

A Bibliometric Analysis of Urticaria Publication Trends During 1970-2021

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Abstract: Urticaria is a common dermatological disease and affects approximately 20% of the population. Bibliometrics is a statistical analysis of academic literature in a particular research area. Bibliometric research has been popular in recent years. However, the literature has a limited number of bibliometric studies on urticaria. This study aimed to perform the bibliometric analysis of urticaria literature. All data of this study were obtained from the provided by Web of Science (WoS) databases. It was used the keyword “urticaria” for this study. All studies published between 1970 and November 2021 were included. A total of 3,096 publications were found. The most published fields were dermatology, allergy, and immunology (28.74%, 25.06%, and 19.64%, respectively). The peak year of urticaria literature was 2020, with 147 publications. The United States was the most productive country, with 758 publications. Germany ranks second with 299 publications following the United States, while Italy takes third with 287 publications. This study finds out some hot spots of the urticaria study, such as chronic idiopathic urticaria, chronic spontaneous urticaria and inflammatory response. This study identified the publications in urticaria and analyzed their bibliometric characteristics, which may a source for novel and further studies.

INTRODUCTION

Urticaria is a common dermatological disorder; mast cells are driven, which presents wheals, angioedema, or both. It has complex pathogenesis. The lifetime prevalence of acute urticaria is approximately 20% ¹. Chronic urticaria (CU) up to 5% Chronic spontaneous urticaria is affect performance at school and work, disabling, and impair quality of life ². Wheals are characterized by pruritic, transient, erythematous dermal swellings that blanch with pressure ³. In recent years urticaria has increasingly attracted the attention of researchers and clinicians. Approval of an anti-Ig E antibody (omalizumab) for urticaria treatment was inspired ⁴.

Recent research focused on mediators, identifying the mechanisms of mast cell activation, investigating underlying autoimmune processes of urticaria, and characterizing the role of cells in the pathogenesis of urticaria. Currently, omalizumab and non-sedating antihistamines are recommended for the treatment of chronic urticaria, as both exhibits a favorable safety and efficacy profile ⁴.

Bibliometrics provides analysis of published articles in a particular scientific area to identify features of citations and publications ⁵. It uses statistical, graphical, and mathematical methods to investigate countries and institutions, publication citations and trends, contributing authors, and expectations in a scientific area. The bibliometric analysis could provide investigators and physicians with messages in a specific field. Also, it provides both qualitative and quantitative data of literature ⁶. Bibliometric reports include productivity of the country, a trend of literature, authors, and the distribution of studies by country ^{7,8}.

Many fields in dermatology such as psoriatic arthritis, psoriasis, melanoma, and rosacea have been well explored by bibliometric analysis ⁹⁻¹². However, to the best of our knowledge, there have been a limited number of bibliometric studies investigating urticaria in the literature. This study used bibliometric analysis and visual presentation tools to analyze the knowledge base and future directions regarding research of urticaria by analyzing keywords, topics, the countries and other characteristics. This study aimed to analyze urticaria literature using the Thomson Reuters Web of Science (WoS) database. This comprehensive analysis may reveal current patterns and trends of urticaria literature and be pave the way for further and novel urticaria publications.

MATERIALS and METHODS

The data for this study was obtained from the WoS databases. The publication period was restricted from 1970 to November 2021 for 51 years. In the WoS database, the study was done under the heading "topic" for the Social Science Citation Index studies. Accordingly, studies published in the Journals of the Social Science Citation Index (SSCI) in the WoS databases have been examined. A total of 3096 publications were reached using the keyword "urticaria."The final version has been printed, and the English-language publications have been received. A total of 3096 documents were

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retrieved by selecting the "article" option (excluding books, congress papers, book chapters, etc.) for predetermined keywords. Study results are stored to include all basic article information such as references, author(s), title, abstract, keywords, and more. The study was done using bibliometric networks by VOSviewer software (Vosviewer, 2020).

