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Original Article

Under Reporting Practices of Adverse Drug Reaction: An Observational Study

Kondalkar Avinash, Sharma Rahul, Patle Shikhar and Srivastava Rajnish*

Department of pharmacology, NRI institute of pharmacy, Sajjan Singh Nagar, Raisen Road, Bhopal (M.P), INDIA.

ABSTRACT

Objective: The present study was to estimate extend or percentage of Adverse Drug Reaction (ADR) reporting in Bhopal region at pilot level. Our main objective is not only to find out the reporting status but is to find out the possible causable reason behind the under-reporting of the suspected ADRs by the private practioners. **Methods:** A questionnaire based short intensive survey was conducted on the private practioners of the Bhopal region. The questionnaire consists of ten questions from which most of it was totally based and design so that we can get the much close and exact reason for the under-reporting practices. The survey was conducted by a random sample of approximate 150 private practioners of the Bhopal region. **Results:** The overall reporting percentage was only approximately 7% or the under-reporting percentage was approximately 93% that clearly indicates somewhat a considerable obstacle for the roadmap forecast by the CDSCO in collaboration with IPC. **Conclusion:** The under-reporting percentage was quite considerable (93%) so as to look after the issue to resolve or for improvement. As majority of population have their reliability and first exposure of treatment via private practices. So ADRs at this level if reported earlier in the phase of drug exposure could be better controlled as per quality concern and also its global exposure may be prevented.

Key words: Adverse drug reaction (ADR), Central drug standard control organization (CDSCO), Indian pharmacopoeial commission (IPC), Under-reporting, Questionnaire and Private Practioners.

INTRODUCTION

As per health concern Pharmacovigilance programme of India (PvPI) plays a key role as active participation in World Health Organization (WHO) programme for International drug monitoring. PvPI through Adverse Drug Reaction (ADR) Monitoring centres (AMCs) plays a vital role of collection, Interpretation and active follow-up of suspected Adverse Drug Reactions (ADRs) of patients reported from different sources.[1] Under the aegis of directorate general of health services (DGHS), these AMCs are setup across India as regional, zonal, sub zonal and national levels to retrieve adverse events (AE) at different levels for the early signal detection and signal strengthening. The AMCs are responsible for the effective collection of the AE information through individual case safety reports (ICSRs). They are also responsible for performing active follow-up of the AE of the patient to confirm whether the event is de-challenge or re-challenge, that can be only possible if there must be a plausible causable relationship between the drug and suspected ADR. Recently an average completeness score was published by world health organisation-Uppsala Monitoring centre (WHO-UMC) for the 3rd quarter of the 2014 which was 0.94 in 1 pointer scale. As compared to1st and 2nd quarter of 2014 and 3rd quarter of 2013 the score was found to be 0.86, 0.91 and 0.81 respectively.[2] One of the Leading government agency, National Coordination Centre-Pharmacovigilance Programme of India (NCC-PvPI) shall strive hard and further focuses its efforts in improving the network of Pharmacovigilance throughout the nation to improve the patient safety. But still ADRs occurrence remains a concrete clinical problem as they mimic number of serious clinical manifestations that causes significant mortality and morbidity. Government must have to promote judicious prescribing practices along with the promotional interventions to report serious and suspected AEs. Pharmacogenomics biomarkers (eg. Xenobiotics) are recently identified for the serious AEs, and still many remain unidentified. Parmacovigilance through well documented spontaneous reporting continues to play a key role in detecting the causal link between astute clinical findings and well documented reports of suspicious AE that cannot be underestimated as any cost. Although many national reporting schemes have been introduced and implemented those have developed considerable experience and expertise through PvPI eg. ADR databases as national assets. Despite of advancements of many years of PvPI numerous deficiencies and drawbacks have been identified from which the post marketing surveillance and batch to batch variations remains the weakest link in the regulatory process. The regulatory authorities respond later rather than sooner in response to signal detection or safety signal, and when this attitude of the government agencies when combined with the under reporting may have led to exposure of large number of patients to the drug related risks/ harm that might be restricted or withdraw. Number of high-profile prescription practices of post marketing drugs has aroused some serious conflict and concerns

Corresponding Author :
Mr. Srivastava Rajnish
Department of pharmacology, NRI Institute of Pharmacy,
Sajjan Singh Nagar, Raisen Road, Bhopal (M.P) India-462038.
E-mail: phrajnish14091989@gmail.com

