МРТ гораздо безопаснее КТ, так как при магнитодиагностике не используется ионизирующая радиация (рентгеновские лучи). Однако исследование вызывает некоторый нагрев тела, поэтому этот метод не проводят в первые три месяца беременности без крайней необходимости. Во II и III триместре МРТ сичтается более безопасной, но, если есть возможность отложить сканирование до родов, ждут конца беременности. МРТ-контраст беременным противопоказан.

Особенности лечения инсультов у беременных заключаются в следующем: родоразрешение, введение сульфата магния, антигипертензивная терапия, противосудорожная терапия, блокаторы медленных кальциевых каналов (при кровоизлиянии), борьба с отеком головного мозга. Мероприятия проводятся сразу же после родов [5, 6].

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RESTLESS LEG SYNDROME AND IRON DEFICIENCY

Introduction

Restless leg syndrome (RLS), also known as Willis Ekbom disease, is a neurological movement disorder characterized by a distressing urge to move the legs (akathisia) that worsens during periods of sleep or inactivity and is partially or completely relieved with movement or walking. These symptoms predominantly occur at night or in the evening, resulting in sleep disturbances and a reduced quality of life [1].

The exact cause of RLS remains unclear, but emerging research suggests that iron deficiency plays an important role in the development and progression of RLS. Iron is essential for dopamine and myelin synthesis as well as neurotransmitter regulation in the brain, processes which are disrupted in RLS. Several studies have demonstrated that patients with RLS often exhibit lower serum ferritin levels and brain iron levels even without anemia and have notably improved symptoms with supplementation of iron, further indicating a link between iron deficiency and RLS [2].

Aim

This review aims to examine and synthesize existing research on the association between iron deficiency and RLS.

Material and research methods

For this structured review, a literature search was performed in Google Scholar and PubMed. The search filter was set to cover research published between 2020 and 2025. Keywords including «RLS», «IDA», «Willis – Ekbom disease», «iron deficiency», «restless leg syndrome» were used. Both original research articles and review papers were considered. Additional sources were identified through reference lists of selected papers to ensure thorough coverage of the subject matter.

Research results and their discussion

Several studies have shown that RLS prevalence is higher in conditions linked to iron deficiency states, such as iron deficiency anemia, end-stage renal disease, and pregnancy. This has led to the theory that iron plays an important role in the pathogenesis of RLS [4].

A study conducted in Pakistan revealed that out of 339 patients having RLS that were studied, the prevalence of iron deficiency anemia among RLS patients was 133 (29,2%). The study observed several factors associated with an increased frequency and severity of iron deficiency among RLS patients, including elderly age and obesity. They also noted that, in addition to family history being a risk factor for RLS, females are more prone to developing RLS, as females are generally more frequently and severely affected with IDA. This study underscores the relationship between IDA and RLS and the necessity for evaluation and treatment of patients with RLS [3].

Similarly, a study performed at a regional university hospital in Korea demonstrated a predominantly higher number of patients with RLS among patients suffering from IDA, with most of them experiencing severe or very severe symptoms of RLS. These findings were somewhat higher than those documented in Western countries. Despite being conducted in 2 different countries, both studies yielded similar results, further confirming a strong correlation between RLS and IDA even among different ethnicities [4].

Furthermore, a meta-analysis including 20 studies exploring the link between RLS development and iron deficiency concluded that RLS results from brain iron deficiency and dysfunction of dopamine pathways, especially in areas such as the substantia nigra and putamen, which play a key role in dopamine synthesis. This reduction of brain iron hinders dopamine metabolism, resulting in sensory-motor disturbances characteristic of RLS. The analysis also documented that, similar to RLS symptoms, serum iron levels follow a circadian rhythm, with iron levels dropping by 30-50% at night. This fluctuation in iron concentration may provide an explanation for the diurnal variation of RLS symptoms [5].

In addition, a cross-sectional study on the relationship between iron deficiency anemia with restless leg syndrome and sleep quality in workers working in a textile factory in Iran documented that the prevalence of IDA was higher in female workers [6], with female workers having severe or very severe RLS, further supporting the theory [3].

A study published in the Journal of Family Medicine and Primary Care reviewed the clinical profiles of patients with restless leg syndrome in relation to iron deficiency. This study found that more than 50% had severe RLS, with 22,56% exhibiting low ferritin levels with anemia. They also noted that more than half of the RLS patients were females and that this could be attributed to lower iron stores in women due to monthly blood loss through menstruation and due to hormonal factors such as elevated estrogen levels. The incidence of RLS may be higher in females, as RLS may coexist with migraine, sleep disturbances, and

psychiatric disorders, all of which are more common in females. These findings also suggest that iron deficiency is prevalent among RLS patients, especially women, and may contribute to symptom severity [7].

In addition, multiple evidence-based reviews of the treatment of RLS have been published, and the effects of iron in the treatment of RLS with iron deficiency have been explored. The International Restless Legs Syndrome Study Group guidelines recommend that all patients with serum ferritin of 75 μg/L or less be started on oral iron therapy and monitor ferritin levels regularly. Significant symptom improvement has been observed following iron supplementation. For instance, a randomized, double-blind, placebo-controlled study examined the effects of ferric carboxymaltose on RLS and iron deficiency. At six weeks, the treatment group showed marked improvement in symptoms. Another recent study that also investigated the association between iron deficiency and RLS found that iron deficiency is a risk factor for developing RLS and iron therapy was effective in alleviating the symptoms of RLS, indicating that iron plays a significant role in the pathogenesis of RLS [2, 8, 9].

Based on the literature review above, the prevalence of RLS is higher in individuals with iron deficiency compared to the general population. These findings are consistent across different ethnicities, suggesting that iron deficiency contributes to a higher incidence of RLS cases across cultural borders. In addition to prevalence, it is also important to note that lower iron levels and severe anemia have been shown to exacerbate RLS symptoms, indicating that iron influences the severity of the condition. Furthermore, three articles in the reviewed literature observed that women are more likely than men to develop RLS and to experience severe and very severe symptoms. This conclusion is probably due to the fact that females, particularly of childbearing age, are more susceptible to developing IDA as a result of blood loss due to their menstrual cycle and also due to hormonal changes. This provides scope for more research regarding iron deficiency and RLS in females.

Conclusion

Therefore, it is warranted to monitor iron levels in patients presenting with symptoms of restless legs syndrome and to initiate iron supplementation therapy early in order to prevent progression to severe symptoms of RLS and to improve quality of life in these patients. It is also important to monitor iron levels in adolescents and females of childbearing age more diligently, as this population is more susceptible to developing IDA and subsequently developing severe RLS. Healthcare providers should consider routine screening for iron deficiency, particularly in high-risk groups, as literature suggests that RLS can develop in patients with iron deficiency states even in the absence of symptoms of anemia. Additionally, patients should be educated on maintaining adequate iron intake by diet and or supplementation.

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