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Assessing the effectiveness of state-level pharmacy laws on opioid prescribing practices

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ABSTRACT

Despite their positive impacts on health, medications can have negative side effects because of adverse drug reactions (ADRs). Physicians, pharmacists, and nursing staff have a duty to use caution while prescribing medication. Patients are becoming more conscious of drug-related issues in today's consumer-driven world, and they want to be included in the decision-making process for many elements of their prescription and health care. This study concludes that polypharmacy, a history of bad drug responses, and coexisting illnesses are independent predictors of adverse drug reactions. Elderly people are more susceptible to adverse drug reactions due to comorbidity and a higher number of medications. Although not statistically significant, this study indicated that male gender, age, and comorbidity are associated with a higher risk of adverse drug responses (ADRs). It also implies that more research is necessary to determine whether there is a clear link between male sex and adverse drug reactions. The most important and noteworthy stage in drug safety is adverse drug reaction monitoring, which lowers the morbidity and death associated with ADRs. When prescription medication, especially to vulnerable age groups, healthcare providers should be more aware of adverse drug reactions (ADRs) and take all factors into account.

Keywords: healthcare, Medicine, pharmacy, ADR.

1. INTRODUCTION

Despite their positive impacts on health, medications can have negative side effects because of adverse drug reactions (ADRs). All prescribing medical information is secured.[4]. Pharmacists and nurses should use caution while prescribing medications as part of their duties as doctors. Patients are becoming more conscious of drug-related issues in today's consumer-driven world, and they want to be included in the decision-making process for many elements of their prescription and health care. Clinicians will administer a variety of medications throughout today's session. Before writing such a prescription, one should weigh the treatment's possible advantages and disadvantages. The risk may include the possibility that the patient will experience an adverse drug response (ADR). The likelihood of an adverse drug reaction developing could be attributed to the medication's inherent properties or the patient's vulnerability to such reactions. [1]. Adverse medication reactions are identified and tracked using a variety of definitions around the world. Of these, WHO definition is widely used followed by Edwards and Arronson definition and USFDA definition. "Unintended and noxious response to a drug that occurs at doses normally used for the prophylaxis, diagnosis, or therapy of diseases, or for the modification of physiological function," according to the World Health Organization, is what an adverse drug reaction (ADR) is. [2], according to the US FDA's definition [3], "any adverse event for which there is a reasonable possibility that the drug caused the adverse event, "reasonable possibility" suggesting a causal relationship between the drug and the adverse event," and "an appreciably harmful or unpleasant reaction, resulting from an intervention related to the use of a medicinal product, which predicts hazard from future administration and warrants prevention or specific treatment, alteration of the dosage regimen, or withdrawal of the product" [17] are both described by Edwards and Aronson.[11]. It is one of the leading causes of morbidity and mortality and a prominent public health issue. Because it places a financial strain on society and health care systems, it significantly affects public health [5].

1.1 Aim:

to detect, evaluate, and report possible adverse medication reactions in patients admitted to the tertiary care super specialty hospital's inpatient department.

1.2 Objectives:

- 1. The frequency of ADRs and an analysis of their preventability and cause.
- 2. Researching health care workers' knowledge and attitudes regarding adverse drug reactions and creating plans to enhance their reporting of ADRs
- 3. To find out how often adverse drug reactions (ADRs) are across different departments.
- 4. To use various valid scales to evaluate the suspected ADRs for predictability, severity, preventability, and cause.
- 5. To evaluate the typical risk factors for probable adverse drug reactions.
- 6. To determine which organ systems are most impacted by ADRs.
- 7. To evaluate the ADRs' re- and de-challenges.

2. METHODS

The research methodology is a crucial component of every study that helps the researcher create a plan for the investigation. It mostly refers to the controlled studies concerning the methods of gathering, arranging, and evaluating the data. The methodological studies deal with the creation, verification, and assessment of the research tools and methodologies.

2.1 Research approach

The researcher can determine what data to gather and how to analyze it with the aid of the research approach. This also hints to other inferences that could be made from the information. The goal of the current study was to evaluate the study population's adverse medication reactions. As a result, an observational research technique was chosen for this study.

2.2 Research design

The general strategies for finding answers to the research questions and evaluating the study hypothesis are referred to as the research design. The research design outlines the researcher's responsibility to produce accurate, impartial, and interpretable data. The research designs offer a general framework for conducting the investigation. Both a prospective and a retrospective strategy are indicated by this ambispective investigation. In order to determine the prevalence of adverse medication reactions and the risk factors for them, the patients were studied both proactively and retrospectively.[6].

