

Public Interest in JAK Inhibitors for Alopecia Areata: A Google Trend Analysis

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Table of Contents

Original Manuscript.....	4
---------------------------------	----------

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Public Interest in JAK Inhibitors for Alopecia Areata: A Google Trend Analysis

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Abstract

Background: Alopecia areata is an autoimmune hair loss that affects 2% of individuals worldwide. In 2022, the FDA approved JAK-inhibitor baricitinib tablets, for the treatment of severe Alopecia areata.

Objective: To evaluate the impact of FDA approval and media coverage of JAK-inhibitors for alopecia areata on public interest in JAK-inhibitor treatment for hair loss.

Methods: We utilized Google Trends and analyzed search activity for keywords "JAK-inhibitor," "JAK inhibitor + Alopecia Areata," and "JAK-inhibitor +Hair Loss."

Results: Significant increase in searches for "JAK inhibitor + Hair Loss" was observed in 2019-2020 ($p=0.0397$) and 2020-2021 ($p<0.0001$), which preceded FDA approval and was likely influenced by media coverage. Notably, significant increase in interest for "JAK inhibitor" and "JAK inhibitor + Alopecia Areata" occurred post-approval in 2021-2022 ($p<0.0001$), and this interest was sustained through 2023.

Conclusions: In the context of this heightened public interest, patient education on the specific indications and implications of JAK-inhibitor use is essential. Physicians should guide patients on appropriate indications for JAK-inhibitors and the treatments most suitable for a given hair loss disorder.

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Original Manuscript

Public Interest in JAK Inhibitors for Alopecia Areata: A Google Trend Analysis

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Abstract

Alopecia areata is an autoimmune hair loss that affects 2% of individuals worldwide. In 2022, the FDA approved JAK-inhibitor baricitinib tablets, for the treatment of severe Alopecia areata. We utilized Google Trends to evaluate the impact of FDA approval and media coverage of JAK-inhibitors for alopecia areata on public interest in JAK-inhibitor treatment for hair loss. We analyzed search activity for keywords "JAK-inhibitor," "JAK inhibitor + Alopecia Areata," and "JAK-inhibitor +Hair Loss." Significant increase in searches for "JAK inhibitor + Hair Loss" was observed in 2019-2020 ($p=0.0397$) and 2020-2021 ($p<0.0001$), which preceded FDA approval and was likely influenced by media coverage. Notably, significant increase in interest for "JAK inhibitor" and "JAK inhibitor + Alopecia Areata" occurred post-approval in 2021-2022 ($p<0.0001$), and this interest was sustained through 2023. In the context of this heightened public interest, patient education on the specific indications and implications of JAK-inhibitor use is essential. Physicians should guide patients on appropriate indications for JAK-inhibitors and the treatments most suitable for a given hair loss disorder.

Introduction

Janus Kinase (JAK) Inhibitors are a class of medications that work by targeting and inhibiting JAK enzymes, which play a significant and diverse role in the immune system. The JAK system has been implicated in a variety of immune pathways including inflammation and autoimmunity¹. On June 13, 2022, the FDA approved the use of a JAK-inhibitor, baricitinib, commercially known as Olumiant™ for adults with severe alopecia areata, an autoimmune form of hair loss². Additionally, this medication was also approved for the use of severe alopecia areata in children 12 and over, June 26, 2023. The objective of this study was to assess the impact of FDA approval of JAK-inhibitor, baricitinib (Olumiant™), for severe alopecia areata on public interest in JAK inhibitors for alopecia areata.

Methods

To evaluate public interest, we utilized Google Trends, a free analysis tool that provides insight into public interest for search terms. Google trends calculates a relative search volume (RSV), ranging from 0 to 100. An RSV value of 0 indicates minimal interest in a keyword and a value of 100 represents the peak interest within a given period³. For our study, we searched the following keywords from January 2014 to January 2024: “JAK inhibitor”, “JAK inhibitor + hair loss”, and “JAK inhibitor + alopecia areata”. These keywords were chosen to encompass generic and specific terms related to the topic of JAK Inhibitors and hair loss.

Results

A one-way ANOVA was used to assess year to year changes in RSV between 2014 and 2024. We observed a significant increase in Google search interest for “JAK-inhibitor + Hair loss” between 2019-2020 ($p=0.0397$) and 2020-2021 ($p<0.0001$). Although this increased interest predates the 2022 FDA approval, 2019 coverage by some major news outlets of the ongoing studies on JAK-inhibitors for hair loss may explain this rise in search volume [4]. Interest levels for “JAK-inhibitor + Hair loss” were sustained through 2022 and 2023 (no significant change in RSV 2021-2022 ($p=0.9930$) or 2022-2023 ($p=0.568$)). FDA approval of JAK-inhibitors for alopecia areata in 2022 may explain the significant 2021-2022 increase in public interest for “JAK-inhibitors” ($p<0.0001$) and “JAK-inhibitor + Alopecia Areata” ($p<0.0001$). This increased interest in “JAK-

inhibitor + Alopecia Areata” remained in 2023 ($p=0.9371$), while interest in “JAK-inhibitor” continued to increase further in 2023 ($p=0.0080$).

