Letter to Editor

Biologic Drugs Treatment of Chronic Urticaria

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Dear Editor

Chronic urticaria (CU) is a skin disorder characterized by wheal and flare with a duration of more than 6 weeks affecting 1%-2% of the population (more common in women). Thirty to 35% of cases of CU have angioedema [1]. The etiology of chronic spontaneous urticarial is not usually clear, 40%-50% are idiopathic and 30%-40% are autoimmune [2, 3]. Quality of life in CU is usually disturbed which has a direct relation with severity [4]. The first line treatment choice of urticarial is second antihistamines (AHs) such as cetirizine, loratadine, neotadine, and fexofenadine. Often CU patients are resolved by AHs [1].

Biologic medications are a new and expanding field of therapy for various disorders such as CU. Omalizumab as a recombinant, humanized, and monoclonal IgG1 anti-IgE antibody is the therapy choice as the third step approved by Food and Drug Administration (FDA) indication age >6 years (150 or 300 mg per 4 weeks subcutaneous) [5, 6]. Up to 80% of patients are well-controlled with Omalizumab [7]. In mild-to-moderate Coronavirus disease 2019 (COVID-19), the infection could use omalizumab but not in severe cases [8].

Ligelizumab is an anti-IgE (doses: 24 mg, 72 mg, and 240 mg) that was more effective than omalizumab in phase 2 of a clinical trial study in CU [7]. Mepolizumab is an anti-IL5 100 mg every four weeks. Dupilumab is a monoclonal agent blocking the IL-4/IL-13 axis. Benralizumab is an IL-5Ra blocker monoclonal antibody, 30mg every 4 weeks for 3 times, then every 8 weeks. Tezepelumab is a thymic stromal lymphopoietin (TSLP) blocker. Anti-TNF-a (Etanercept, Infliximab, Adalimumab) have been tested in patients over age18 with success. Abatacept is a monoclonal antibody that links cluster differentiation (CD) 80 and CD86. Rituximab is a chimeric monoclonal antibody that targets the CD20 [9] (Table 1).

A study showed that remibrutinib, rilzabrutinib, and fenebrutinib (BTK inhibitors) have been investigated in CSU (phases 2 and 3) [7]. A study showed that remibrutinib (oral treatment option) is effective for patients with moderate to severe CSU [11].

Gil-Sierra et al. showed that omalizumab had long-term effectiveness in CIU patients. Adverse drug reactions are rare due to biological agents. They are less toxic than traditional drugs [12].

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Table 1. Biological drugs under study for treatment of chronic spontaneous urticaria [10]

Molecules	Mechanism	Types	Stages	Indication
CDX-0159	Anti-tyrosine kinase KIT	mAb	1	CSU and chronic inducible urticaria
Mepolizumab	Anti-IL-5	mAb	1	CSU
Ligelizumab	Anti-IgE	mAb	2	CSU in children <12-18 years of age
Dupilumab	Anti-IL-4/-13	mAb	2	CSU
MTPS9579A	Tetrameric β-tryptase	mAb	2	CSU
Tezepelumab	Thymic stromal lymphopoietin	mAb	2	CSU
Remibrutinib	Anti-BTK	Small molecule	3	CSU
Benralizumab	Anti-IL-5 receptor	mAb	4	CSU

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KIT: Tyrosine kinase; IgE: Immunoglobulin E; IL: Interleukin; BTK: Bruton tyrosine kinase; CSU: Chronic spontaneous urticaria; mAB: Monoclonal antibody.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

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Conflicts of interest

The author declared no conflict of interest

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References

1. Ghaffari J, Farid Hossaini R, Rafatpanah H, Jabbari Azad F, Shahmohammadi S. Chronic urticaria in children: Etiologies, clinical manifestations, diagnosis and treatment. J Pediatr Rev. 2013; 1(2):55-68. [Link]

2. Hosseini-Farahabadi S, Tavakkol-Afshari J, Ganjali R, Rafatpanah H, Ghaffari J, Farid-Hosseini R. Association between the polymorphism of TGF-β1 gene promoter (-509C> T) and idiopathic chronic urticaria. IJAAI. 2006:109-13. [Link]

3. Ghafari JA, Kosarian M, Nazari ZE, Nabavi MA. Relation between chronic urticaria and thyroid autoimmunity. J Maz Univ Med. 2008; 18(63):66-72. [Link]

4. Ghaffari J, Yazdani Charati J, Zamanfar D, Sadogh A. Evaluation of the Quality of life in patients with chronic urticaria. MJMS. 2014; 57(4):622-8. [Link]

5. Metz M, Maurer M. Use of biologics in chronic spontaneous urticaria–beyond omalizumab therapy? Allergologie Select. 2021; 5:89-95. [DOI:10.5414/ALX02204E] [PMID]

6. Ghaffari J, Shahmohammadi S, Ashrafi H, Ranjbar AR, Ghaffari N. Omalizumab (Xolair) in children above 12 years with chronic urticaria: A review of literature. J Pediatr Rev. 2015; 3(1):e152. [DOI:10.5812/jpr.152]

7. Wedi B. Emerging treatments for chronic urticaria: Expert opin investig drugs. 2022; 31(3):281-90. [DOI:10.1080/13543784.2022.2042513] [PMID]

8. Passante M, Napolitano M, Dastoli S, Bennardo L, Fabbrocini G, Nisticò SP, et al. Safety of omalizumab treatment in patients with chronic spontaneous urticaria and COVID-19. Dermatol Ther. 2021; 34(6):e15111. [DOI:10.1111/dth.15111] [PMID] [PMCID]

9. Licari A, Manti S, Leonardi S, Minasi D, Caffarelli C, Cardinale F, Miraglia Del Giudice M, Calvani M, Ciprandi G, Marseglia GL. Biologic drugs in chronic spontaneous urticaria. Acta Biomed Ateneo Parmense. 2021; 92(S7):e2021527. [DOI:10.23750/abm.v92is7.12415]

10. Orzan OA, Popa LG, Mihai MM, Cojocaru A, Giurcăneanu C, Dorobanțu AM. Current and future approaches in management of chronic spontaneous urticaria using anti-ige antibodies. Medicina. 2022; 58(6):816. [DOI:10.3390/medicina58060816] [PMID] [PMCID]

11. Maurer M, Berger W, Giménez-Arnau A, Hayama K, Jain V, Reich A, et al. Remibrutinib, a novel BTK inhibitor, demonstrates promising efficacy and safety in chronic spontaneous urticaria. AAAAI. 2022. [DOI:10.1016/j.jaci.2022.08.027.]

12. Gil-Sierra M, Briceño-Casado M, Moreno-Ramos C, Rios-Sanchez E, Borrero-Rubio JM. 5PSQ-060 Long-term effectiveness of omalizumab for chronic idiopathic urticaria in clinical practice. EJHP. 2022; 29(suppl 1):A138-A139. [DOI:10.1136/ejhpharm-2022-eahp.290]

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