Role of Community Pharmacist to Enhance Patient Safety with the Help of Adverse Drug Reactions Reporting

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Abstract

Background: The main cause of Adverse Drug Reactions (ADRs) is drug. ADR may also caused by a single dose or a prolonged dose or a combination of one or more drug and Pharmacovigilance have a significant role to reduce the ADR.

Objective: This study is helpful to evaluate only the drug can not have only role to cause ADR. There are so many factors can also contributing to cause ADR.

Method: 700 ADRs were reported by trained pharmacist. Out of 11 pharmacist, 7 have B.Pharma and rest 4 have D.Pharma graduates. This study was conducted for 24 months during this, ADR were reported. The ADR were reported on the basis of gender, age, type of ADR, therapeutic class of drug, predisposing factor, severity of ADR, management of ADR, Outcome of ADR, specific organ affected or symptoms, treatment of ADR, details and casuality assessment.

Result: The study found that antihypertensive medications, particularly the beta-blocker metoprolol, caused the most ADRs. Males comprised 73% of the affected geriatric patients (>60 years). The gastrointestinal tract was the most frequently affected organ system (45%),

with acidity being the most common issue (22%). ADR were managed by drug withdrawn 57.14%. During the study period, 8 alert cards were issued to the patient who experienced Type B reactions, mostly mild severity was caused in ADR and 64% preventable.

Conclusion: In this study, age of patient, gender of patient and predisposing factor has a significant role to reporting the ADR.

Keywords: ADR (Adverse Drug reaction), Community Pharmacist, Pharmacovigilance, Patient Safety, Community Pharmacy.

Introduction

In the last century, numerous severe incidents related to drug accessibility have influenced drug processes and development. Adverse drug reactions (ADRs) to medications pose a significant challenge to healthcare systems worldwide **(Hughes et al.,2019)**. Patients of all ages may experience mental and physical effects from serious ADRs. As some ADRs do not fit into the existing type A or type B categories researchers have proposed additional classifications, including types C, D, E, and other reaction categories **(Schatz et al.,2015)**. Adverse drug reactions (ADR) can occur with a single dose, extended medication usage, or drug interactions **(Philips et al.,2015)**. Hence, ADR is necessary to the safety of drug and ADR is the only reason to report in Hospital or Community pharmacy to identify which demographic or predisposing factors to influence the ADR **(Gharaibeh et al.,1998)**. In ADR reporting, various software can help and also helpful to generate the data of patient history, Pharmacovigilance have strength to reduce the ADR **(AI-Worafi et al.,2017)**. Following the thalidomide tragedy of the 1960s, most nations established national pharmacovigilance systems. The World Health Organization (WHO) defines pharmacovigilance as the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other possible drug-related problems **(Kunduru et al.,2017)**. The main role of Pharmacovigilance is safety of drug related to reduce the ADR which is caused by drug and many of patient they were reported to the Community or Hospital Pharmacy **(Mahmoud et al.,2014)**. These ADR were also preventable by pharmacological products and this will also cause ADR. So, this connecting chain will never break because the ADR is also treated with

drugs **(Van Grootheest et al.,2005)**, These drugs also have own ADR and they depend on various factors. So, the goal of Pharmacovigilance is to identify or minimise the ADR which is related to pharmacological product or drug **(Christensen et al.,2011)**. Pharmacist is the only person they can help to report the ADR and also identify the situation. However, pharmacist have unique position to gather information from the patient, they can experience the ADR. In healthcare system, currently pharmacist responsibilities have shifted towards the reducing the ADR and were gained the recognition in ADR reporting, to educate or given counselling to the patient, also advised for proper medication and frequency of ADR reporting is gained day by day they can potentially harm the patients **(Irijio et al.,2007)**.