This study did not involve data collection or intervention in clinical trials. Thus, it did not need approval from an ethical committee.

RESULTS

A total of 3096 publications were retrieved from the WoS database. The period of the publication was restricted from 1970 to November 2021, for a total of 51 years, with the following strategy: TS = 'urticaria'.

Studies on urticaria published in the WoS database journals and scanned in the SSCI index have been examined. First, the distribution of these publications by year is shown in Figure 1.

When the distribution of the publications by year is examined, it is seen that the number of publications made in 2021 as of November 1, 2021, was 122. Since 1970, most publications on "Urticaria" have been published in 2020, with 147 articles. Over the past five decades, the number of urticaria studies have gradually increased.

Then it was determined what categories of publications were

takes third place with 287 publications. After the top three countries, the fourth and fifth countries are the United Kingdom with 286 publications and Sweden with 200 publications, respectively.

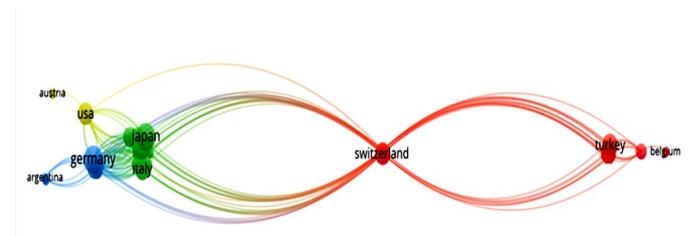


Figure 3. Countries that contribute to publications on urticaria

The analysis results showing the years of the publications carried out by the countries are shown in Figure 4.

When the countries where studies are carried out according to the years are examined; The work for 2020 was carried out in Ireland, Lebanon, Oman, Egypt, Taiwan, and Saudi Arabia. It is concluded that the researches in the United States, where the most studies were carried out, were concentrated between 2005 and 2010. On the other hand, urticaria studies have attracted more attention in Turkey since

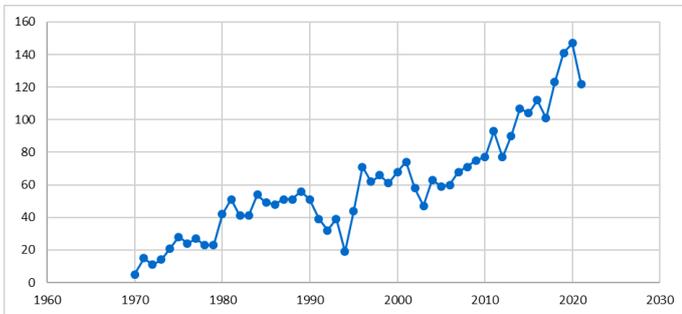


Figure 1. Distribution of publications by year

included in the bibliometric analysis (figure 2).

According to the categories of publications, first, the dermatology category accounts for 28.74% of total publications. Allergy ranks second with 25.06%, following the dermatology category, while the immunology category is third with 19.64%. Although not as high as the top three areas, the fields of Medicine General Internal, Pharmacology Pharmacy, Pediatrics, Medicine Research Experimental, Public Environmental Occupational Health, and

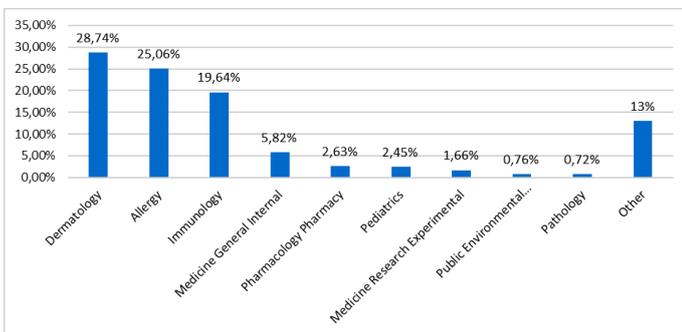
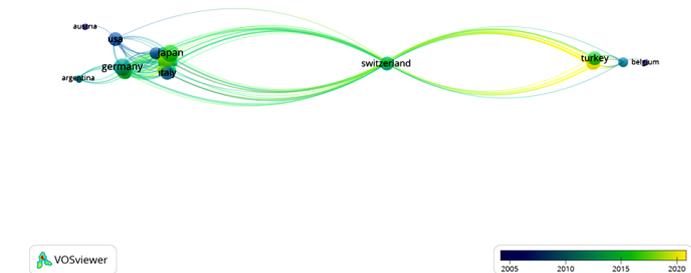


