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Genetic Variations in Thyroid Disorders: Insights into Autoimmune Thyroid Disease

Ines Vatavuk*

Department of Ophthalmology, Sestre Milosrdnice Zagreb UHC, 10000 Zagreb, Croatia

Introduction

Thyroid eye disease is a debilitating autoimmune condition that affects the eyes and surrounding tissues. It is most commonly associated with Graves' disease, an autoimmune disorder that affects the thyroid gland. TED is characterized by inflammation, swelling, and tissue expansion in the orbit, leading to symptoms such as proptosis (bulging eyes), double vision, and eyelid retraction. The management of TED can be challenging, and treatment options have traditionally focused on managing symptoms and preventing complications. However, in recent years, there have been significant advancements in the treatment of TED, offering new hope for patients with this condition. Teprotumumab is a monoclonal antibody that targets the insulin-like growth factor 1 receptor (IGF-1R), which plays a key role in the pathogenesis of TED. IGF-1R is overexpressed in the orbital tissues of patients with TED and is thought to contribute to the fibrosis and inflammation seen in the disease [1].

Discussion

Teprotumumab works by blocking the action of IGF-1R, thereby reducing inflammation and tissue expansion in the orbit. The efficacy of teprotumumab in the treatment of TED was demonstrated in the phase 2 and phases 3 clinical trials, which showed significant improvement in proptosis, diplopia, and quality of life compared to placebo. Based on these results, teprotumumab was approved by the FDA in 2020 for the treatment of TED, making it the first targeted therapy approved for this condition. Alongside these significant advancements, traditional treatments like doxycycline continue to play a crucial role, providing an effective and accessible option for managing mild to moderate cases. The combination of significant advancements and incremental improvements underscores the importance of a multifaceted approach to TED treatment, ensuring that patients receive the most appropriate care based on their individual needs. As research continues to advance, the future of TED treatment holds promise for even more effective and personalized therapies, ultimately improving the quality of life for those affected by this challenging condition [2]

Conclusion

The development of teprotumumab represents a significant advancement in the treatment of TED, offering a targeted therapy that can improve symptoms and quality of life for patients with this condition. However, teprotumumab is not suitable for all patients with TED, and more research is needed to understand its long-term safety and efficacy. On the other hand, doxycycline represents an incremental step forward in TED management, offering a potentially effective and affordable treatment option for patients with mild to moderate disease. Further research is needed to clarify the role of doxycycline in TED treatment and determine its place in the treatment algorithm for this condition.

References

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***Address for Correspondence:** Ines Vatavuk, Department of Ophthalmology, Sestre Milosrdnice Zagreb UHC, 10000 Zagreb, Croatia, E-mail: vatavuki@gmail.com*

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