2.3 Setting of the study

To gather, record, and analyze the data, an appropriate data collection form was created. The DCF also included an informed consent form. For DCF, a pilot test was conducted. Information about the patient's demographics (name, age, and sex), family history, past medical history, history of smoking and alcohol use, diagnoses, co-morbid conditions, medication use during the patient's hospital stay, and laboratory results were all included in the data collection form.

2.4 Sample size

The tiny subset of the population chosen for observation and study is known as the sample. In a research process, sampling is the process of choosing representative units of a population to examine.

2.5 Sampling technique

The process of choosing a portion or samples from the complete population is referred to as a sampling technique [12]. Convenience sampling was a component of the non-probability sampling method used in this investigation.[15]. The subjects were chosen as soon as the investigator became aware of them.[18].

Microsoft Excel was used to compile the data that was so acquired. Following that, the data was imported into the Statistical Package for Social Services (SPSS version 20). Frequencies and percentages were used to display the qualitative data.[8]. The mean and standard deviation were used to display the quantitative data.[16]. The significant test for categorical variables was the chi square test.[14],[13]. Two groups were tested using the independent samples t test, and quantitative variables were tested for significance using the Analysis of Variance (ANOVA) test. To determine the relationship between the cases and controls in terms of risk factors for adverse medication responses, a logistic regression analysis was conducted [7-10].

3. DISCUSSION ANALYTICS

Of the 623 recorded cases, 240 (38.52%) patients were hospitalized or admitted as a result of ADRs, and 383 (61.47%) ADRs were noted while the patient was in the hospital.

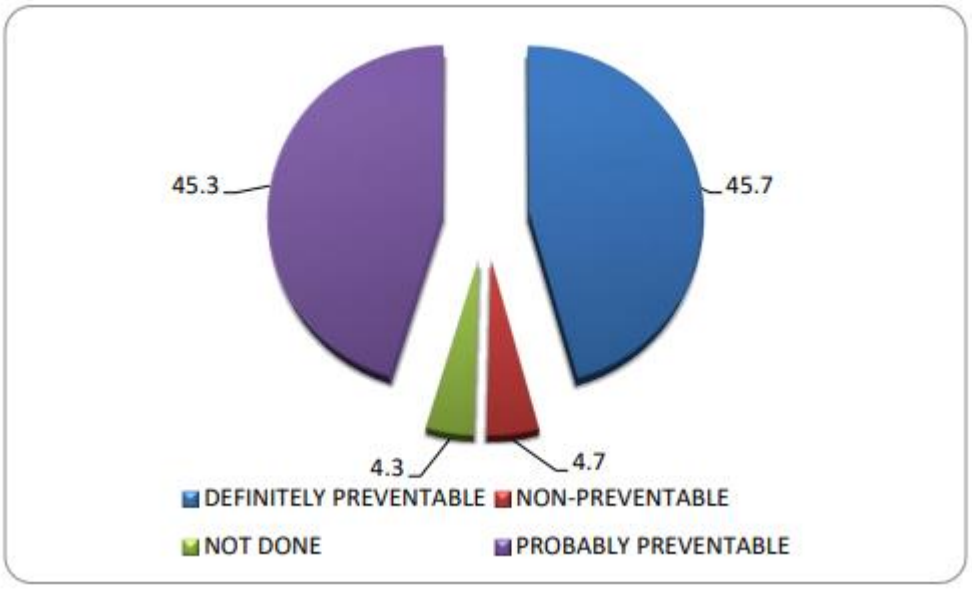

Figure 1: Assessment of ADRs as per Modified Schumock & Thornton's scale

The Modified Schumock and Thornton's scale was used to evaluate the ADRs for prevention. Of the 254 (100%) patients who acquired an ADR, 45.7% of instances were unquestionably avoidable, and only 4.7% were not.

