

Figure 10. Organ system affected due to ADRs.

**MANAGEMENT OF ADRS**

As a part of management in 87 cases the drug was withdrawn, no changes were done in 16 cases, dose altered in 28 cases and

symptomatic treatment was provided in 38 cases as shown in Table 11, Figure 11.

Table 11. Management of ADRs.

Management of ADRs	No of patient with ADRs	Percentage
Dose altered	28	13.3%
Drug withdrawn	87	41.2%
Drug withhold	41	19.5%
No change	16	7.6%
Symptomatic Treatment	38	18%

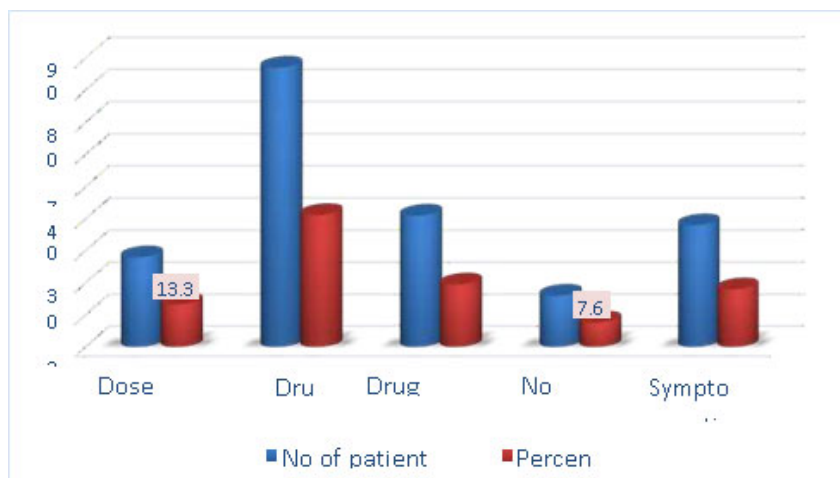


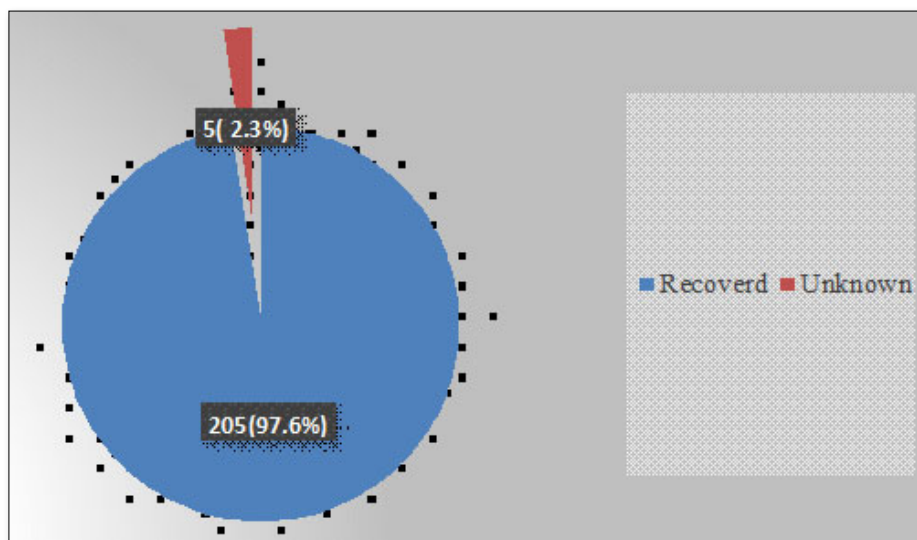
Figure 11. Management of ADRs.

### OUTCOME OF ADRS

Adverse drug reaction encountered were treated and the final outcome was measured. About 205 ADRs were recovered and 5 are not known as depicted in **Table 12, Figure 12**.

**Table 12.** Outcome of ADRs.

Outcome	No of patient with ADRS	Percentage
Recovered	205	97.6%
Unknown	5	2.3%



**Figure 12.** Outcome of ADRs.

### HOSPITAL STAY DUE TO ADRS

**Table 13, Figure 13** indicates that among 210 reported ADRs 134 cases, were stayed less than 2 days followed by 63 cases,

duration of stay was between 3 to 5 days and 13 cases, were stayed more than 6 days.