Discussion

Public interest in JAK-inhibitors for Alopecia areata has increased in recent years, with FDA approval and media coverage of JAK-inhibitors for alopecia areata. However, the exact cause leading to this increase is uncertain. Increased media coverage about the FDA approval of JAK-inhibitors for severe alopecia was reported by news outlets as early as January 2019⁴. Additionally, social media applications like TikTok or YouTube could be possible contributors to the increase in public interest, due to user-friendly content and the ability of content creators to freely express their journey with hair loss and JAK-inhibitors and users are able to engage in conversations with their peers anonymously. With increased public interest in JAK Inhibitor treatment for Alopecia areata, it is important that the public receives proper education regarding the implications for taking JAK-inhibitors and knowing that JAK-inhibitors are treatment for severe alopecia areata, which is an autoimmune condition, and not currently efficacious for other hair loss disorders. It is important for physicians to educate their patients on hair loss disorder treatments and increase patient awareness of certain hair loss treatments if indicated for a patient's form of hair loss.

Acknowledgements

JH and NAKH performed data analysis

JH, NAKH, LDK all contributed to manuscript preparation

Conflicts of Interest

None declared

Abbreviations

FDA – US Food and Drug Agency

JAK – Janus Kinase

RSV – Relative Search Volumes

Figure

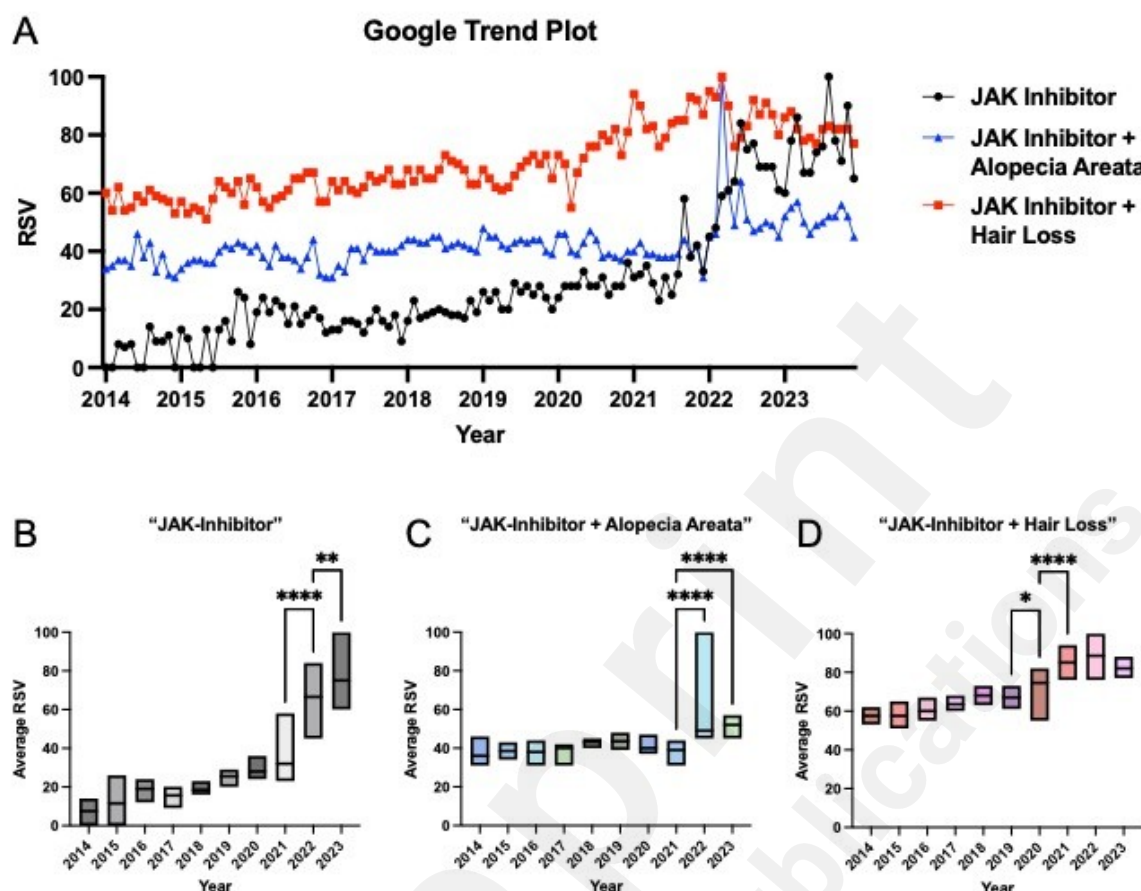


Figure 1. Google Trends search items "JAK-inhibitor," "JAK-inhibitor + Alopecia Areata," and "JAK-inhibitor + Hair loss" (data accessed April 30, 2024). Data presented as Relative Search Volume (RSV), where RSV of 100 represents peak search activity in a time period. (A) Plot of Google Trends RSV per month between January 2014 and December 2023 for terms "JAK-inhibitor," "JAK-inhibitor + Alopecia Areata", and "JAK-inhibitor + Hair loss". (B) Yearly RSV average for "JAK-Inhibitor" increases from 2014-2023, with significant increase between 2021-2022 ($p < 0.0001$) and 2022-2023 ($p = 0.0080$). (C) Yearly RSV average for "JAK-Inhibitor+Alopecia Areata" significantly increased between 2021-2022 ($p < 0.0001$) and remained at similarly elevated levels 2022-2023 ($p = 0.9371$). (D) Yearly RSV average for "JAK-Inhibitor+Hair loss" shows significant increase between 2019-2020 ($p = 0.0397$) and 2020-2021 ($p < 0.0001$), no significant change between 2021-2022 ($p = 0.9930$) or 2022-2023 ($p = 0.568$).

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