

ABSTRACT

# Clinical comprehensive evaluation and drug utilization pattern study of treatment drugs for depression

Yiyao Liu<sup>1,2</sup>, Huitong Ni<sup>1</sup>, Teng Zhi<sup>1</sup>, Ziqi Zhao<sup>1</sup>, Xiaoxi Zeng<sup>2</sup>, Ming Hu<sup>1\*</sup>, Zhiang Wu<sup>3\*</sup>

<sup>1</sup>West China School of Pharmacy, Sichuan University, Chengdu 610041, Sichuan Province, China

<sup>2</sup>West China Biomedical Big Data Center, West China Hospital, Sichuan University, Chengdu 610041, Sichuan Province, China

<sup>3</sup>Yeehong Business School, Shenyang Pharmaceutical University, Beijing 100055, China

**Objective:** Based on comprehensive analysis of real-world drug usage data, representative drugs are selected for clinical comprehensive value assessment, exploring factors influencing the clinical efficacy of antidepressant medications.

**Methods:** This study extracted complete medical information of all depressive disorder patients in a hospital in Sichuan Province. By using the Apriori algorithm to analyze the association rules of drugs in the sorted clinical pathways, Paroxetine Hydrochloride, Venlafaxine Hydrochloride, and Agomelatine were ultimately selected. These three medications were studied in terms of safety, efficacy, cost-effectiveness, innovation, suitability, and accessibility using a research method that combines literature data with real-world data.

**Results:** Literature research indicated that Agomelatine outperformed the other two medications in terms of efficacy and cost-effectiveness, real-world research results differed. In terms of efficacy, Agomelatine had an effectiveness rate of 21.1%, while Paroxetine and Venlafaxine had rates of 68.9% and 61.9%, respectively. Regarding cost-effectiveness, Agomelatine presented an absolute cost-effectiveness disadvantage. In terms of safety, literature and drug instructions have shown that agomelatine is the safest. In real-world studies, the reported adverse events of Venlafaxine Hydrochloride at SOC level are similar to those of Paroxetine Hydrochloride. Agomelatine has not been marketed in the United States. Regarding accessibility, according to the WHO/HAI method, the affordability of all three medications was less than 1, indicating good affordability for all. In terms of innovation, Agomelatine possesses a more innovative mechanism of action and is currently the only antidepressant on the market that specifically stimulates melatonin receptors. Regarding suitability, Agomelatine has a longer storage shelf life than the other two medications. However, there was no significant difference among the three drugs in other aspects.

**Conclusion:** Through analysis, we found that the current treatment pathway for depressive disorders has not yet formed a complete system. Each of the three drugs have their advantages in various dimensions.

**Key words:** clinical comprehensive evaluation, drug utilization pattern, depression, real-world data, literature data

**\*Corresponding Author:**

Zhiang Wu, E-mail: wuzhiang@yeehongedu.cn; Ming Hu, E-mail: huming@scu.edu.cn

Received: 15 June 2024; Published: 15 July 2024

<https://doi.org/10.54844/hd.2024.0006>

© This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License, which allows others to copy and redistribute the material in any medium or format noncommercially, as long as the author is credited and the new creations are licensed under the identical terms.