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LETTER TO THE EDITOR OPEN ACCESS

Translational medicine in the treatment of hypertrophic cardiomyopathy: Mavacantem "The new promise"

Medicina traslacional en el tratamiento de la miocardiopatía hipertrófica: Mavacantem "La nueva promesa"

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Dear Editor:

Hypertrophic cardiomyopathy (HCM) is an entity with a high global impact. Within the spectrum of hereditary cardiomyopathies, HCM is the most prevalent, reporting a global prevalence, since it is estimated that, for every 500 people, one case of HCM will be found. It is mainly associated with left ventricular hypertrophy that can be defined with a left ventricular thickness greater than or equal to 15 mm, making the diagnosis by exclusion with other entities that can cause said hypertrophy such as arterial hypertension or aortic stenosis. The presence of HCM is usually associated with clinical spectra such as severe heart failure and sudden cardiac death.[1,2]

Currently, different investigations have been carried out in the face of HCM to identify the origin of the problem, it is proposed that this entity is associated with the aberrant activity of the muscular sarcomere, which is responsible for carrying and executing the contractile machinery of the heart, dysfunctions in this muscular structure have been identified, of which a high incidence of genetic and/or familial mutations in certain genes that encode contractile proteins has been demonstrated, mostly in the MYH7 gene which encodes the human cardiac myosin heavy chain β, mutations have also been seen in the MYBPC3 gene, which encodes the cardiac myosin binding protein C MyBP-C.[3]

Mavacamten, also previously known as MYK-461, is a molecule developed by MyoKardia Inc., which was approved by the Food and Drug Administration (FDA) in April 2022 for commercial use in HCM, the axis of its action is focused on the inhibition of the cardiac myosin ATPase. The purpose of a targeted and/or selective regulation of cardiac contractility of myosin induced by Mavacantem, then provides a profile of normalization of

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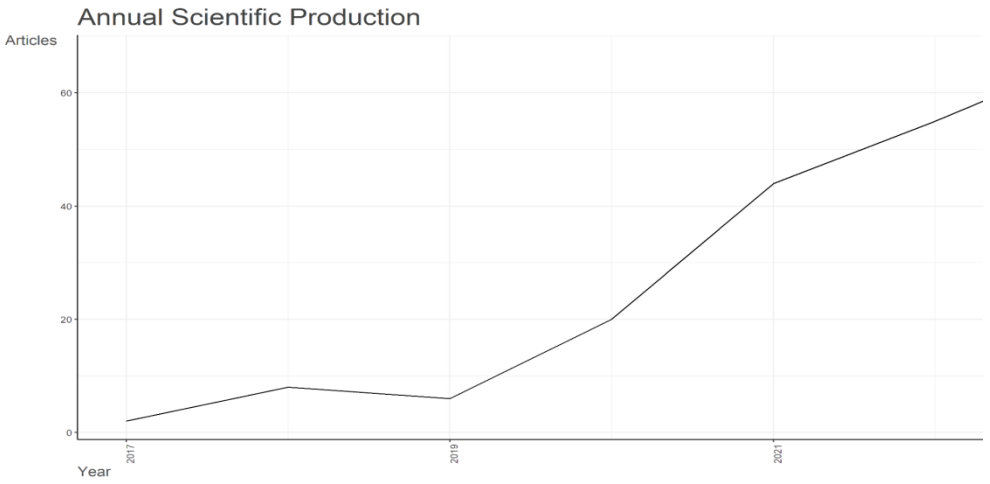
myocardial contraction and relaxation. It is the selectivity of Mavacantem's action that makes it a high-value drug in the management of HCM, this selectivity is focused on the action on myosin and all its isoforms, conditioning a myosin in more relaxed states. Other functions related to the use of this innovative drug are related to normalizing the contraction and relaxation phenotypes related to mutations that cause HCM in many sarcomeric proteins concomitantly with the inhibition of myosin function in a reversible manner and protects the heart from other aggressions that cause diseases in HCM. This is explained by the reduction in the power production of the heart muscle by inhibiting the biomechanical properties of myosin.[4,5]

Mavacantem is an innovative discovery, according to the Web of Science database, literature findings are only available since 2017. To date, up to 2023, about 202 articles of any type (Originals, reviews, editorials, letters to the editor, etc.) are described (Table 1). Of these, there has been an annual increase of 79.5% in scientific research growth, with 2023 being the year with the highest literary production (n = 66 articles) (Figure 1). The country with the greatest contribution in research with Mavancem and MCH was the United States. This innovative therapy represents a major advance in translational and precision medicine for the management of HCM. The rising research landscape and the results condition an encouraging future in the management of this entity.

Figure 1. Annual scientific production on Mavacantem and hypertrophic cardiomyopathy in the Web of Science (WOS) database



Description: Prepared by the authors through the execution of a search in the WoS

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database; with statistical analysis using R and Rstudio; Bibliometrics and Biblioshine. The search strategy used was: (ALL=(Mavacamten)) AND ALL= (Cardiomyopathy, Hypertrophic).

Table 1. Information available on the annual scientific production on Mavacantem and hypertrophic cardiomyopathy in the Web of Science (WOS) database

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2017:2023
Sources (Journals, Books, etc)	97
Documents	202
Annual Growth Rate %	79,55
Document Average Age	1,38
Average citations per doc	10,15
References	3614
DOCUMENT CONTENTS	
Keywords Plus (ID)	387
Author's Keywords (DE)	312
AUTHORS	
Authors	818
Authors of single-authored docs	9
AUTHORS COLLABORATION	
Single-authored docs	9
Co-Authors per Doc	7,02
International co-authorships %	22,77
DOCUMENT TYPES	
article	73
article; early access	3
article; proceedings paper	1
correction	3
editorial material	24
editorial material; early access	1
letter	5
meeting abstract	38

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review	51
review; early access	3

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DECLARATION OF CONFLICT OF INTEREST

The authors declare not to present conflict of interest in the preparation of the investigation.

DECLARATION OF FINANCING

The authors declare not having received funding to carry out this research.

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