The Efficacy, Safety and Tolerability of Aprocitentan in Treating Hypertension: A Systematic Review and Meta-Analysis

Hashim Talib Hashim¹, Mohammedbaqer Ali Al-Ghuraibawi¹, Syed Mohammad Naqvi² 1. University of Warith Al-Anbiyaa, College of Medicine, Karbala, Iraq. 2. National Institute for Prevention and Cardiovascular Health (NIPC); University of Galway.

INTRODUCTION

Hypertension (HT) remains a significant global health concern, posing substantial risks for cardiovascular diseases, stroke, and mortality. Despite advancements in treatment, many individuals fail to achieve optimal blood pressure control. Aprocitentan, a novel dual endothelin receptor antagonist, offers a promising therapeutic option. This systematic review and meta-analysis evaluate the efficacy, safety, and tolerability of aprocitentan in treating hypertension.

RESULTS

From 1023 studies initially identified, six studies met inclusion criteria, encompassing 754 participants. Many significant data were measured such as Change in Seated Diastolic Blood Pressure (SiDBP) (mmHg), Change in seated systolic blood pressure (SiSBP) (mmHg), maximum (Cmax) concentration for Aprocitentan (ng/mL), time of maximum concentration (Tmax), and area under the curve 0-t (ng/mL). Approcitentan significantly reduced SiSBP compared to SiDBP and placebo. Pharmacokinetic analyses revealed consistent absorption with a time to Tmax of around 4 hours. The AUC values indicated prolonged drug exposure. The risk of bias across studies was generally low, ensuring result reliability.

METHODS

This study adhered to PRISMA guidelines. A comprehensive literature search was conducted across PubMed, Google Scholar, and PLOS One up to June 2024, using keywords related to aprocitentan and HT. Inclusion criteria encompassed randomized controlled trials, non-randomized controlled trials, and observational studies on humans. Data extraction and quality assessment were performed independently by three reviewers. Meta-analyses were conducted using random-effects models to pool data and assess heterogeneity.

CONCLUSION

Aprocitentan effectively reduces blood pressure in hypertensive patients, demonstrating a favorable safety and tolerability profile. These findings support its use as a therapeutic option, especially for patients not adequately controlled on existing antihypertensive medications.