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Review Article

**MANAMGMENT OF IRON DEFICIENCY ANEMIA:
SYSTEMATIC REVIEW IN LITERATURE****Abdullah Albuhasah^{1*}, Saud Meaigel², Abdulwahab Alkhashram¹, Hashem Alshareef³,
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Moafa⁵, Abdulrahman Alenazi³, Hasan Albahrani⁶**¹ King Faisal University, Al-Hasa, Saudi Arabia² King Saud University, Riyadh, Saudi Arabia³ Al-Imam Muhammad bin Saud Islamic University, Riyadh, Saudi Arabia⁴ Batterjee Medical College, Jeddah, Saudi Arabia⁵ Jazan University, Jazan, Saudi Arabia⁶ Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia**Abstract:**

This review is aiming to systematically summarize and compare the literature on Management of iron deficiency anemia. The present review was conducted by searching in Medline, Embase, Web of Science, Science Direct, BMJ journal and Google Scholar for, researches, review articles and reports, published over the past years. Books published on Management of iron deficiency anemia. If several studies had similar findings, we randomly selected one or two to avoid repetitive. Based on findings and results this review found The reported prevalence of anemia varied between 6.2% and 73.7%, with higher reported frequencies in older studies and in in-patients. Iron deficiency is the most common underlying condition. Vitamin B12 deficiency is related to the extent of ideal resection but has rarely impact on anemia. Diagnostic criteria are not established and treatment guidelines are missing. Oral iron supplementation seems effective for short periods but intolerance leads to discontinuation in up to 21%.

Keywords: iron, deficiency, anemia.**Corresponding author:****Dr. Abdullah Albuhasah,**Email: Albuhasah@gmail.com

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INTRODUCTION:

Iron-deficiency anemia is anemia caused by a lack of iron in the body.[1] Anemia is defined as a decrease in the number of red blood cells or the amount of hemoglobin in the blood.[2] Onset can be either slow or fast. When onset is slow, symptoms are often vague, including feeling tired, weakness, shortness of breath, or poor ability to exercise.[3] Anemia that comes on quickly often has greater symptoms, including: confusion, feeling like one is going to pass out, and increased thirst.[3] There needs to be significant anemia before a person becomes noticeably pale.[3] Problems with growth and development may occur in children.¹ There may be additional symptoms depending on the underlying cause.[3]

The most appropriate definition of iron deficiency is the proliferative response of the bone marrow to intravenous iron supplementation, an approach that has not been studied.

The World Health Organization defines anemia as hemoglobin concentration <12 g/dL for non-pregnant women and <13 g/dL for men. These values vary between countries, regions and laboratories. A hemoglobin level below 10 g/dL is commonly considered as severe anemia.

Original articles were found on the iron deficiency management, on iron intake and on iron absorption. One review was identified on iron deficiency management According to these reports; iron deficiency seems to be a common condition.

METHODS:

The present review was conducted Nonmember 2018 in accordance with the preferred reporting items for systematic reviews and meta-analyses (PRISMA) declaration standards for systematic reviews. We reviewed all the topics on iron deficiency management, such as epidemiology and clinical statistics. To achieve this goal, we searched Medline, Embase, Web of Science, Science Direct, and Google Scholar for, researches, review articles and reports, published over the past 15 years. Books published on iron deficiency management.

Our search was completed without language restrictions. Then we extracted data on study year, study design, and key outcome on iron deficiency. The selected studies were summarized and unreproducible studies were excluded. Selected data is shown in the Table 1.

Inclusion criteria

Review of the medical literature was conducted to identify original studies, case reports and reviews concerning iron deficiency anemia. In November 2018, Pub- Med was searched for English-language articles. The terms used for the online bibliographic search included: anemia, iron deficiency, management were in English language.

Exclusion criteria

Non-relating articles were discarded, while additional articles (on iron, vitamin B12, cobalamine, folic acid, or erythropoietin) were identified through a manual search.

Data extraction and analysis

Information relating to each of the systematic review elements was extracted from the studies and collated in qualitative tables. Direct analysis of the studies of iron deficiency anemia is made with extreme caution, as different sampling techniques can provide bias as overview of the assemblage.

