Journal of Cellular and Molecular Pharmacology

Joel, J Cell Mol Pharmacol 2022, 6:4

Mini Review Open Access

A Clinical Pharmacist-Led Study of Drug-Drug Interactions in Patients with Psychiatric Disorders

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Abstract

The majority of patients seeking medical management for psychiatric illnesses such as depression and schizophrenia seek it in primary care and clinical settings. 1 Drug-related problems are a common cause of morbidity and can result in death in severe medical cases [1-15]. It is estimated that drug-drug interactions account for 6% to 10% of adverse events, with the majority of them avoidable with proper monitoring. 3 Since the introduction of typical antipsychotics in the 1950s, they have been regarded as a cornerstone in the treatment of schizophrenia and related illnesses. However, atypical antipsychotics were thought to have fewer side effects and to be more effective, particularly in the treatment of some negative symptoms such as flattened effect and lack of emotion. Antipsychotics with other concomitant drugs can cause potential drug-drug interactions (pDDIs), as patients may be on multiple medications due to comorbidities. 5 These drug-drug interactions (DDIs) can also cause blood pressure fluctuations, sedation, central nervous system (CNS) toxicity, cardiac arrhythmias, and other side effects. It is difficult to avoid DDIs among these patients for a variety of reasons, including long-term drug therapy and polypharmacy, posing a challenge to treating physicians. Drug interactions can have a negative impact on morbidity, mortality, hospitalisation length, health-care costs, and quality of life.The patient's age and gender, changes in pharmacokinetic parameters, polypharmacy, medication errors, and comorbid conditions are all common risk factors for DDIs.Drug-drug interactions are significantly reduced when risk factors are identified and minimised. DDIs are one of the most common causes of unexpected clinical responses in patients, particularly those on polypharmacy. In some cases, vigilant investigation with appropriate substitution and dose reduction may be required to prevent adverse incidents and improve patient safety. As a result, the current study was designed to determine the prevalence and severity of drug-drug interactions among participants.

Introduction

From September 2017 to April 2018, a prospective observational study was conducted in the inpatient units of the psychiatry department of Justice K.S. Hegde Charitable Hospital (1000 bedded tertiary care hospital), Mangalore, Karnataka. Before the study began, the NGSM Institute of Pharmaceutical Sciences' institutional ethics committee approved it Based on previous research, the minimum required sample size was 100 with a 5% confidence interval, 10% precision, and 53% population proportion. 9 A suitable data collection form was created. designed to record patient-related information such as age, gender, diagnosis, comorbidities, and medications prescribed Before enrolling the patient in the study, the patient's caregivers provided written consent. The study included all psychiatric inpatients between the ages of 18 and 60. Pregnant and lactating mothers, as well as patients with incomplete medical records, were excluded from the study. This study enrolled 112 patients, and their case records were reviewed on a daily basis. These patients were closely monitored for any unusual symptoms. The The suspected and potential drug-drug interactions were confirmed by the treating physician. The severity of the identified interactions was assessed using various standard references, which included published scientific articles, online databases (e.g., UpToDate), and standard textbooks.

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Subjective Heading

The potential drug-drug interactions were investigated in order to determine the time required for symptoms to develop. The majority of the reactions were found to be rapid onset (n = 30, 14.92 percent), followed by delayed-type (n = 70, 34.82 percent), and not specified (n = 101, 50.24 percent).

The severity of drug-drug interactions was classified in the study. They were classified as major, moderate, minor, or contraindicated. The severity was determined to be (n = 106, 52.73 percent) major, (n = 75, 37.31 percent) moderate, and (n = 5, 2.48 percent) minor.

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Received: 04-Aug-2022, Manuscript No: jcmp-22-71351, **Editor assigned:** 06-Aug-2022, PreQC No: jcmp-22-71351 (PQ), **Reviewed:** 20-Aug-2022, QC No: jcmp-22-71351, **Revised:** 22-Aug-2022, Manuscript No: jcmp-22-71351 (R), **Published:** 29-Aug-2022; DOI: 10.4172/jcmp.1000130

Citation: Joel JJ (2022) A Clinical Pharmacist-Led Study of Drug-Drug Interactions in Patients with Psychiatric Disorders. J Cell Mol Pharmacol 6: 130.

According to the findings, only (n = 15, 7.46 percent) were considered contraindicated due to the possibility of toxic reactions.

Discussion

The current study provides an overview of pDDIs and their potential outcomes in psychiatric patients. The majority of patients were men, and 112 patients' medication orders revealed a total of 201 potential drug-drug interactions. This finding was similar to the findings of Rafi M S et al., who identified a total of 181 pDDIs, with the majority of patients (66.9 percent) being males as opposed to their female counterparts. 10 The mean age of the patients in this study was 37.93 12.21, with the majority of them being between the ages of 30-39. As a result, the Potential drug-drug interactions were observed in a large number of patients of the same age group. Mezgebe HB et al. conducted a similar study with similar results, as the mean age of the studied population was 35.94 16.78 out of 205 patients. 6

Paranoid schizophrenia was found to be the most common psychiatric disorder in our study, followed by bipolar affective disorder with psychotic symptoms and bipolar affective disorder without psychotic symptoms. Mezgebe HB et al. and Jomo's studies both produced comparable resultsSM et al., who discovered a high prevalence of bipolar mood disorder and schizophrenia. The majority of the patients in this study were given olanzapine, followed by sodium valproate and trihexyphenidyl. These findings were similar to those of Guo JJ et alstudy, 's in which the most prescriptions were for olanzapine.