Figure 2. Categories of publications included in bibliometric analysis

Pathology follow.

Then the bibliometric analysis process was started. The distribution of urticaria studies published between 1970 and 2021 with VOSviewer software was examined by country (Figure 3).

The productive country with the most significant number of publications is the United States with 758 studies. Germany ranks second with 299 publications following the United States, while Italy



2015.

In 3096 studies published between 1970 and 2021 in the journals scanned in the Science Citation Index, it was determined what keywords were used in the studies titled Urticaria. The resulting map is shown in Figure 5.

It was observed that the most commonly used keywords in the journals scanned in the Science Citation Index, published under the title Urticaria, were "Chronic urticaria, Chronic spontaneous urticaria, Chronic idiopathic urticaria, inflammatory response, Angioedema and Autologous serum skin test" respectively (Figure 5).

When analyzing the data that maps the distribution of keywords by year used in urticaria publications, it is seen that the keywords chronic spontaneous urticaria, chronic idiopathic urticaria, and inflammatory response are used more frequently starting in 2020. It can be said that the use of keywords such as adverse reaction, asthma, anaphylatoxin, local anesthetics decreased since the 2000s. Current studies are primarily associated with the keyword chronic spontaneous urticaria (Figure 6).

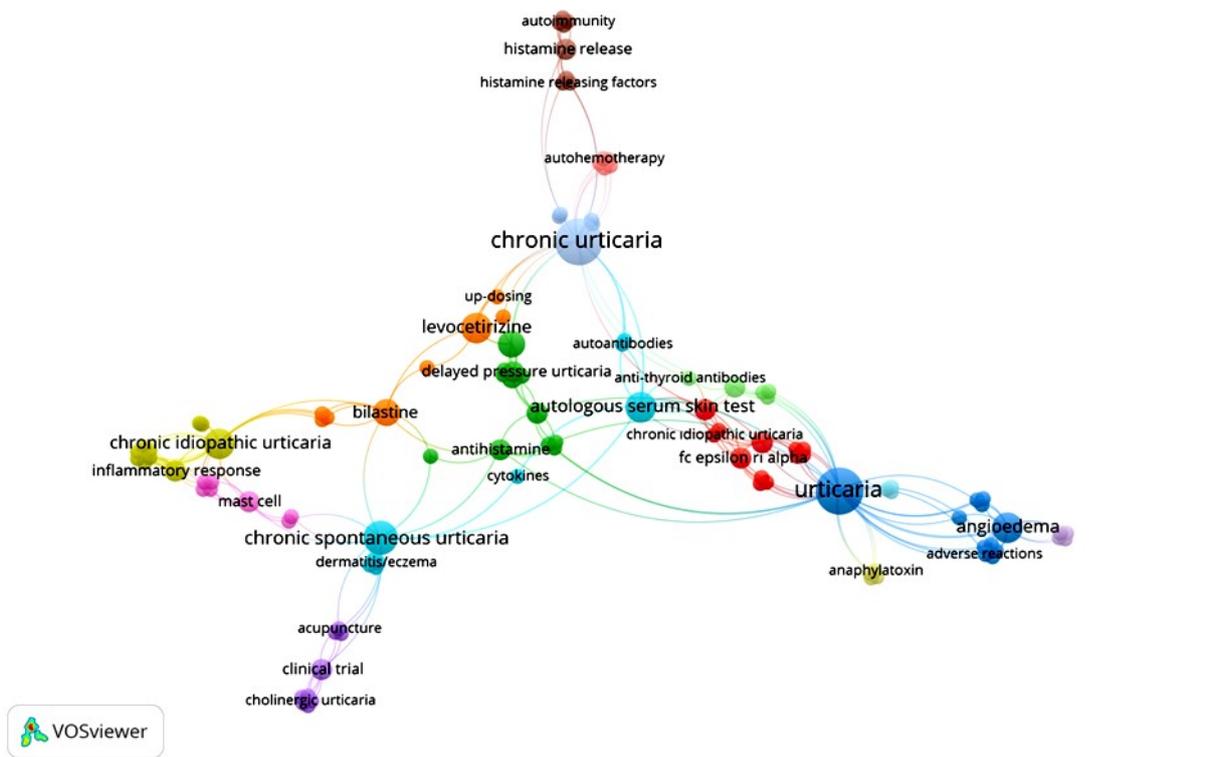


Figure 5. Keywords used in studies titled urticaria

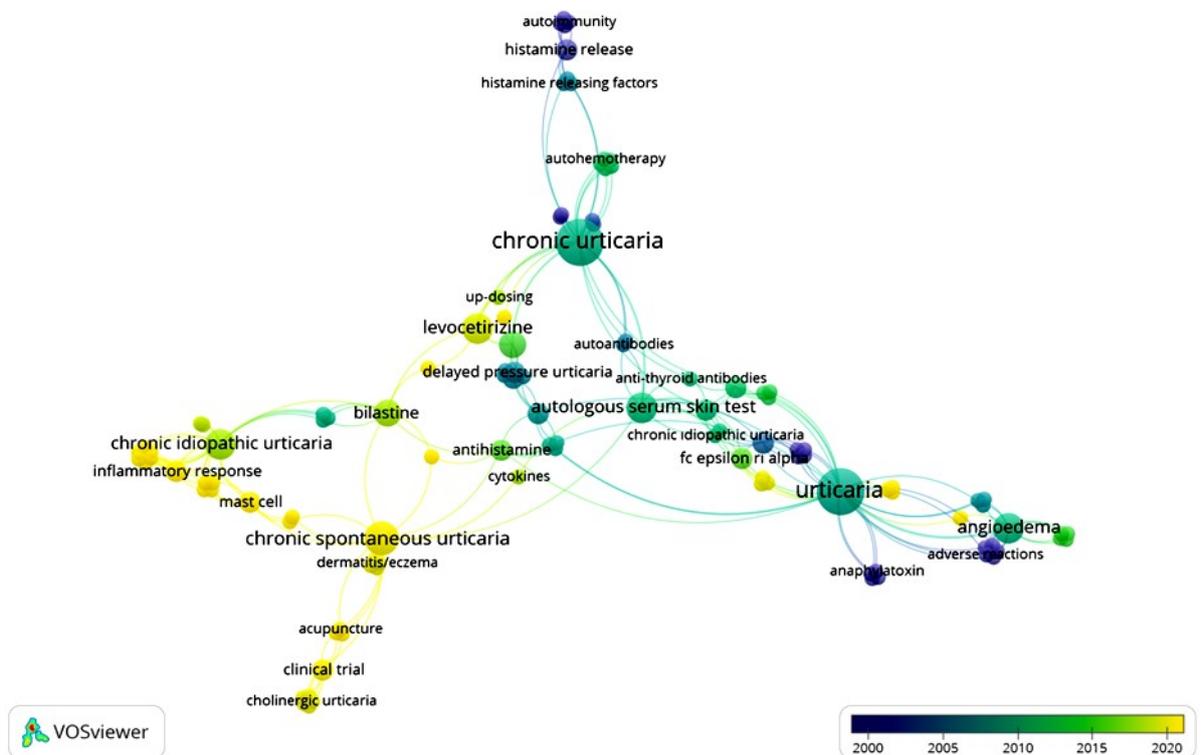


Figure 6. Distribution of keywords used in urticaria studies published between 1970 and 2021 by year

DISCUSSION

Bibliometric analysis can provide a comprehensive overview of the publications. It can be used to analyze the trends in the scientific development of a research area which would enable researchers to understand the information in the field rapidly and comprehend the

future research directions^{5, 13, 14}.