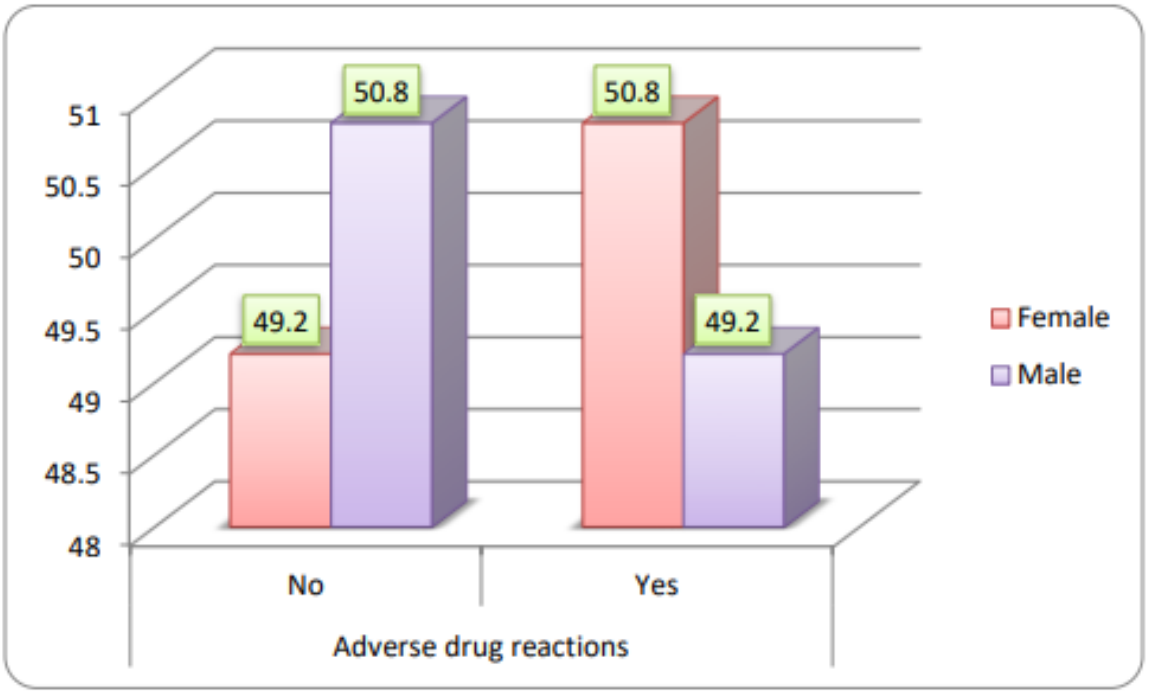

Figure 2: Age wise Distribution

In this study, an equal number of cases and controls were selected. Of the 254 cases, 50.8% of the females experienced adverse drug reactions.

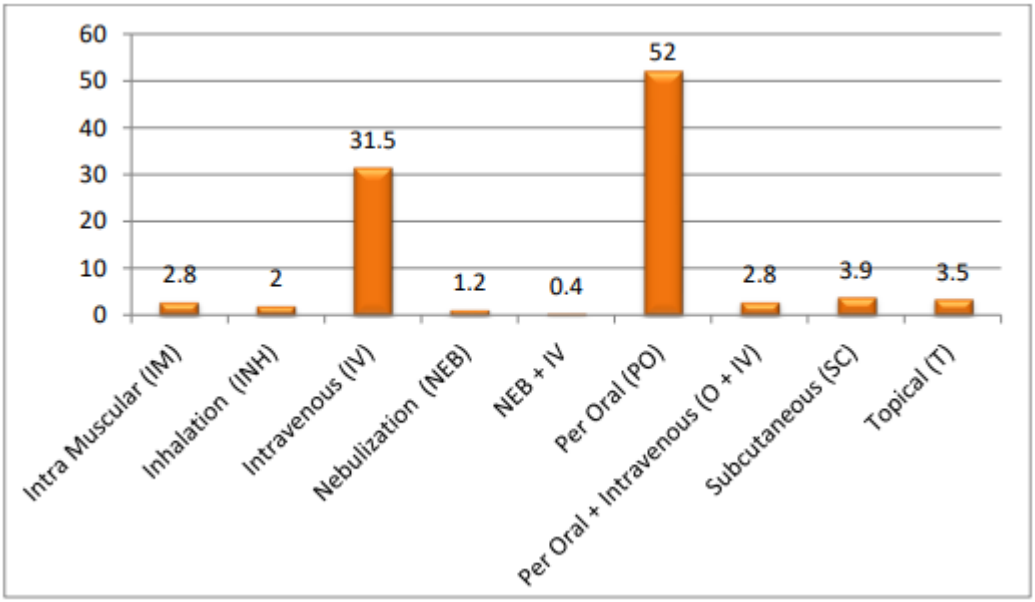

Figure 3: Distribution of ADRs according to suspected drug route of administration

When the suspected drug was taken orally, the rate of adverse drug responses was higher (52.0%). The intravenous mode of administration (31.5%) came next. There were less adverse drug responses when the medication was administered intramuscularly, inhaled, nebulized, subcutaneously, or topically.