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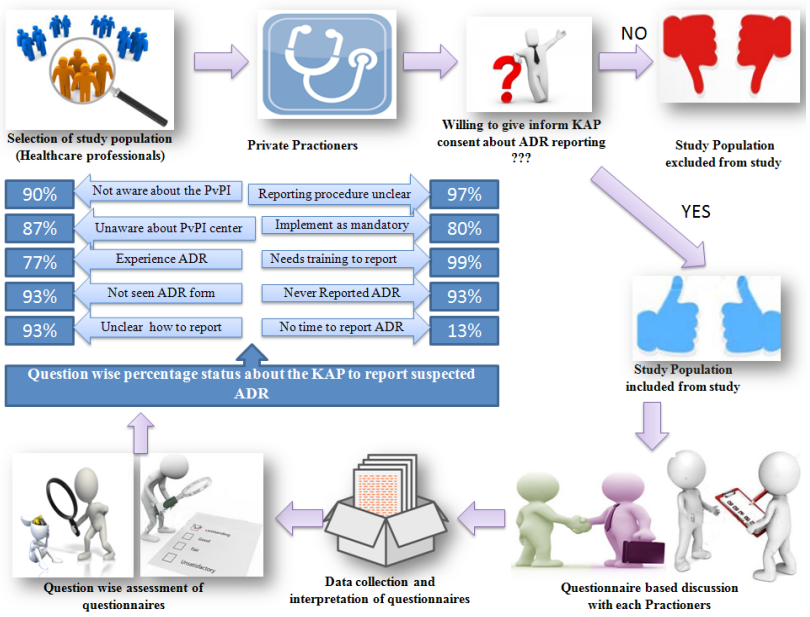

Graphical Abstract

regarding drug safety.[3-8] Under-reporting of unethical clinical trials and AE due to post marketing drugs fails to unmask the important adverse effects of widely marketed products.[7] Number of reputed journals have reported and published short communications and editorials related to regulatory and drug safety, with effective dose of recommendations to improve drug safety monitoring, to improve PvPI and also to ensure the quality of the public health to regain subject trust.[8-15] Pharmacovigilance as observational science depends solely on the capacity as effective recognition and reporting of AE its active /passive surveillance and early investigation of the unexpected, spontaneous clinical events that are manifested once a novel drug is in subject exposure.[16] Pharmacovigilance is the science related to the detection, assessment, understanding and prevention of ADRs.[13] Its primary function is to improve the safety of marketed medicines. Data are derived from many sources, including published case reports, voluntary ADR reporting to national pharmacovigilance centers, post marketing clinical and epidemiological studies, prescription event monitoring schemes morbidity and mortality databases.[17] The current system of voluntary reporting plays an important role in identifying ADRs.[18,19] This voluntary scheme of ADR reporting has reached a high level of sophistication internationally, although the limitations are well known: poor quality of some submitted reports, significant under-reporting.[20-23] Periodic Safety Update Reports (PSURs) are generated, which provide global safety updates. Apart from all these things as most of Indian population rely on private practioners for the first time treatment and as first time exposure of no. of drugs of post marketing surveillance were promoted and prescribed by practioners. So the probability of the ADRs may have increase the importance and practicing of ADR reporting which prevent the immediate and further exposure of the problematic drug/formulation over large population and may ease the pharmaceutical firm in forecasting or improvement of PSURs. So improving the status/quality of ADR reporting viz. Private practioners may help to ease the reporting status at grass root level as per health system concern.

MATERIAL AND METHODS

Study setting and design

A cross sectional observational questionnaire based study was carried out at the urban and sub urban region of Bhopal. It was done after the approval from the institutional committee.

Study population

In case study population we are mainly emphasised on the private practioners on which most of the population rely for the primary treatment so they have to play a key role in active reporting in comparison to other healthcare professionals. The practioners who were willing to give informed consent were included in the study otherwise those who were not willing to participate or interested to fill questionnaire were excluded from the study.

