than a pulsating pain. It may occur on both sides of the head and can be associated with stress, fatigue, prolonged concentration, or muscle tension.

The distinction between headache types is clinically important because preventive recommendations and treatment approaches may differ.

Lifestyle-Related Risk Factors

Lifestyle has a substantial influence on headache frequency. **Irregular sleep** is one of the most frequently reported factors. Adolescents often experience changes in their circadian rhythm and may naturally prefer later bedtimes. Academic tasks, entertainment, and smartphone use can further delay sleep.

Both insufficient sleep and excessive changes in sleeping patterns may contribute to headaches. Maintaining a relatively consistent sleep and wake schedule is therefore an important preventive measure.

Skipping meals may also increase susceptibility to headache. Long periods without food can affect energy availability and may trigger symptoms in susceptible adolescents. Regular meals containing adequate protein, complex carbohydrates, fruits, and vegetables are recommended.

Dehydration is another potentially modifiable factor. Adolescents who are physically active, live in hot climates, or spend long periods at school may fail to

drink enough fluids. Adequate hydration should therefore be encouraged throughout the day.

Screen Exposure and Headache

Digital devices have become an integral part of adolescent education and social communication. However, prolonged smartphone, tablet, and computer use may contribute to headaches through several mechanisms.

Extended screen use can lead to visual fatigue, reduced blinking, poor posture, neck and shoulder tension, and delayed sleep. Bright screens and prolonged visual concentration may aggravate symptoms in some individuals.

Preventive strategies include regular breaks from screens, maintaining an appropriate viewing distance, adjusting screen brightness, using adequate lighting, and maintaining a neutral posture. Adolescents should also avoid excessive smartphone use immediately before bedtime.

Psychological Factors

Psychological stress is an important contributor to recurrent headache. Adolescents may experience stress related to examinations, academic competition, family expectations, peer relationships, social media, and concerns about their future.

Stress may contribute to muscle tension and changes in sleep and eating patterns. In individuals with migraine, emotional stress may also act as a trigger for attacks.

Psychological prevention should therefore be incorporated into headache management. Adolescents can benefit from relaxation exercises, breathing techniques, physical activity, time-management skills, and adequate recreational activities. When persistent anxiety, low mood, or significant emotional difficulties accompany headaches, professional psychological assessment may be appropriate.

Physical Activity and Posture

Regular physical activity is generally beneficial for adolescent health and may support headache prevention. Exercise can improve sleep, reduce stress, and contribute to overall physical fitness.

In contrast, prolonged sedentary behavior may contribute to poor posture and muscular tension, particularly in the neck and shoulders. Adolescents who spend many hours studying or using digital devices should be encouraged to change position regularly and incorporate movement into their daily routines.

A balanced exercise program should be adapted to the individual's physical condition. Adolescents who notice headaches consistently associated with strenuous exercise should receive appropriate medical evaluation.

Headache Diary and Identification of Triggers

One practical method for improving headache management is maintaining a headache diary. Adolescents can record the date, duration, intensity, associated symptoms, sleep duration, meals, fluid intake, physical activity, screen exposure, and stressful events.

Over time, this information may reveal individual patterns. For example, a student may discover that headaches frequently occur after late nights, skipped meals, prolonged screen use, or examination-related stress.

A headache diary can also help healthcare professionals evaluate symptom patterns and assess the effectiveness of preventive interventions.

Warning Signs Requiring Medical Assessment

Although most adolescent headaches are not caused by serious disease, certain symptoms require prompt medical evaluation. These may include a sudden and unusually severe headache, headache following significant head trauma, persistent vomiting, altered consciousness, seizures, neurological abnormalities, fever with neck stiffness, progressive worsening, or headaches that repeatedly wake the adolescent from sleep.

A new headache with significant visual, speech, balance, or motor abnormalities should also be assessed promptly.

Appropriate clinical evaluation helps distinguish primary headache disorders from secondary causes and prevents unnecessary self-treatment.

Conclusion

Recurrent headache in adolescence is a multifactorial problem influenced by neurological, lifestyle, psychological, and environmental factors. Irregular sleep,

skipped meals, dehydration, excessive screen exposure, physical inactivity, poor posture, and psychological stress may increase headache frequency in susceptible individuals.

Prevention should therefore extend beyond medication. Healthy daily routines, adequate hydration and nutrition, regular physical activity, appropriate screen habits, stress management, and identification of individual triggers can play an important role in reducing headache burden. At the same time, recurrent or atypical headaches should be evaluated by a healthcare professional to exclude secondary causes.

A comprehensive and adolescent-centered approach can improve symptom control, reduce interference with education and social life, and promote healthier habits that may benefit neurological and general health throughout later life.

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