UTTAR PRADESH JOURNAL OF ZOOLOGY

42(24): 691-695, 2021
ISSN: 0256-971X (P)

PHARMACOVIGILANCE OF FIXED DOSAGE FOR COMBINATION DRUGS

N. S. MUTHIAH [a], APARNA RAVI [a] and JAYALAKSHMI G. [a*]

[a] Department of Pharmacology, Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry 605502 Affiliated to Bharath Institute of Higher Education and Research, Chennai, Tamil Nadu, India.

AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

Article Information

Editor(s):
(1) Dr. Ana Cláudia Correia Coelho, University of Trás-os-Montes and Alto Douro, Portugal.
Reviewers:
(1) Bidyut Banerjee, Assam Medical College, India.
(2) Saurabh Nimesh, Dr. A.P.J. Abdul Kalam Technical University, India.

Received: 20 October 2021
Accepted: 22 December 2021
Published: 24 December 2021

Original Research Article

ABSTRACT

Pharmacovigilance refers to research and practices relating to the detection, assessment, understanding and prevention of adverse effects or any other drug-related concern. A key concern with the sale of prohibited pharmaceuticals over the counter in India is that there aren't enough adverse drug response (ADR) statistics on these drugs. The gastrointestinal system was the site of the majority of suspected ADRs, with patients reporting epigastric pain, nausea, and loose stools, followed by dermatological symptoms such as rashes, pruritus, and so on. The respiratory, auditory, immune, and central nervous systems were also implicated. Every drug reaction was double-checked with the treating physician and the literature. Antibiotic fixed dose combinations and non-steroidal anti-inflammatory drug fixed dose combinations produced the most ADRs, followed by analgesics and antipyretics fixed dose combinations, fluoroquinolones, and antihypertensive fixed dose combinations.

Keywords: Pharmacovigilance; combination drugs; antihypertensives; adverse drug reaction.

1. INTRODUCTION

Pharmacovigilance has grown in importance as a way to reassure the public that health regulator and pharmaceutical companies are constantly evaluating the risks and benefits of medications [1]. Licensure is not a guarantee of safety, as evidenced by the numerous medication withdrawals that have happened for safety concerns. It emphasizes the importance of further study and post-marketing surveillance to determine tolerance and safety [2]. A fixed dose combination is a drug that contains two or more medications in a set dose ratio and is available in a single dosage form. Many of the NSAID (Non-steroidal anti-inflammatory drugs) FDCs (fixed dose combination) available in India contain muscle relaxants and enzymes that have only

**Corresponding author: Email: deanuniversityaffairsslims@gmail.com , jayalakshmi.2k15@gmail.com;*

been licensed as a single dosage form in the United States and the United Kingdom, never as a fixed dose combination [3-5]. A considerable number of FDCs were on the market even before the COSCO (China Ocean Shipping Company) clearance. Despite the lack of clinical evidence on efficacy and safety, as well as the reasons for approval not being made public, several new drugs have been on the market since 2001. Another major concern is the growth of antibiotic resistance in our population as a result of the increasing use of counter drugs, which is mostly confined to India [6]. This is one of the main reasons why foreigners travel to India for significant medical procedures. Only a few pharmacovigilance studies have been conducted on fixed dosage combination treatment, despite the fact that practically all kinds of medications have been studied [7]. With this in mind, the goal of this research is to enhance adverse drug response monitoring and promote awareness among clinicians by focusing on the pharmacovigilance of fixed-dose combination medications used in a tertiary care teaching hospital in Chennai.

2. MATERIALS AND METHODS

Mono-therapies and fixed combinations of the following pharmacological classes were included in the medicine group:

a) Antihypertensive medicines.
b) Antimicrobials.
c) Analgesics, antipyretics, and anti-inflammatory medications.
d) Agents that cause hypolipoiesis.

During a four-month period, 24 ADR's were recorded and reported to the Regional Pharmacovigilance Centre from an initial group of 80 patients. The information was directly entered into the source document as well as the ADR reporting forms. The treating physician was consulted about the data that had been reviewed for its sensitivity. Various online journals and publications were considered in order to correlate these adverse medication effects [8-10].

3. RESULTS AND DISCUSSION

During the four-month research period, 24 adverse drug reactions (ADRs) were discovered during the hospital stay. Male patients (17) had more ADRs than female patients (17) according to the gender distribution among the patients who encountered ADRs (7). Another important criterion is age; patients between the ages of 18 and 45 years and 45 and 65 years experienced 10 (41.7%) ADRs, followed by 3 (12.5%) ADRs in the age group above 65 years and 1 (4.2%) ADR in the age group less than 18 years is observed. The frequency of ADRs was highest in the age groups of 18 to 45 years and 45 to 65 years. The number of ADRs was lowest among those under the age of 18. Patients utilizing a variety of over-the- counter (OTC) drugs for minor ailments, as well as other concomitant medications, had a major impact on the occurrence of ADRs (Fig. 1).

In this study, the most ADRs were produced in the Department of Medicine of Sree Balaji Medical College and Hospital by fixed combinations of antimicrobials and fixed combinations of analgesics and antipyretics. ADRs were also determined by the methods and frequency with which medications were administered. Oral (13.2 percent), intravenous (10.7 percent), and intramuscular (10.7 percent) were the most popular modes of administration (1.1 percent). 4.1 percent multiple doses (16 (66.6%), rather than single doses, were responsible for the majority of ADRs (33.3%).