Fishing expedition

A knowledge -attitude-practice (KAP) questionnaire of 10 questions as given in Table 1 was design under the supervision of some expertise which was further validated by a simple pilot study on 10 to 15 randomly selected participants. The questionnaire consists of questions with an option of on YES/NO. The questionnaire was structure

Table 1: Adverse drug reaction (ADR) Under-Reporting Survey Questionnaire

Q1	I know the existence of a National Pharmacovigilance Programme in India. YES/NO
Q2	I am aware of the nearest Pharmacovigilance centre in my geographical location. YES/NO
Q3	I have experienced Adverse Drug Reactions in Patients during my Professional practice. YES/NO
Q4	I have seen the suspected ADR reporting form of CDSCO. YES/NO
Q5	I knew how to report ADR to the Pharmacovigilance centre. YES/NO
Q6	Suspected ADR reporting form was found to be simple & clear to me. YES/NO
Q7	ADR reporting should be made mandatory to my profession. YES/NO
Q8	I have been trained how to report an ADR/ Do you think training is needed in reporting an ADR? YES/NO
Q9	I have reported an ADR before. YES/NO
Q10	Lack of time to fill-in a report. YES/NO

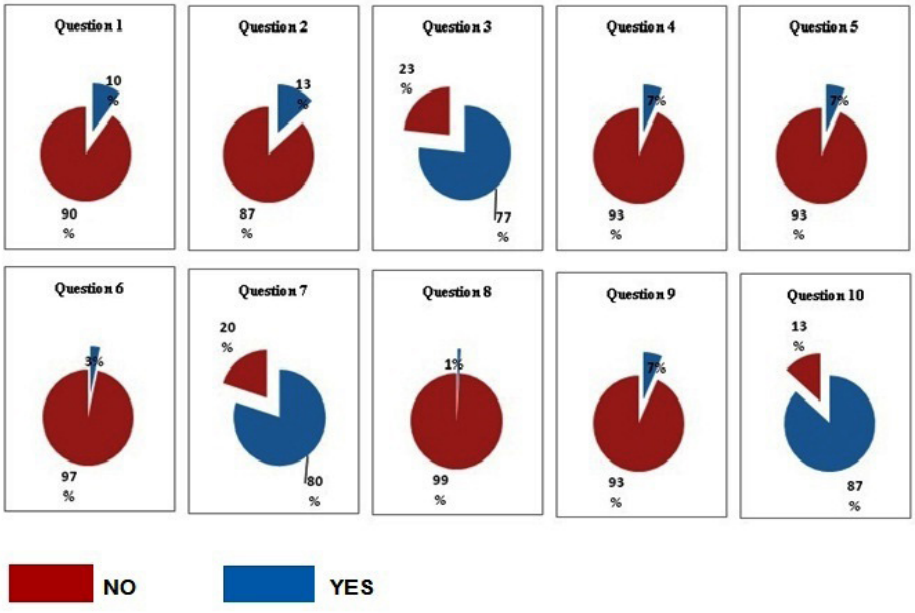

Figure 1: Data representing question wise percentage status about the KAP to report suspected ADR

Q1) 90% not aware about the PvPI Q2) 87% not aware about the nearest vigilance centre Q3) 77% experiences ADR during their routine practices Q4) 93% not seen the ADR reporting form Q5) 93% feels uncomfortable/unclear about how to report Q6) 97% not clear about the reporting procedures Q7) 80% feels that reporting may implement as mandatory in routine practices Q8) 99% needs training module to improve the reporting practices Q9) 93% never reported ADR before Q10) 13% have no time for reporting.

to obtain the demographic knowledge about the knowledge of pharmacovigilance; their attitudes to report ADR.

Data interpretation

The data received in the form of questionnaire response was interpreted question wise so as to retrieve the conclusion on each individual aspects on the basis of which the questionnaire was design. The data (questionnaire) of total 150 practioners which respond to all questions was selected for the efficient interpretation. So a total 1500 questions whose response was either in yes/no was analysed so as to determine the percentage response (either in YES/NO) for each question to detect the exact figure for each problematic aspects.

RESULTS

Total 150 questionnaires were evaluated question wise to point out or assess the knowledge about the PvPI and the attitude of the concern subjects indulging in the reporting practices. The lump-sum figures on individualized questions are depicted in Figure 1. Although WHO-UMC scoring as per India concern was improving year by year but still flocks in the reporting chain might affect the reporting quality and figures.

While considering the questionnaire we are in a position to mention the fact the percentage figures from each questions have possible causable relationship with the figures that we got from the first question. In the study we are blindly and randomly selected the private practioners and there is no any relevancy with their qualifications and experiences. Important fact that has to be taken into consideration that about 90% of the practioners might be not aware about the Pharmacovigilance programme of India.

