

GENETIC VARIANTS AFFECTING BISOPROLOL RESPONSE IN CARDIOVASCULAR DISEASES.

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BACKGROUND

β -blockers are commonly prescribed to treat multiple cardiovascular (CV) diseases, but, frequently, adverse drug reactions and intolerance limit their use in clinical practice. Interindividual variability in response to β -blockers may be explained by genetic differences. In fact, pharmacogenetic interactions for some of these drugs have been widely studied, such as metoprolol.

But studies that explore genetic variants affecting bisoprolol response are inconclusive, limited or confusing because of mixed results with other β -Blockers, different genetic polymorphisms observed, endpoint studied, etc.

AIM & OBJECTIVE

The aim of this study is to perform a **systematic review** in order to find relevant **genetic variants** affecting **bisoprolol** response and to perform a meta-analysis.

METHODS & MATERIAL



Systematic review about genetic variants affecting to bisoprolol. We performed a search in Pubmed on 15th January 2021 using MESH terms in the following argument: (“Bisoprolol” OR “Metoprolol” OR “Adrenergic Beta antagonist”) AND (“Pharmacogenetic” OR “SNP” OR Polymorphism”).

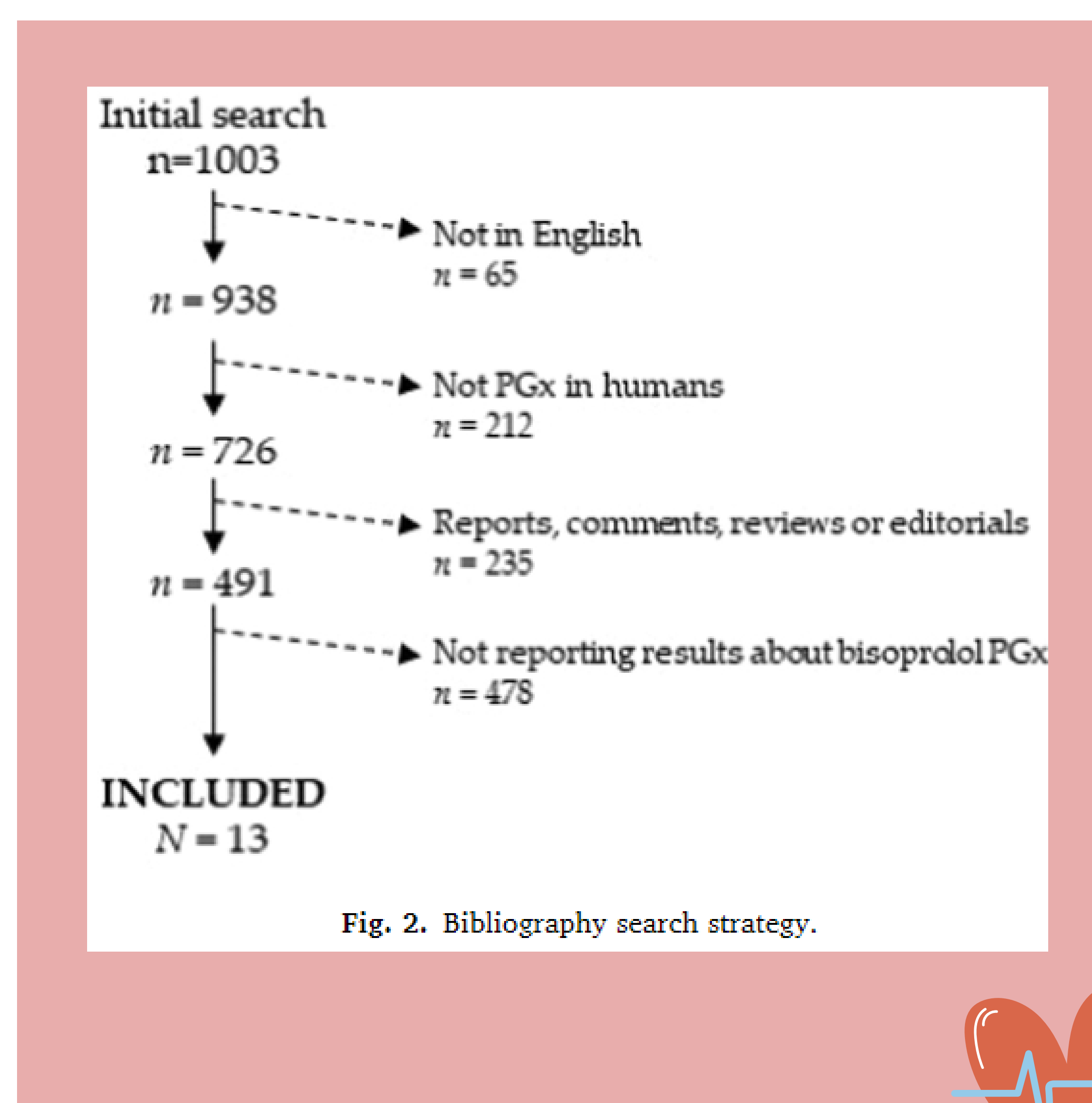
We conducted a random-effects meta-analysis in **recessive, dominant, codominant and over-dominant models** for the G risk allele in order to assess the association between the **ADRB1 A389G (rs1801253)** and treatment response to bisoprolol.

We used **R statistics software**, version 3.6.2, package “meta” to conduct the **meta-analysis**. We used Harbord's test in order to quantitatively assess publication bias, considering p-value <0.1 as significant statistical publication bias.

RESULTS



We found only **13 publications** studying the association of genetic polymorphisms with patients' response to bisoprolol. Most of the studies focused in ADRB variants, and even though the **ADRB1 Arg389Gly** variant seems to have an influence on **bisoprolol** efficacy, published **results are inconclusive** and our meta-analysis did not find statistically significant results in this regard.



KEYWORDS

BISOPROLOL
PHARMACOGENETIC
B-BLOCKER
PERSONALIZED MEDICINE



CONCLUSION

Many genetic polymorphisms have been assessed about their influence on patients' response to **bisoprolol** and the **ADRB1 Arg389Gly (rs1801253)** seems the most relevant genetic polymorphism in this regard but results have not been confirmed with a meta-analysis.

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