Adverse drug responses have been highlighted as a main cause of preventable morbidity and mortality in a number of studies, and their detection has grown more important as a result of the huge number of strong compounds used as pharmaceuticals in the previous two to three decades [11]. When the risks and benefits of all medicines are balanced, it is an ideal therapeutic approach. The rate of adverse medication reactions varies, with research indicating that it can range from 0.15 percent to 30 percent. ADR's is said to be more common in the elderly and hospitalized individuals than in the general population [12]. One of the main reasons for the high prevalence of ADRs in the elderly is that the majority of them are hypertensive or diabetic, and they are frequently on numerous medication therapies [13-16].

Although the number of pharmaceuticals consumed by a patient is not directly related to the number of adverse drug events, the number of adverse drug events increases dramatically as the number of drugs taken by the patient increases [17]. Another key determinant in the occurrence of adverse outcomes is poly-pharmacy. Poly-pharmacy should be avoided since drug-drug interactions cause a significant number of adverse outcomes [18]. The Boston

collaborative group identified 36 percent ADRs in a analysis of 10,000 patients clinical data, 6.9 percent of which were related to medication interactions. Patient's increased usage of prescription drugs as they get older, as their financial situation improves, as they live a more sedentary lifestyle, and as they get secondary ailments, etc [19-21]. Sixty percent of patients believe their medications are absolutely safe, forty percent take medications given by two or more doctors, and twelve percent take medications recommended for someone else (Fig. 2). These factors contribute to the occurrence of drug-induced sickness and may be to blame for the high number of patients with adverse effects being admitted to hospitals.

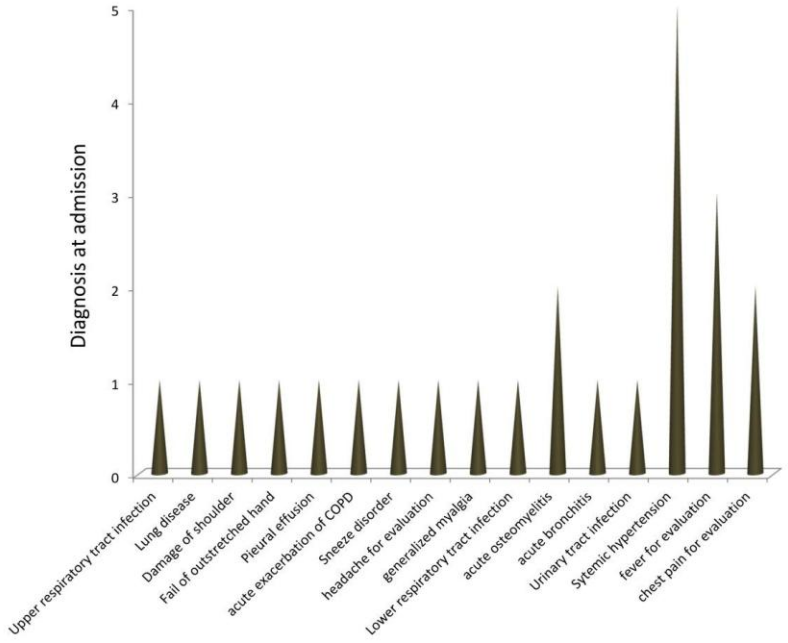

Fig. 1. Diagnosis of various diseases at admission

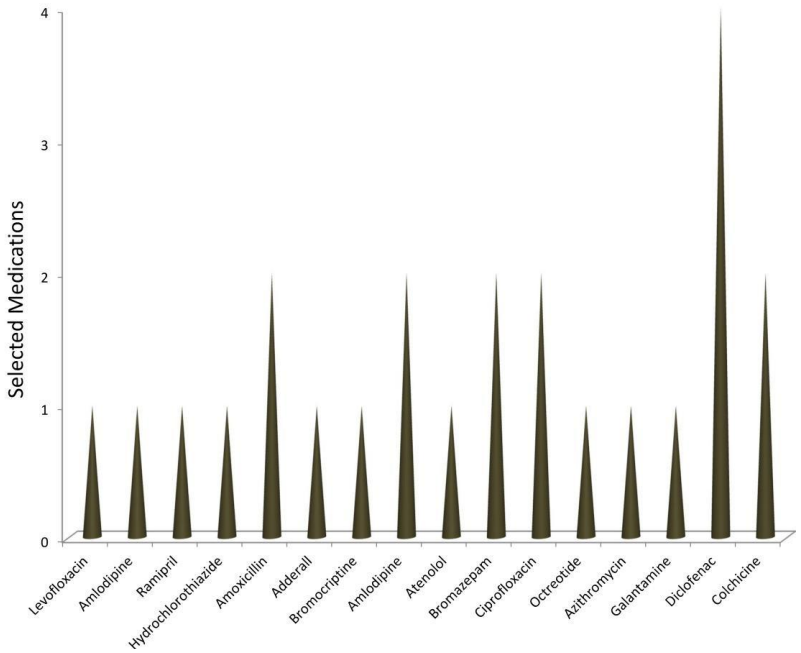

Fig. 2. Adverse drug reaction of several medications

4. CONCLUSION

Every hospital should include pharmacovigilance centers with medical staff and physicians, according to experts. Adverse effects are reported inconsistently across trials, and many outcome metrics have no therapeutic relevance. It is critical that the patient's subjective experiences, in which adverse effects play a part, are taken into account while evaluating a medicine. Prior to treatment, the patient should be educated about common adverse effects and monitored for their occurrence during treatment. ADRs can be reduced by taking fewer medications and having a good understanding of drug interactions.

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ETHICAL APPROVAL AND CONSENT

This study was completed after receiving approval from the Institutional Research Committee and the Human Ethical Committee. Special approval had been granted to the Head of the Department of Medicine. After providing informed written consent, patients who were admitted and treated in the Department of Medicine were recruited as active participants in the trial.

ACKNOWLEDGEMENTS

The encouragement and support from Bharath University, Chennai, is gratefully acknowledged. For provided the laboratory facilities to carry out the research work.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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