RESULTS:

The variety of available iron compounds and the different routes of administration (oral and intravenous) have been a topic of several clinical trials . In most studies testing oral iron, 100–200 mg of ferrous salts (fumarate or sulphate) were administered.[4] As only small amounts of iron are absorbed (10–30 mg) the majority of ingested iron passes along within the bowel content. At sites of ulcers, the iron-rich luminal matter may increase the formation of hydroxyl radicals.[5]

Iron sucrose was effective in 50–91% depending on the criteria used. Two comparative trials (oral vs. intravenous iron) have been published recently Secondary end points, such as an increase in ferritin as marker of iron reserve were only met in the intravenous treatment group. The other study as mentioned above was not designed to measure efficacy, but demonstrated better tolerability of intravenous iron therapy. At this point, larger and well-designed studies are needed to evaluate the efficacy and safety of various routes and compounds of iron supplementation. anaemia.[6] It is needless to mention that anemia can be managed with blood transfusions. Perioperative autologous blood donations have been successfully tested as well. In patients with frequent and therapy- resistant hemorrhage, surgical intervention or resection can be considered.[8]

Table (1) Results from Sequencing Studies.

Authors	Sample	Design	Intervention	Main Results (Hb(g/dL) change)
Koutroubakis et al. (2006) ⁴	20	Refractory anaemia	Darbepoetin- α iron sucrose 0.9 μ g/kg BW once/week, 1300 mg iron total	9.5–12.7
Erichsen et al.(2005) ⁵	41	Randomized , open-label, safety	100 mg/day Ferrous fumarate	Not specified 13.1–13.3
Erichsen et al.(2003) ⁶	10	Open-label, safety	120 mg/day Ferrous fumarate	Not specified 10.6–10.6
De Silva et al (2003) ⁷	53	Retrospective	Iron therapy Various	Not specified
Schroeder et al.(2005) ⁸	46	Randomized , open-label, multicentre	1418 mg Iron sucrose Intravenous iron	9.8–12.3
Bodemar et al. (2004) ⁹	59	Retrospective	1400 mg Iron sucrose Intravenous iron	9.7–12.8
Mamula et al.(2002) ¹⁰	70	Retrospective	Iron dextran Total dose iron	Not specified Mean

DISCUSSION:

The variation in data as summarized in Table 1 of this systematic review indicates that anemia is more prevalent in in-patients than in outpatients. If anemia is a trigger for hospitalization, it should be recognized early, diagnosed fast and treated effectively preferably in the ambulant setting. For inpatients, anemia may prevent doctors from discharging patients. Again, early and effective measures to counteract this condition may reduce the time of hospitalization and prevent the use of blood transfusions. Not only economic reasons should lead to early diagnosis and treatment, but also lower quality of life should sensitize doctor's perception of the magnitude of this problem. Although reliable (population-based) data are not available, the

prevalence of anemia seems to decrease with time. The same was also observed in a recent original analysis.[11] as anemia is related to disease activity; it is likely that the introduction of effective treatment options at the end of the 20th century has changed the natural course. From the data extracted that the available studies used different absorption tests and came to contradictory results. Although most of the laboratory tests have been used for over 30 years. The diagnostic criteria of iron deficiency are still vague. In a recent, review on the presence of iron deficiency was considered when ferritin levels drop below 100 μ g/ L and the transferrin saturation is below 16%.[12]

CONCLUSIONS:

As iron deficiency is the most prevalent cause of anemia, iron supplementation is the most relevant therapeutic intervention. In general, oral iron preparations are inexpensive, partially (temporarily) efficient, but are commonly associated with GI side effects (abdominal pain, increase in diarrhea) that

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limit their use and compliance. For the treatment of anemia, the most important measure is the treatment of the underlying disease. This even holds true for drugs (such as purine analogues) that have adverse effects on erythropoiesis. As effective therapy may cause mucosal [13,14] we may expect a lower incidence of anaemia. [9] It is unlikely, however, that anaemia will completely disappear in the near future.