The first bibliometric study was produced by Campbell (1896), using statistical methods¹⁵. It is seen that the application of bibliometrics analysis to dermatological literature is relatively new and limited. Norris published one of the earliest research of bibliometric analysis in dermatology in 1989¹⁶.

Urticaria is a common dermatological disease. Urticaria is the most common occupational dermatological disease, and its prevalence is increasing worldwide. However, the dermatology literature lacks bibliometric analysis studies on urticaria.

A recent bibliometric study on urticaria publications in the literature detected that randomized clinical trials related to urticaria were investigated. Patil reports that Analysis of randomized clinical trials from 2009 to 2019 shows a trend of increase in the number of randomized clinical trials in the therapeutic area of urticaria. Germany and India rank first and second, respectively, in contribution to the randomized clinical trials in the therapeutic area of urticaria¹⁷. In this study, it was determined that the United States was the most productive country with 758 publications. Germany ranks second with 299 publications following the United States, while Italy takes third with 287 publications. According to the categorization of publications, the Dermatology category, which accounts for 28.74% of total publications, comes first. Allergy ranks second with 25.06%, following the dermatology category, while the immunology category is third with 19.64%.

Over the past five decades, the number of urticaria studies have gradually increased. Since 1970, most publications on "Urticaria" have been made in 2020, with 147 SCI publications. When the countries where studies are carried out according to the years are examined; The work for 2020 was carried out in Ireland, Lebanon, Oman, Egypt, Taiwan, and Saudi Arabia. It is concluded that the researches in the United States, where most studies were carried out, were concentrated between 2005 and 2010.

This study finds out some hot spots of the urticaria research, such as chronic idiopathic urticaria, chronic spontaneous urticaria and inflammatory response.

The most commonly used keywords in publications were "chronic urticaria, chronic spontaneous urticaria, chronic idiopathic urticaria, inflammatory response, angioedema and autologous serum skin test."

When the distribution of keywords used in urticaria publications is examined by year, it is seen that since 2020, chronic spontaneous urticaria, chronic idiopathic urticaria, and inflammatory response keywords have been used more frequently.

It can be said that the use of keywords such as adverse reaction, asthma, anaphylatoxin, local anesthetics decreased since the 2000s, and current studies are primarily associated with the keyword chronic spontaneous urticaria. This can be explained by the excess of studies related to chronic spontaneous urticaria treatment, especially Ig E Antibody (omalizumab).

Current urticaria studies focused on identifying the mechanisms of mast cell activation, investigating immune processes associated, and characterizing the cells and mediators involved with chronic spontaneous urticaria^{1,18,19}. Studies on new treatment options such as omalizumab for chronic spontaneous urticaria stand out¹⁷.

A limitation of this study is that because only using the WoS database to search for publications, it could go back to 1970. So it was not searched databases including more journals, and was found a smaller number of publications. It was preferred to explore the WoS database because it is the most reliable service for citations and publications.⁶ All the journals included in the WoS databases had impact factors. This study was included only one term as the topic to prevent the results from being incomprehensible.

In conclusion, this study provided a detailed bibliometric analysis of the urticaria. These articles were published between 1970 and 2021, and a growing trend was observed in the number of publications. Since 1970, most publications on "urticaria" have been published in 2020, with 147 articles. Most publications focused on chronic spontaneous urticaria, chronic urticaria, and chronic idiopathic urticaria. This study finds out some hot spots of the urticaria research, such as chronic idiopathic urticaria, chronic spontaneous urticaria and inflammatory response. The publications of urticaria were mainly from the United States, Germany, and Italy, respectively. This study clarified the publications in urticaria and analyzed their bibliometric characteristics, which may a source for further and novel studies.

