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ORIGINAL ARTICLE

Scientific production on drug repurposing therapies in oncology during the period 2021-2024 in SciELO

Producción científica sobre terapias de reutilización de fármacos en oncología durante el período 2021-2024 en SciELO

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ABSTRACT

Introduction: the analysis of scientific production dealing with drug repurposing therapies in oncology is of utmost importance in the current scientific context, considering that cancer treatment is a therapeutic area where drug repurposing has demonstrated the greatest impact.

Objective: to analyze the level of scientific production on drug repurposing therapies in oncology during the period 2021-2024 in the SciELO database.

Method: a bibliometric, observational, cross-sectional, and descriptive study was conducted, focusing on bibliometric indicators of scientific production resulting from the SciELO database on scientific production on drug repurposing therapies in oncology during the period 2021-2024 in this database. The universe consisted of 1 328 articles, and the entire universe was analyzed.

Results: among the countries with the highest number of articles published during the period covered by this study were Brazil, Chile, and Spain. The most frequent article types were original articles, followed by review articles, while case reports had the lowest number of articles.

Conclusions: the analysis not only highlights the progress in the field of drug repurposing therapies in oncology, but also underscores the need for continued research to optimize these therapeutic strategies, with the ultimate goal of improving outcomes for cancer patients.

Keywords: Bibliometrics; Bibliometric Indicators; Scientific Production; Drug Repurposing

RESUMEN

Introducción: el análisis de la producción científica que trata sobre terapias de reutilización de fármacos en oncología es de suma importancia en el contexto científico actual, al tener en consideración que en el tratamiento del cáncer es un área terapéutica donde la reutilización de fármacos ha demostrado el mayor impacto.

Objetivo: analizar el nivel de producción científica sobre las terapias de reutilización de fármacos en oncología durante el período 2021-2024 en la base de datos SciELO.

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Método: se desarrolló un estudio de tipo bibliométrico, observacional, transversal y descriptivo, centrado en los indicadores bibliométricos de producción científica resultantes de la base de datos SciELO sobre la producción científica acerca de las terapias de reutilización de fármacos en oncología durante el período 2021-2024 en esta base de datos. El universo estuvo constituido por 1328 artículos y se trabajó con la totalidad del universo.

Resultados: entre los países que exhiben un mayor número de artículos publicados en el período que comprende este estudio tenemos a Brasil, Chile y España. El tipo de artículo con una mayor frecuencia son los artículos originales y luego los artículos de revisión, mientras que los casos clínicos presentan una menor cantidad de artículos.

Conclusiones: el análisis realizado no solo destaca el progreso en el campo de las terapias de reutilización de fármacos en oncología, sino que también subraya la necesidad de continuar investigando para optimizar estas estrategias terapéuticas, con el objetivo final de mejorar los resultados en pacientes oncológicos.

Palabras clave: Bibliometría; Indicadores Bibliométricos; Producción científica; Reutilización de medicamentos

INTRODUCTION

Cancer is currently among the leading causes of mortality worldwide. [1] In 2022, the global incidence of new cancer cases reached approximately 20 million, while the number of cancer-related deaths reached approximately 9.7 million. [2]

Conceptually, drug repurposing therapies are forms of research into how existing drugs can be used to treat diseases other than those for which they were originally developed. Drug repurposing is one of the key opportunities to address the unmet therapeutic need in oncological diseases. [3]

Bibliometrics is an effective tool for identifying trends developing in the field of science, which is of great value in analyzing and understanding the results produced and published worldwide. [4]

Bibliometric studies are highly useful tools for estimating research productivity and thus identifying the main collaboration networks between researchers and

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institutions, both medical and non-medical, given that the majority of research is published in scientific journals. [5]

The analysis of scientific production dealing with drug repurposing therapies in oncology is of utmost importance in the current scientific context, considering that cancer treatment is a therapeutic area where drug repurposing has demonstrated the greatest impact.

Considering that there is currently insufficient literature analyzing drug repurposing therapies in oncology, the objective is to analyze the level of scientific production on drug repurposing therapies in oncology during the period 2021-2024 in the SciELO database.

MATERIALS AND METHODS

A bibliometric, observational, cross-sectional, and descriptive study was conducted, focusing on bibliometric indicators of scientific production (production evolution, article type, years of publication, language) derived from the SciELO database on scientific production on drug repurposing therapies in oncology during the period 2021-2024. The study population consisted of 1,328 articles that were manually searched by accessing the SciELO database and selecting articles published between 2020 and 2024 that are related to the topic. The entire study population was analyzed.

The following variables were analyzed: SciELO collection (Spain, Cuba, Colombia, Chile, Brazil, Mexico, Peru, Argentina); year of publication (2021, 2022, 2023, 2024); type (Original Article, Review Article, Case Report); and language (Spanish, English, and Portuguese).

For this research, the statistical analysis of the data was performed using absolute and percentage frequency statistics. Excel and the SciELO database were used.

During the research process, the statutes established in Cuban ethical standards for health science research and the bioethical principles established in the Declaration of Helsinki were followed. Informed consent was not required as this was a bibliometric study with publicly accessible data.