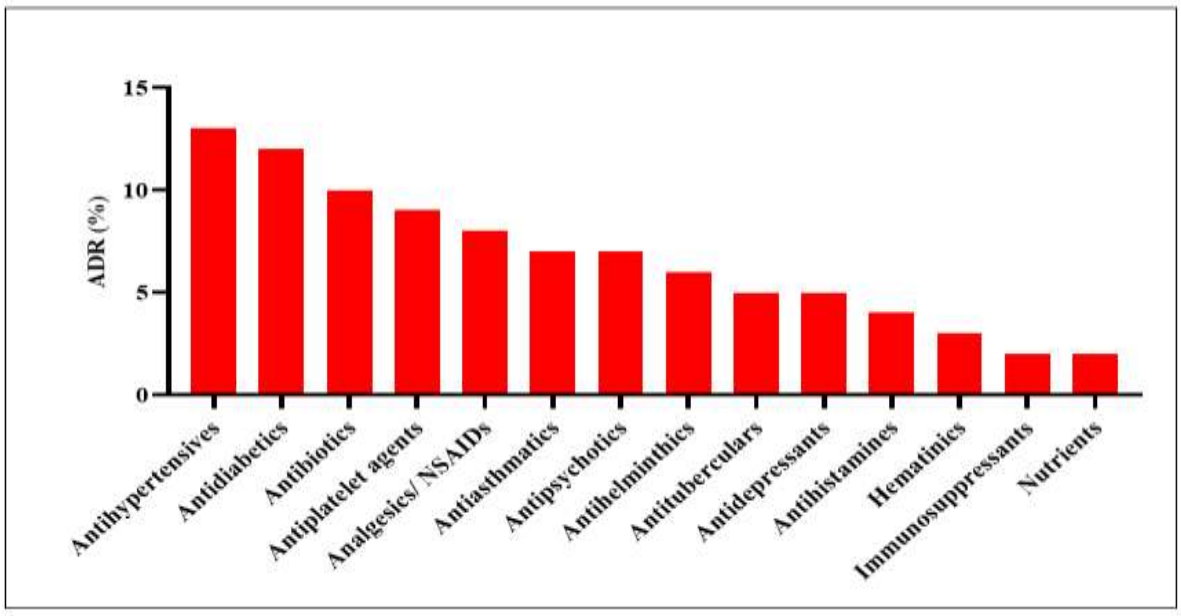
Methodology

A study involving seven pharmacies was undertaken; Muscat pharmacy LLC, AI Hassar pharmacy, AI Rakha pharmacy, AI Hashar pharmacy, AI Aqar pharmacy, North Oman pharmacy and AI Batool pharmacy. Commencing with a single-day workshop on adverse drug reaction (ADR) monitoring. This study was conducted in the department for one day workshop. The main aim of this study to educate the community pharmacist and were also trained to participate in this study or research, all participants were male pharmacist. Out of all 11 pharmacists, 7 were B. Pharma and rest 4 were D. Pharma qualified. In this community pharmacist, one had 2 years of experience or 6 pharmacists had more than 5 years of experience and this study were completed in period of 24 months. In this 24 months, 700 ADR were reported by the 7 pharmacies, they were also classified depending on various factors. Throughout in this complete study the factors can play a significant role **(Bahlol et al.,2022)**. These included; gender, age, affected organ systems, drug therapeutic classes, predisposing factors, ADR types, specific details, alert card information, the fate of the suspected medication, treatment approaches, outcomes, severity levels, preventability assessments, and causality evaluations. Various drug classes, including those for treating hypertension, diabetes mellitus, infectious diseases, thrombosis, pain management, asthma, psychiatric disorders, helminthic infestations, tuberculosis, depression, allergic reactions, anaemia, immunosuppression, and nutritional deficiencies, are associated with adverse drug reactions (ADRs) **(Green et al.,1999)**. The impact of ADR in various organs and shows the several symptoms they can caused by ADR, The ADR were caused by different therapeutic class of drug this can also depend on various factors and these symptoms were related to Digestive tract like acidity, constipation, disturbance in gastrointestinal tract, vomiting,

diarrhoea and belching. Skin related issues like rashes, burning sensation, eruptions and small bubbles in superficially. Other symptoms like sedation, fatigue, hypoglycaemia, hypotension, mouth ulcer, dry mouth, dry cough, headache, body pain, leg pain, dyspepsia, renal incontinence, drowsiness and giddiness **(Elkalmi et al.,2014)**.