Two hundred one possible drug-drug interactions were observed from the medication orders of 112 patients. The most interacting pair was found to be olanzapine and sodium valproate, followed by olanzapine and lorazepam, then trihexyphenidyl and sodium valproate. The study report of Ismail et al., showed that the highest interacting combination was olanzapine with divalproex sodium, followed by haloperidol with promethazine.[8]

The majority of possible drug-drug interactions were identified as major, followed by moderate and minor. According to a similar study conducted by Nieuwstraten 52 percent of the interactions were moderate, 30 percent were major, and 14 percent were minor. The vast majority of drug interactions were discovered to be preventable in nature. Continuous monitoring of therapeutic outcomes, as well as the implementation of preventive measures such as a bagging system and timely clinical pharmacist interventions, can help to reduce the occurrence of drug-drug interactions, medication errors, and other drug-related issues- related issues. This study discovered a high rate of drug-drug interactions. These interactions were natural and could have been avoided. To prevent and control the occurrence of unwanted drug-drug interactions, physicians and clinical pharmacists must plan ahead of time. This study was part of an academic project and was limited by the study's small sample size.

Clofazimine is an antimycobacterial medication used to treat non-tuberculous mycobacterium infections (NTM). The European Medicines Agency granted clofazimine orphan designation for the treatment of NTM lung disease in August 2019. Clofazimine has been shown to inhibit cytochrome P450 (CYP)3A4/5, 2C8, and 2D6 in vitro. An interaction between clofazimine and midazolam, a probe substrate for CYP3A4, was previously characterised in static and physiologically based pharmacokinetic (PBPK) modelling prediction studies. The area under the plasma concentration versus time curve (AUC) of midazolam was increased by a factor of 5.59 and 2.69 for When combined with 100 mg clofazimine, static and PBPK modelling were performed. At the time of writing, there is a scarcity of in vivo data describing the interaction profile of clofazimine.

To treat NTM, a 16-year-old girl with cystic fibrosis (CF) was started on clofazimine 100 mg once daily for about a year as part of a quadruple therapy regimen that also included ethambutol, azithromycin, and amikacin. Tezacaftor-ivacaftor was used as a chronic CF medication in a regular dose of 100-150 mg once daily in the morning, combined. with once daily in the evening. Her Before beginning the NTM medication, the medication profile was thoroughly screened for drug-drug interactions. Because no in vivo data describing the potential drug-drug interaction between clofazimine and CYP3A4 substrates were available, no immediate dose adjustments in tezacaftor-ivacaftor were made when clofazimine was started. Before beginning her NTM treatment, the patient was admitted to the hospital. Blood samples were collected just before the administration of tezacaftor-ivacaftor (time = 0), as well as 2, 4, and 6 hours later. At 8 and 115 days after starting clofazimine, similar PK curves were obtained.

Conclusion

The current study estimates the increased likelihood of potential drug-drug interactions in hospitalised psychiatric patients. According to the analysis, antipsychotics are the most common class of drugs that can cause significant drug-drug interactions. The most common interacting pairs were olanzapine and sodium valproate.It was also discovered that the most common adverse effects of these interacting drug pairs were QT interval prolongation and cardiotoxicity. As a result, patients with cardiac disorders should be closely monitored when co-prescribed with certain antipsychotics. Electronic database systems as a decision support tool, as well as vigilance in drug selection, may help to reduce the problems associated with pDDIs.

Acknowledgement

I would like to thank my Professor for his support and encouragement.

Conflict of Interest

The authors declare that they are no conflict of interest.

References

1. Omer Akin (2002) Case–based instruction strategies in architecture.Des Stud 23 (4): 407-431.
2. Salam Ali (2014) reverse engineering for manufacturing approach.Comp Aided Des Appl 11 (6): 694-703.
3. Dhuha Al–kazzaz (2012)framework for adaptation in shape grammars.Des Stud 33 (4): 342-356.
4. Bernard Cache (1995)Earth Moves the Furnishing of Territories. The MIT Press Cambridge.
5. Duarte J (1995) Using Grammars to Customize Mass Housing the Case of Siza's Houses at Malagueira IAHS. World Congress on Housing Lisbon, Portuga.
6. Eilouti BH (2005) The representation of design sequence by three–dimensional finite state automata.D Zinn The International Institute of Informatics and Systemics 273-277.
7. Buthayna Eilouti A (2007) Spatial development of a string processing tool for encoding architectural design processing.Art Des Commun High Educ 6 (1): 57-71.
8. Buthayna Eilouti D (2007) Models for the Management of Precedent-Based Information in Engineering Design. WMSCI 2007 Orlando Florida USA 321-326.
9. Buthayna H (2009) EiloutiDesign knowledge recycling using precedent-based analysis and synthesis models. Des Stud 30 (4): 340-368.

10. Buthayna Eilouti (2009) Knowledge modeling and processing in architectural designProceedings of the 3rd International Conference on Knowledge Generation. Des Stud 30 (4): 340-368.

11. Buthayna Eilouti (2015) Architectural Design Process Automation Applications of Informatics and Cybernetics.Science and Engineering 370-375.

12. Buthayna (2017) Comparative morphological analysis of two sacred precedent. Front Archit Res 6 (2): 231-247.

13. Buthayna (2018) EiloutiConcept evolution in architectural design an octonary framework .Front Archit Res 7 (2): 180-196.

14. Buthayna (2019) EiloutiPrecedent-based design as a case-driven problem-solving technique in engineering designProceedings of the 10th International Multi-Conference on Complexity Informatics and Cybernetics 141-146.

15. Buthayna Eilouti (2017) Generative system for Mamluk Madrasa form making. Nexus Netw J 9 (1): 7-30.