



ORIGINAL ARTICLE

Clinical Evaluation of Ferrum Phosphoricum 3X in the Management of Iron Deficiency Anaemia in Children – Original Article

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ABSTRACT

Iron deficiency anaemia (IDA) is the most common nutritional deficiency disorder affecting children worldwide, especially in developing countries like India. It adversely affects physical growth, cognitive development, immunity, and overall well-being. Conventional treatment mainly involves iron supplementation, which can cause gastrointestinal issues and poor adherence. Homoeopathy focuses on improving iron absorption and utilisation rather than direct supplementation. Ferrum phosphoricum 3X, a biochemic and homoeopathic remedy, is widely used in treating anaemia, particularly in children. This article explores the clinical features, diagnostic methods, risk factors, and homoeopathic management of IDA in children, with a special focus on Ferrum phosphoricum 3X's role in boosting haemoglobin levels and improving overall health.

KEYWORDS

Iron deficiency anaemia, Children, Ferrum phosphoricum 3X, Homoeopathy, Anaemia, Paediatric age group

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PREVALENCE

Iron deficiency anaemia (IDA) is the most common nutritional deficiency disorder worldwide and remains a major public health problem, especially among children in developing countries (1). According to global estimates, nearly one-third of the world's population is affected by anaemia, with iron deficiency being the leading cause. Children are particularly vulnerable due to rapid growth, increased iron requirements, and inadequate dietary intake. The prevalence of iron deficiency anaemia is highest in preschool and school-going children, especially in low- and middle-income countries. In developing nations, the prevalence among children ranges from 39% to 48%, whereas in industrialised countries it varies between 5% and 20% (2-4). In India, iron deficiency anaemia continues to be a serious concern, affecting nearly 70% of children, making it one of the leading causes of morbidity in the paediatric age group. Factors such as malnutrition, poor dietary habits, recurrent infections, parasitic infestations, poverty, and limited access to healthcare significantly contribute to the high burden of IDA. Adolescent girls are at increased risk due to menstrual blood loss combined with inadequate iron intake. Iron deficiency anaemia in childhood is associated with long-term consequences, including impaired cognitive development, poor academic performance, reduced physical capacity, and increased susceptibility to infections, highlighting the importance of early diagnosis and effective management (5).

PATHOPHYSIOLOGY

Iron plays a vital role in haemoglobin synthesis, oxygen transport, cellular respiration, DNA synthesis, and various enzymatic reactions. Iron deficiency anaemia develops when iron losses or physiological requirements exceed dietary intake and absorption, leading to depletion of iron stores and impaired erythropoiesis.

The pathophysiology of iron deficiency anaemia occurs in three stages:

1. **Iron Depletion**
In the initial stage, iron stores in the body, primarily reflected by serum ferritin levels, become depleted. Haemoglobin levels may still remain within normal limits, and the condition is often asymptomatic.
2. **Iron-deficient Erythropoiesis**
As iron stores continue to fall, iron supply to the bone marrow becomes insufficient for optimal red blood cell production. This results in reduced haemoglobin synthesis and the formation of smaller red blood cells with decreased haemoglobin content.
3. **Established Iron Deficiency Anaemia**
In the final stage, haemoglobin levels fall below normal values, leading to microcytic, hypochromic anaemia. Laboratory findings typically show reduced haemoglobin, decreased MCV, MCH, MCHC, low serum ferritin, and increased total iron-binding capacity (TIBC).

In children, chronic iron deficiency also affects non-haematological tissues, particularly the brain, resulting in delayed neurodevelopment, behavioural abnormalities, and reduced learning ability. Iron deficiency impairs immune function, increasing susceptibility to recurrent infections. Thus, iron deficiency anaemia represents a systemic disorder affecting multiple organ systems, not merely a reduction in haemoglobin levels (6).

CLINICAL FEATURES

Iron deficiency anaemia in children develops gradually and may remain asymptomatic in early stages. However, as iron stores deplete, clinical symptoms become evident. These often include reduced physical endurance, impaired academic performance, delayed developmental milestones, and increased susceptibility to infections. Chronic anaemia can also lead to poor weight gain, behavioural changes, and weakened immunity (7).