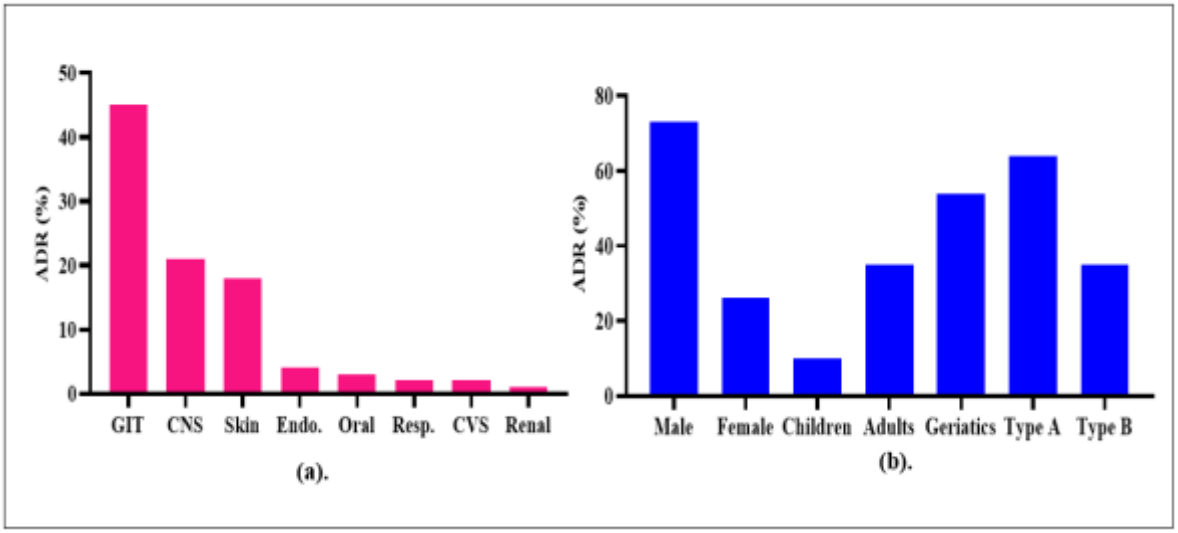
Result

In this study, 700 ADR reported or maximum ADR were reported in Muscat pharmacy LLC. Mostly ADR were reported Antihypertensive therapeutic class of drug (13.57 %). When the pharmacist was analysed, they observed in Antihypertensive class of drug. Maximum ADR were shown in Beta blocker (Metoprolol – 66.66%) and various demographic factors or pre-disposing factors can also cause ADR. Type A ADR were caused 64.28% and maximum males were affected 73.285%, When the patients are relatively affected were Geriatrics 54.28%. During ADR reporting, majorly organ is affected is GIT 45.71% or in GIT acidity is reported 22.85%. However, to manage the ADR maximum by using Drug withdrawn 57.14% and mostly is mild severity of ADR or probably preventable.



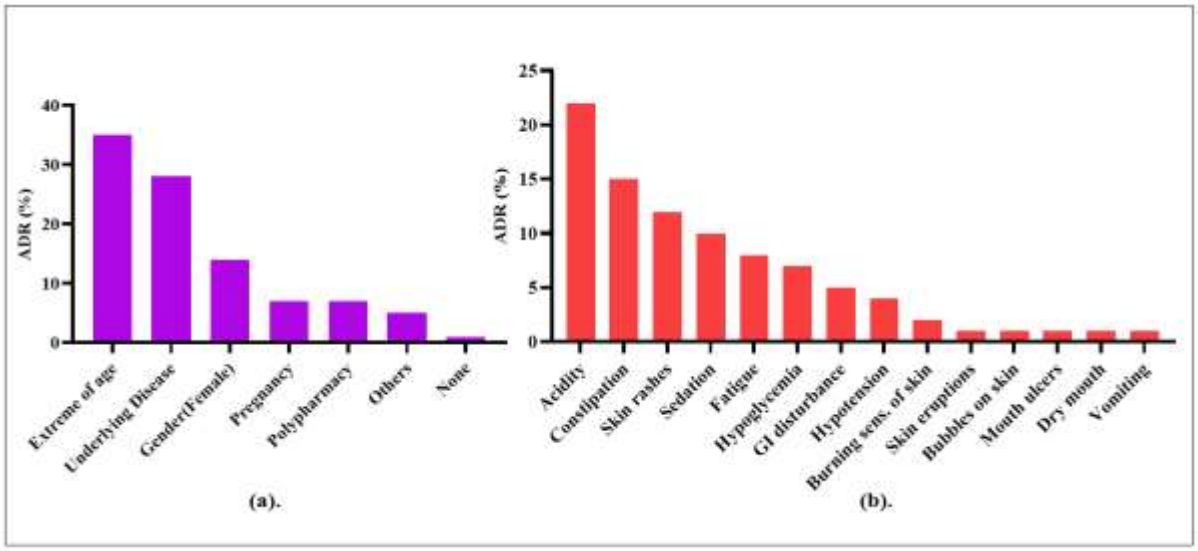
(Fig. 1.1)

This graph is illustrating the ADR of the drug, Maximum ADR was reported in Antihypertensive class of drug and least ADR were reported in Immunosuppressants class of drug. This data was reported with the support of Community Pharmacist.



