



Original article

Age-related features of iron metabolism in children and adolescents, normal and pathological

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ABSTRACT

Background: Iron metabolism undergoes dynamic changes during childhood and adolescence, which can have both normal and pathological implications. This study aims to explore the age-related features of iron metabolism in children and adolescents, considering both normal physiological processes and pathological conditions.

Methods: A comprehensive review of the literature was conducted to gather evidence on the age-related changes in iron metabolism in children and adolescents. Key findings were analyzed and synthesized to highlight the normal developmental patterns and pathological alterations in iron metabolism.

Results: Iron metabolism in children and adolescents is characterized by distinct age-related features. In early life, there is a physiological decline in iron stores inherited from the mother, which may lead to temporary iron deficiency. Rapid growth and increased iron requirements during infancy and childhood necessitate efficient iron absorption and utilization. During adolescence, there is a marked gender difference in iron metabolism due to the onset of menstruation in females. Additionally, iron metabolism can be influenced by factors such as dietary intake, hormonal changes, and chronic diseases. Pathological conditions related to iron metabolism in this population include iron deficiency anemia, iron overload disorders (e.g., hereditary hemochromatosis), and chronic diseases affecting iron homeostasis. These conditions may result from genetic factors, inadequate dietary intake, chronic inflammation, or underlying diseases.

Conclusion: Understanding the age-related features of iron metabolism in children and adolescents is crucial for both normal development and the diagnosis and management of pathological conditions. Regular monitoring of iron status and appropriate interventions, including dietary adjustments, iron supplementation, or treatment of underlying diseases, are essential for maintaining optimal iron balance and preventing iron-related disorders in this population.

Keywords: *Iron Metabolism, Children, Adolescents, Age-Related Changes, Normal, Pathological*

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