DISCUSSION

Several studies done previously in Asia, Europe, America, and Africa have shown lack of sufficient knowledge among healthcare professionals about ADR reporting.[24-34] As the governing bodies like CDSCO, IPC, AIIMS concern they still have a dream for a healthy India and as per Indian population concern most of us rely to be their primary or first treatment via private practioners and number of doctors are indulge with the formulations/drugs in post marketing surveillance which have greater possibility to show ADR as compared to already existed drug and so they may be potential source for the early signal detection for the ADR to occur. Apart from that, not only the post marketing drug but the already well established formulation/Drug also may cause severe ADR if the company's QA/QC and R&D department are not working efficiently. We might remind a very famous incident called CUTTER'S incident in which a particular lot of vaccines causes paralysis in number of children due to improper attenuation.[35-36] There is a need to provide adequate good quality basic training to all health care professionals by educational interventions at an affordable cost. The thing that is experience throughout the study was that most of the medical practioners lacks motivation on behalf of reporting so government must have to run such programs that helps out the healthcare professionals to motivate to report ADR and it may also be implemented by MCI and PCI to mandatory the ADR reporting for each and every healthcare professional so as to improve the percentage of quality reporting to early signal detection for severe ADR.

CONCLUSION

In this study the questionnaire based cross-sectional survey was conducted on the 150 private practioners to assess the status of the KAP regarding spontaneous ADR reporting. The data obtained from the questionnaire quite favor the need of such programmes and schemes that promote and motivate the ADR reporting specially as per participation from private practioners concern. This study contributes to lowering the risks of ADRs the might occurs during the post marketing drug/formulation as well as for the already existed drug/formulation via promoting the ADR reporting from the physician's side because they might become a potential source for the early signal detection to confirm the minor/major ADR. Other studies have also revealed that ADR under-reporting by health professionals is commonly attributed to reasons such as ADR is not serious, ADR is well known, uncertainty about causal relationship and lack of time etc.[37] In agreement with these studies, our study also demonstrated lack of sufficient knowledge among the private practitioners with regards to the type of ADRs to be reported and the purpose of ADR reporting system. Furthermore taking into consideration that government must have to constitute special agencies that not only promote or motivate ADR reporting but also take part in active/

passive surveillance to monitor the reporting contribution from different healthcare professionals who directly or indirectly indulge in health care system.

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ABBREVIATIONS

ADRs: Adverse drug reactions
CDSCO: Central drug standard control organization
IPC: Indian pharmacopoeial commission
PvPI: Pharmacovigilance programme of India-
WHO: World Health organization
AMCs: ADR Monitoring centres
DGHS: Directorate general of health services
AE: Adverse Events
ICSRs: Individual case safety reports
WHO-UMC: World health organisation- Uppsala Monitoring centre
NCC-PVPI: National Coordination Centre-Pharmacovigilance Programme of India
PSURs: Periodic Safety Update Reports
KAP: Knowledge -attitude-practice
AIIMS: All India Institute of Medical Sciences
MCI: Medical Council Of India
PCI: Pharmacy council of India
QA/QC: Quality Assurance/ Quality Control
R and D: Research and Development
CDSCO: Central Drugs Standard Control Organization

Highlights of Paper

- As per health concern Pharmacovigilance programme of India (PvPI) plays a key role as active participation in WHO programme for International drug monitoring.
- Indian population rely on private practioners for the first time treatment and no. of drugs of post marketing surveillance were promoted and prescribed by practioners.
- Cross sectional observational questionnaire based study was carried out on Private practioners at the urban and sub urban region of Bhopal.
- The questionnaire consists of 10 questions and was structure to obtain the demographic knowledge about the knowledge of pharmacovigilance; their attitudes to report ADR.
- Out of 1500 responses from 150 Practioners, important fact that has to be taken into consideration that about 90% of the practioners might be not aware about the Pharmacovigilance programme of India.
- Government must have to constitute special agencies that not only promote or motivate ADR reporting but also take part in active/passive surveillance to monitor the reporting contribution from different healthcare professionals who directly or indirectly indulge in health care system.

Author Profile

- **Mr.Rajnish Srivastava:** He is presently working as assistant professor in department of Pharmacology and toxicology, under the aegis of Moradabad educational trust, Moradabad. His area of interest is Pharmacovigilance and neurodegenerative diseases especially in development of pharmacological screening models. He has 4 nos. of journal paper, 3 research papers in press and 8 national and international conferences. He also receives best faculty award from Madhya Pradesh council of science and technology, Bhopal for academic excellence in Srijan 2015..

- **Dr. Avinash kondalkar:** He is presently working as Principal NRI Institute of Pharmacy, Bhopal M P. He published 18 research & review articles in reputed national and international journals as well as published more than 20 abstracts, actively participated in various seminars and symposia. He is life member of Society of Pharmacognosy.

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