**Table 13.** Hospital stay due to ADRs.

No of days	No of patient with ADRs	Percentage
< 2 days	134	63%
3 to 5 days	63	30%
> 6 days	13	6%

### DISCUSSION

A total of 4,721 patients were admitted during the study period, among them 210 ADRs were detected from patient with a predominance of male gender (64.2%) over females (35.7%). Majority of patients in the study was also males [53,54]. **Raujo lobo, et al.**, have found the incidence of ADRs is unrelated to gender which supports our studies that ADRs did not differ significantly between men and women [54].

ADRs were frequently encountered in geriatric patients in the age group of 60-79 years as shown in **Table 1**. This group of patient has a very high risk of developing ADR due to age-related changes in pharmacokinetics and pharmacodynamics, increasing burden of comorbidity, polypharmacy, inappropriate prescribing and suboptimal monitoring of drugs. Which is in accordance with the study of **Beijer, et al.**, and **Priyadharshini, et al** [37,55]. In our study majority of ADR

was encountered by antihypertensive drugs (26%) followed by diuretics (38%), anticoagulants (17%), antibiotics (8.5%), contrast media (15%). This study was accordance with **Godbharle SB, et al** and **Mjorndal et al** [56]. In the study performed by **Mjorndal et al.**, in a clinic of internal medicine at a Swedish university hospital, cardiovascular drugs were the most common class of drugs involved in the induction of ADRs. Thus, selection of appropriate medicines for patients, enhancing patient adherence with the therapy by selecting medicines of lesser ADR profile, reducing unnecessary economic burden to the patients due to unwanted effects of the therapy could prevent the patient from life threatening complication and hospitalization associated with medication.

In our study majority of ADR was developed by oral administration 144(68.52%). Type A reaction (87.7%) accounted for majority of report compared to type B (6.6) and type F (6.1) which constitute approximately 80% of adverse drug reactions these ADRs are potentially avoidable and often predict-able, which is mainly due to consequence of the drug's primary pharmacological effect. The most common clinical manifestations of ADRs during the study period was hypokalemia (11.4%) followed by breathlessness (7.6%), hematuria (7.14%), pedal edema (6.19%).

In our study observed that several Organ systems was affected by medication and among them majority was endocrine metabolic (20) followed by hematology (17), cardiovascular (15), GI system (10) and others. As a part of management in 87 cases the drug was withdrawn, no changes were done in 16 cases, dose altered in 28 cases and symptomatic treatment was provided in 38 cases. Adverse drug reactions encountered were treated and the final outcome was measured. About 205 ADRs were recovered and 5 are not known. 134 cases duration of stay was less than 2 days followed by 63 cases stayed between 3 to 5 days and 13 cases stayed more than 6 days.

In order to intensify the validity of the study, causality assessment was done using **WHO-UMC scale**. The assessment showed that out of 210 ADRs, (33.3%) were probable, (64.2 %) were possible, (5%) were possible. These findings are similar to the study carried out by **Javedh Shareef et al** and **Keezhipadathil J et al** [1,53].

On the evaluation of the severity of ADRs by the **Hartwig and Siegel severity assessment scale**, it was evident that most of the ADRs reported in the study were mild (52.8%) in nature followed by (39%) were moderate and (8%) were severe. No lethal outcomes were observed or produced during the study period and these findings are similar to the previous studies done by **Arulmani et al.**, and **Shrivastava et al** [50,51].

Assessment of the preventability of the ADRs using modified Schumock and Thornton scale revealed that 115 (54.7%) ADRs were definitely preventable. This study is accordance with **Keezhipadathil J et al** [1].

## CONCLUSION

The present prospective observational study showed that monitoring and reporting of ADRs plays a vital role in medical events. This study shows many factors like age, gender, drug class and drugs with ADR. By implementing the ADR reporting and monitoring system, the pharmacist can easily identify and quantify the risks associated with the use of drugs which promotes drugs safety and better patient care, among health care professionals. Involvement of pharmacist in patient care can also help to detect new and rare ADRs. Monitoring and reporting of ADRs among healthcare professionals should be encouraged as well as creating awareness of ADR reporting among patients can improve quality of life and prevent hospitalization.

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