RESULTS

Table 1 shows the distribution of articles by SciELO collection. Brazil is the country with the most published articles related to the topic of this research,

with 364 articles, representing 27,40 %, while Peru has the highest number, with 92 articles, representing 6,92 %. (Table 1)

Table 1. Distribution of articles by SciELO collection

SciELO Collection	Number of items	Percent (%)
Mexico	125	9,41
Peru	92	6,92
Colombia	104	7,83
Spain	181	13,62
Brazil	364	27,40
Chile	215	16,18
Cuba	131	9,86
Argentina	116	8,73
Total	**1328**	**100**

Source: SciELO database.

Regarding the distribution of articles by year of publication, 536 articles were published in 2024, representing 40,36 %, while in 2022, 193 articles were published, representing 14,53 %. (Table 2)

Table 2. Distribution of articles by year of publication

Year of publication	Number of items	Percentage (%)
2021	298	22,43
2022	193	14,53
2023	301	22,66
2024	536	40,36
Total	**1328**	**100**

Source: SciELO database.

According to the distribution by type of scientific article, 65,66 % of these were original articles, followed by review articles at 19,87 %, and then clinical cases at 14,52 %. (Table 3)

Table 3. Distribution of articles by type of article

Type of articles	Number of items	Percentage (%)
Original articles	872	65,66
Review articles	264	19,87
Clinical cases	192	14,52

Total	**1328**	**100**

Source: SciELO database.

According to the most frequently used language, Spanish was the most frequently used language, with 764 articles (57,53 %), followed by English with 399 (30,04 %), and Portuguese with the fewest articles, with 165 (12,42 %). (Table 4)

Table 4. Distribution of articles by language

Languages	Number of items	Percentage (%)
Spanish	764	57,53
English	399	30,04
Portuguese	165	12,42
Total	**1328**	**100**

Source: SciELO database

DISSCUSION

In the current context, analyzing the scientific output on drug repurposing therapies in oncology in the SciELO database is essential for providing more comprehensive and up-to-date care that improves the quality of life of cancer patients.

Drug repurposing is a drug discovery strategy that has received special attention and implementation to optimize the drug development process due to its time- and cost-saving effects. It involves reorienting existing drugs toward new clinical applications. [6]

The initial therapeutic and pharmacological classes of repurposed drugs, their new applications, and mechanisms of action in cancer treatment justify the new uses of many oncology drugs. Drugs from various pharmacological classes have been successfully repurposed for cancer treatment, including those approved and those in clinical trials and preclinical development. [7,8]

Previous studies conducted by Bejerano García et al. [9] and González Mariño et al. [10] found results similar to those of this research, showing that Brazil is the country with the largest number of articles referring to drug repurposing therapies in oncology.

Bibliometric studies are increasingly important in scientific production, as they contribute to a more balanced understanding of the state of research areas or topics. It is known that they identify phenomena and regularities from a

scientific perspective, which is undoubtedly of great value when analyzing the results obtained in the various studies conducted. [11]

According to Palmero Picazo et al. [12] and Salazar Rodríguez et al. [13], and whose results coincide with those obtained in this study, original articles are the most frequently published, followed by review articles, and finally, clinical cases.

Original articles are the basis of scientific research and contribute to the creation of new knowledge and its innovation. [14,15] In the present study, original articles represented 65,66 % of the total articles included.

Bibliometric sciences allow for the evaluation and oversight of scientific knowledge. Their indicators analyze each section of the articles, while also providing a general overview of the quality of editorial management of particular journals or the level of production in a given area. [16,17]

According to Zacca González et al., [18] there has been a notable increase in the number of publications related to drug repurposing in oncology. This increase suggests a growing interest in and recognition of the importance of these therapies as a viable strategy for cancer treatment, especially in a context where pharmacological innovation faces significant challenges.

The notable increase in the number of publications suggests a growing interest on the part of the scientific community in exploring therapeutic alternatives that can offer rapid and effective solutions to resistance to conventional treatments. [19] The diversity of approaches observed, ranging from preclinical studies to clinical trials, highlights the versatility of this strategy and its potential to personalize treatments based on the molecular profile of tumors. However, despite these advances, significant challenges remain, such as the need for rigorous clinical validation and the inclusion of diverse populations in studies, which could limit the generalizability of the findings. [20]

Despite this progress, significant challenges remain, such as the need for more robust studies to support the efficacy and safety of repurposed therapies. Furthermore, opportunities have been identified to strengthen research in diverse populations and in varied clinical settings, which could provide a better understanding of the effects of these therapies on different demographic groups.

The study's limitations include the lack of sufficient information regarding the impact of the research based on the analysis of citations received and the

impact rating of the journals where the articles analyzed in this study are published.

CONCLUSIONS

This study shows that the scientific output in SciELO on drug repurposing therapies in oncology is predominantly original, with the Brazil collection standing out for its large volume of articles. Regarding languages, Spanish is the language with the largest number of articles.

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CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest.

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