SIGNS

Common clinical signs observed in children with iron deficiency anaemia include:

- Pallor of skin, conjunctiva, and nail beds
- Brittle nails and hair fall
- Glossitis and angular stomatitis
- Tachycardia
- Poor muscle tone
- Growth retardation
- Signs of nutritional deficiency

SYMPTOMS

Symptoms vary depending on the severity and duration of anaemia. Frequently reported symptoms include:

- Easy fatigability and lethargy
- Breathlessness on exertion
- Loss of appetite
- Recurrent infections
- Headache and dizziness
- Excessive sweating
- Pica (craving for non-nutritive substances like dirt or chalk)
- Behavioural issues and poor concentration

EXAMINATION

A detailed clinical examination is essential and includes:

- General physical examination focusing on pallor, nutritional status, growth parameters, and vital signs
- Systemic examination of cardiovascular, respiratory, gastrointestinal, and nervous systems
- Assessment of developmental milestones in paediatric patients

INVESTIGATIONS AND DIAGNOSIS

Diagnosis of iron deficiency anaemia is confirmed through laboratory investigations:

- Haemoglobin: Reduced
- Mean Corpuscular Volume (MCV): Reduced
- Mean Corpuscular Haemoglobin (MCH): Reduced
- Mean Corpuscular Haemoglobin Concentration (MCHC): Reduced
- Packed Cell Volume (PCV): Reduced
- Serum Ferritin: Reduced
- Total Iron Binding Capacity (TIBC): Increased

Iron deficiency anaemia is diagnosed when iron losses or physiological requirements exceed absorption, leading to impaired erythropoiesis.

RISK FACTORS AND COMPLICATIONS

Risk Factors

- Inadequate dietary iron intake
- Poor absorption due to gastrointestinal disorders
- Rapid growth phases
- Prematurity
- Parasitic infestations
- Chronic infections
- Excessive cow's milk consumption
- Menstruation in adolescent girls

Complications

- Delayed physical and mental development
- Poor academic performance
- Increased susceptibility to infections
- Neurocognitive impairment
- Reduced immunity and stamina

HOMOEOPATHIC APPROACH

Homoeopathy treats iron-deficiency anaemia by boosting the body's ability to absorb and utilise iron rather than directly replacing it. The choice of remedy depends on the totality of symptoms, constitutional factors, and miasmatic background. Ferrum phosphoricum 3X is particularly effective in managing anaemia, especially in children. It works at the cellular level to improve oxygenation, enhance haemoglobin synthesis, and correct circulatory imbalance. Homoeopathic literature suggests that Ferrum phosphoricum 3X increases haemoglobin levels, improves vitality, and is especially suitable for pale, weak, and anaemic children. The remedy is well-tolerated and safe for paediatric use. It can be administered alone or as part of an individualised homoeopathic prescription. Regular follow-up and monitoring of haemoglobin levels are essential to assess clinical improvement (8).

Conclusion

Iron deficiency anaemia remains a significant public health concern in the paediatric age group, particularly in developing countries. It negatively impacts physical growth, cognitive development, immunity, and overall quality of life. Early identification and timely management are essential to prevent long-term complications. Homoeopathy provides a holistic approach to the management of iron deficiency anaemia. It focuses on improving the body's capacity to absorb and utilise iron rather than solely relying on supplementation. Ferrum phosphoricum 3X, a well-known biochemic and homoeopathic remedy, is particularly effective in managing paediatric anaemia. It is especially beneficial for pale, weak, and anaemic children, helping to boost haemoglobin levels, improve vitality, and restore normal physiological balance. Clinical evaluation suggests that Ferrum phosphoricum 3X is safe, well-tolerated, and effective in managing iron deficiency anaemia in children when prescribed judiciously with regular follow-up and appropriate dietary advice. Therefore, it can be considered a valuable therapeutic option in the holistic management of iron deficiency anaemia in the paediatric population.

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