Conflict of interest

There is no conflict of interest in this study.

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REFERENCES

1. Zuberbier T, Aberer W, Asero R, et al. The EAACI/GA²LEN/EDF/WAO guideline for the definition, classification, diagnosis and management of urticaria. *Allergy*. 2018;73(7):1393-1414.
2. Fine LM, Bernstein JA. Guideline of chronic urticaria beyond. *Allergy Asthma Immunol Res*. 2016;8:396-403.
3. Antia C, Baquerizo K, Korman A, Bernstein JA, Alikhan A. Urticaria: a comprehensive review: epidemiology, diagnosis, and work-up. *Journal of the American Academy of Dermatology*. 2018;79(4): 599-614.
4. Radonjic-Hoesli S, Hofmeier KS, Micaletto S, Schmid-Grendelmeier P, Bircher A, Simon, D. Urticaria and angioedema: an update on classification and pathogenesis. *Clinical reviews in allergy & immunology*. 2018;54(1):88-101.
5. Smith, DR. Bibliometrics, dermatology and contact dermatitis. *Contact dermatitis*. 2008;59(3):133-136.
6. Senel, E. The Last Three Decades of Contact Dermatitis: A Bibliometric Analysis of Global Publications on Contact Dermatitis. *Journal of the Dermatology Nurses' Association*. 2020;12(5):223-231.
7. Elango B, Rajendran P, Bornmann L. Global nanotribology research out-put (1996-2010): a scientometric analysis. *PLoS ONE*. 2013;8:e81094.
8. Senel E, Demir E. A global productivity and bibliometric analysis of tele-medicine and teledermatology publication trends during 1980-2013. *Dermatol S n*. 2015;33:16-20.
9. Berlinberg A, Bilal J, Riaz IB, Kurtzman DJB. The 100 top-cited publications in psoriatic arthritis: a bibliometric analysis. *Int J Dermatol*. 2019;58:1023-1034.
10. Wu JJ, Choi YM, Marczyński W. The 100 most cited psoriasis articles in clinical dermatologic journals, 1970 to 2012. *J Clin Aesthet Dermatol*. 2014;7:10-19.
11. Joyce CW, Sugrue CM, Joyce KM, Kelly JL, Regan PJ. 100 citation classics in the melanoma literature: a bibliometric analysis. *Dermatol Surg*. 2014;40:1284-1298.
12. Wang Y, Zhang H, Fang R, Tang K, Sun, Q. The top 100 most cited articles in rosacea: a bibliometric analysis. *Journal of the European Academy of Dermatology and Venereology*. 2020;34(10):2177-2182.
13. Meng H, Liu X-K, Li J-R, Bao T, Yi F. Bibliometric analysis of the effects of ginseng on skin. *J Cosmet Dermatol*. 2021;00:1-9.
14. Mingers J, Leydesdorff L. A review of theory and practice in scientometrics. *Eur J Oper Res*. 2015; 246:1-19.
15. Hood WW, Wilson CS. The literature of bibliometrics, scientometrics, and informetrics. *Scientometrics*. 2001;52(2):291-314.
16. Norris DA. The Scientific Citation Index and The Journal of Investigative Dermatology. *Journal of Investigative Dermatology*. 1989;92(4):147-148.
17. Patil AD. Randomized clinical trials related to urticaria: Bibliometric analysis from 2009 to 2019. *National Journal of Physiology, Pharmacology and Pharmacology*. 2020;10(2):116-121.
18. Fine LM, Bernstein JA (2016) Guideline of chronic urticaria beyond. *Allergy Asthma Immunol Res*. 2016;8:396-403.

19. Wu MA, Perego F, Zanichelli A et al. Angioedema phenotypes: disease expression and classification. *Clin Rev Allerg Immunol*. 2016;51:162.