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Perspective

Iron Therapy: A Vital Strategy for Combating Iron Deficiency and Restoring Haematological Health

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DESCRIPTION

Iron therapy is a widely used and essential medical treatment aimed at correcting iron deficiency, a condition that affects millions of people globally. Iron is a vital mineral necessary for numerous physiological functions, most notably the formation of haemoglobin, the oxygen-carrying component of red blood cells. When the body lacks sufficient iron, it cannot produce enough healthy red blood cells, leading to iron deficiency anaemia-a condition characterized by fatigue, weakness, pallor, and reduced cognitive and physical performance. Iron therapy, administered through oral or intravenous routes, plays a central role in replenishing the body's iron stores and restoring normal function.

The need for iron therapy arises from various causes of iron deficiency. These include inadequate dietary intake, chronic blood loss (such as from menstruation or gastrointestinal bleeding), increased iron requirements during pregnancy or growth spurts, and conditions that impair iron absorption in the gastrointestinal tract, such as celiac disease or inflammatory bowel disease. In many developing countries, iron deficiency is a significant public health concern due to malnutrition, parasitic infections, and poor access to healthcare. Even in developed countries, it remains common among specific populations like pregnant women, infants, and those with chronic illnesses.

Oral iron supplementation is typically the first line of treatment for mild to moderate iron deficiency. Ferrous salts, such as ferrous sulfate, ferrous fumarate, and ferrous gluconate, are commonly prescribed due to their high bioavailability. Oral iron is affordable, non-invasive, and effective in most cases, especially when taken with vitamin C, which enhances iron absorption. However, gastrointestinal side effects-such as nausea, constipation, and abdominal discomfort-are frequent complaints that can reduce patient compliance. To address these issues, newer formulations, including slow-release tablets and iron polymaltose complexes, have been developed to improve tolerability.

For individuals who cannot tolerate oral iron, have severe iron deficiency anaemia, or require rapid replenishment of iron stores, IntraVenous (IV) iron therapy is an effective alternative. Intravenous iron bypasses the digestive system, allowing for direct delivery into the bloodstream and quicker response. It is especially useful in patients with chronic kidney disease, inflammatory bowel disease, cancer, or those undergoing major surgery. Modern IV iron preparations, such as ferric carboxymaltose, iron sucrose, and iron isomaltoside, are generally safe and can be administered in high doses with fewer side effects compared to older formulations.

While iron therapy is beneficial, its administration requires careful monitoring. Excessive iron can accumulate in the body, particularly in individuals with genetic conditions like hemochromatosis, leading to organ damage. Therefore, it is important to determine the underlying cause of iron deficiency and tailor treatment to the individual's needs. Blood tests, including haemoglobin levels, serum ferritin, and transferrin saturation, are used to diagnose iron deficiency and monitor therapy progress. Periodic re-evaluation ensures that the treatment remains effective and that iron levels do not exceed safe limits.

In special populations such as pregnant women, iron therapy is not only a treatment but also a preventive measure. Pregnancy significantly increases the body's iron requirements due to the development of the fetus and the expansion of maternal blood volume. Iron deficiency during pregnancy is associated with increased risk of preterm delivery, low birth weight, and postpartum depression. Guidelines from the World Health Organization and various health authorities recommend routine iron supplementation during pregnancy, particularly in areas with high anaemia prevalence.

CONCLUSION

Iron therapy is a cornerstone in the management of iron deficiency and anaemia. Whether delivered orally or intravenously, it significantly improves patient outcomes, supports physiological health, and reduces the burden of disease across populations. As with any medical treatment, the success of iron therapy depends on accurate diagnosis, appropriate

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selection of treatment modality, and ongoing monitoring. With continued research and education, iron therapy remains a powerful tool in the effort to combat iron deficiency and promote global health.