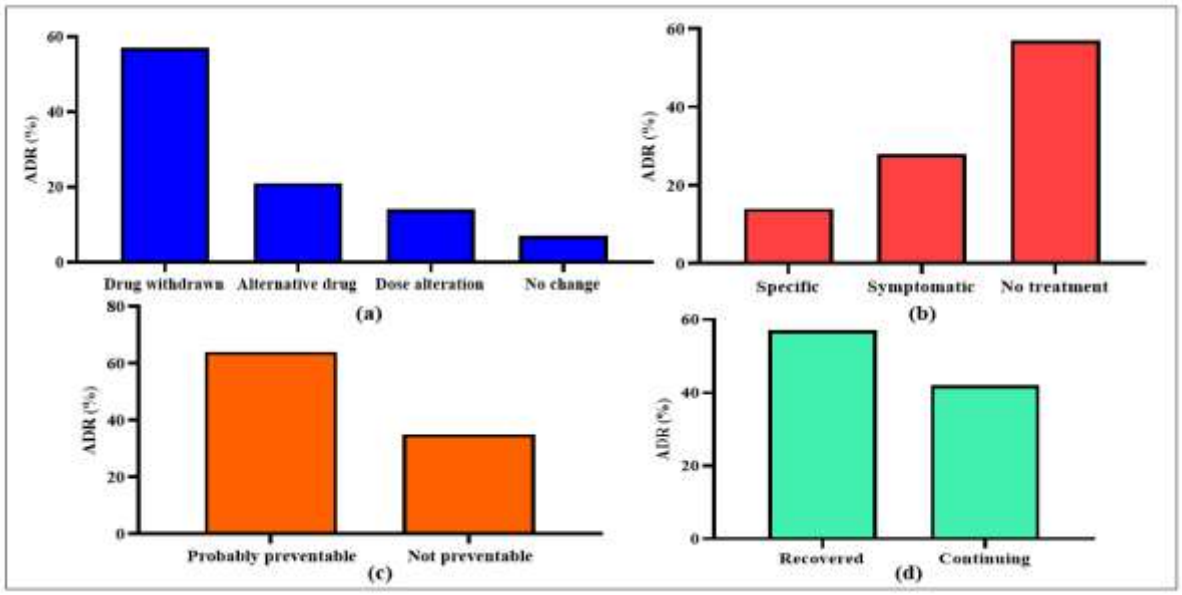
(Fig. 1.2)

Graph (a) represent which organ system is mostly affected by the ADR of drug and Graph (b) represent which Demographic factors (Gender, Age group and type of ADR) maximum involve in the ADR of drug. In Graph (a) specify highest number of ADR were shown in GIT or lowest number of ADR were shown in Renal system. In Graph (b) maximum ADR were shown in male



(Fig. 1.3)

Graph (a) shows that maximum Extreme of age patients were involve in ADR and Graph (b) represents mostly patients were suffered from Acidity as a symptom of ADR



(Fig. 1.4)

In graph (a), maximum ADR were shown in those patients who have withdrawn the drug Graph (b) represent there was not provided the treatment of ADR, they were show maximum ADR. Graph (c) and Graph (d) illustrates the mostly ADR was probably preventable or recovered.

Conclusion

This research involved 700 adverse drug reactions (ADR) reported by 7 pharmacies. During this study, the community pharmacist was involved and they have D. Pharma and B. Pharma graduates participate in the study for ADR reporting, can also educate the patient **(Cheema et al.,2017)**. The study categorized ADR based on gender, age, causative drugs, predisposing factors, types of ADR (Type A and Type B), treatment, management, outcome, severity, affected organs and casuality. ADR reporting plays a vital role in maintaining drug safety. Pharmacists were integral to the ADR reporting process **(Amin et al.,2016)**.

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