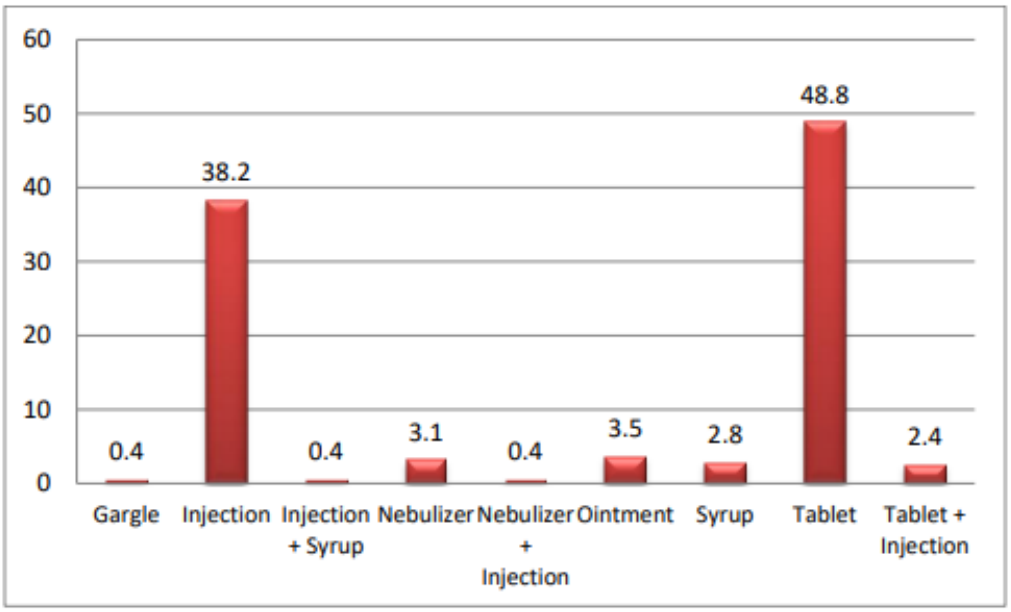

Figure 4: Distribution of ADRs according to dosage form

In this investigation, the likelihood of adverse reactions was higher when the suspected substance was taken as tablets (48.8%) as opposed to injections (38.2%). Adverse medication reactions were less likely to occur with other dose formulations.

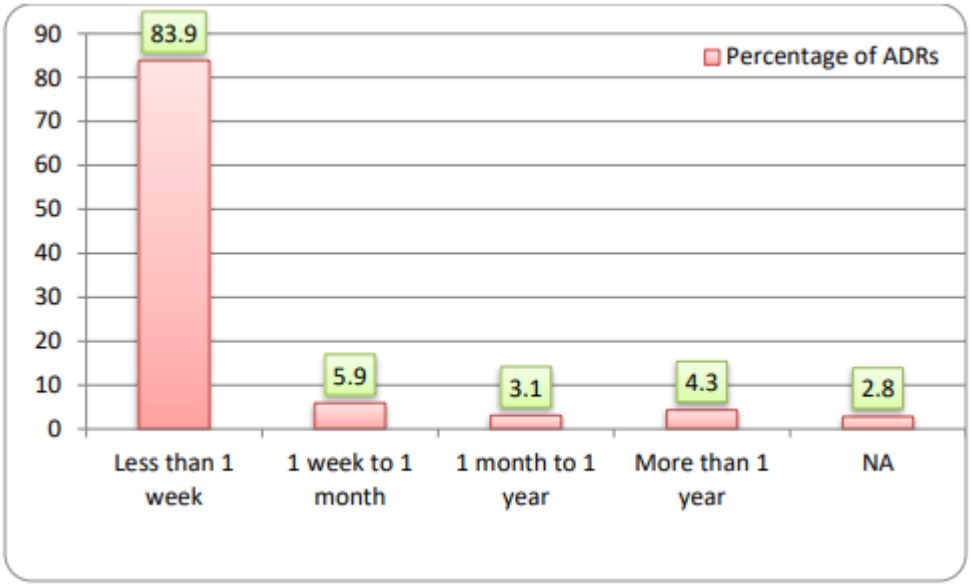

Figure 5: Distribution of ADRs as per duration of suspected drug usage

In 83.9% of cases, the medications caused adverse effects after a week of use, 5.9% between a week to a month after use, 3.1% within a month to a year, and 4.3% beyond a year.

4. CONCLUSION

Numerous pieces of evidence make it abundantly evident that no tool has been fully tested to assess the variables influencing the population's overuse of antibiotics. Numerous existing scales serve as the foundation for creating these scales that are effective in identifying the causes of antibiotic misuse, and they must pass a number of validation procedures. To assess the factors associated with children's overuse of antibiotics for upper respiratory tract infections, an accurate and dependable tool will be needed. There is an opportunity to control the overuse of antibiotics by determining these parameters. Therefore, for a validation instrument to be considered complete, it is necessary to follow validation procedures such as construct and criterion related validity. A comprehensive, verified tool will be needed to classify the variables that affect antibiotic misuse. This tool also aids in the execution of presumptive protocol-related treatments and further permits a reduction in the prevalence of irrational antibiotic usage in diverse communities.

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