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RESEARCH ARTICLE

PATTERN OF ADVERSE CUTANEOUS DRUG REACTIONS PRESENTING TO GENERAL PRACTITIONERS IN A SEMI URBAN AREA

***[1]Dr. Rajaram, G., [2]Dr. Lenin, R. and [2]Dr. Sugirda, P.**

[1]Department of Pharmacology, Government Thiruvannamalai Medical College, Thiruvannamalai, India
[2]Department of Pharmacology, Government Villupuram Medical College, Villupuram, India

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ABSTRACT

Aim: To study the pattern of cutaneous adverse drug reactions presenting to general practitioners in a semi urban area.

Methodology and Results: This study was conducted among general practitioners of Villupuram, a semi urban area in Tamilnadu State. During the study, a total of 48 CADRs were reported. Data were collected using standard CDSCO ADR form. The majority of CADRs were observed in the age group of 20-40 years. According to WHO causality assessment, 39 were probable and 9 were possible. The severity assessment using modified hartwig and seigel revealed 10 mild, 37 moderate and one severe CADRs. The common drug groups implicated are antibiotics followed by NSAIDS and anticonvulsants. Maculopapular rash was the most common presentation of CADRs.

INTRODUCTION

Patient safety is an important parameter in health care systems. Worldwide adverse drug reactions are the major concerns interms of patients safety and the quality of medical care. Adverse drug reactions are the major causes of hospital admission, increased expenditure, morbidity, and even death (Nerurkar *et al.,* 1998). Drug use is always coupled with the risk of adverse reactions. Skin and mucosa are the common sites for initial presentation of many CADRs (Roujeau, 1994). About 2-3% of hospitalized patients are affected by cutaneous ADRs due to variety of drugs (Bigby *et al.,* 1982). A CADRs is any undesirable change in the structure or function of the skin, its appendages or mucus membranes and it encompasses all adverse events related to drug eruption, regardless of etiology. Although cutaneous reactions are common, comprehensive information regarding their incidence, severity, and ultimate health effects in general practice are often not available as many cases go unreported (Nayak and Acharjya, 2008).

Drugs used for a long period of time may cause new types of skin eruptions that have not been observed previously (Puavilai and Choonhakarn, 1998). It is estimated that only 50% of the undesirable reaction can be detected during the pre marketing clinical trials (Edwards and Aronson, 2000).There is a wide spectrum of CADRs varying from transient maculopapular rash to fatal toxic epidermal Necrolysis (TEN).

Corresponding author: Dr. Rajaram, G.,
Department of Pharmacology, Government Thiruvannamalai Medical College, Thiruvannamalai, India.

The pattern of CADRs and the drugs responsible for them keep changing every year (Pudukadan and Thappa, 2004). These reactions can arise as a result of immunologic (or) non immunologic mechanisms. The cessation of the offending agent along with the use of systemic and topical steroids and antihistamines may be helpful in the management. Proper data about the adverse effects of drugs help physicians to use drugs balancing the benefits and hazards (Dubey *et al.,* 2006). Early detection and treatment of CADRs along with identification of the causative agent, are essential for preventing the progression of the reaction, preventing additional exposures, and ensuring the appropriate use of medications (Segal *et al.,* 2007). A standardized approach is necessary to establish a final decision of causality to result in a consistent, accurate and reproducible identification of ADRs. It is most challenging and practically difficult when the patient is on multiple medicines (Saha *et al.,* 2012). To have knowledge of the CADRs prevailing in general practice of a semi urban area (Villupuram, Tamilnadu state), this study was designed with the following aim.

Aim

To describe the pattern of cutaneous adverse drug reactions presenting to general practitioners in a semi urban area.

Objectives

- To describe the clinical presentation of cutaneous ADRs.
- To identify the offending drugs and to associate causality and severity.

MATERIALS AND METHODS

This study was conducted among general practitioners of Villupuram, a semi urban area in Tamil nadu state. All the patients who attended OPDS of general practitioners with suspected cutaneous ADRs were enrolled in the study. Daily and on-call visits to the clinics were made to collect data. Drug history and data regarding all suspected cutaneous ADRs to drugs were collected after getting consent from the patient. Detailed data were collected using central drugs standard control organization (CDSCO) ADR from. Subjects who complained of only symptom (eg.itching) without visible skin lesions and subjects whose lesions are disease related (viral exanthemas, rash of rickettsial infections etc) were excluded from the study.

The case causality assessment criteria recommended by the WHO Uppsala monitoring centre (WHO-UmC) was followed for assessing causality of individual reactions. Only certain, probable and possible were included for analysis. In order to assess the severity, Modified hartwig and siegel-1992 ADR severity assessment scale was used.

Method of Statistical Analysis

Descriptive analysis.

OBSERVATIONS AND RESULTS

A total of 48 cutaneous ADRs were reported during the study period. Among them 26 were males and 22 were females. The youngest patient was of age 14 and oldest was of age 64. Majority of the patients were in the age group of 20-40 followed by 41-60 years. The most common reaction pattern was maculopapular rash [25(52%)] followed by fixed drug eruption[6 (12.5%)] , urticaria [5(10.4%)] , acneiform eruption [3(6%)], erythema multiforme [3(6%)], photosensitivity drug rash [1(2%)], contact dermatitis [2 (4%)], angioedema [1(2%)], and toxic epidermal necrolysis [1(2%)].

The most common drug groups responsible for CADRs were antibiotics followed by NSAIDs / other analgesics and anticonvulsants. Antibiotics caused 15 CADRs (31%), NSAIDs /other analgesics caused 10 CADRs (20%), anticonvulsants 8 CADRs (16%) and other miscellaneous drugs caused remaining CADRs (31%). Beta lactams were the most common antibiotic causing CADRs followed by fluoroquinolones and sulpha groups of drugs. Causality assessment was done using WHO causality assessment scale of suspected adverse drug reaction. Among 48 cases reported, 39 were probable and 9 were possible. (Table-1). The severities of the CADRs were assessed using modified Hartwig and Siegel ADR severity assessment scale 1992. Out of 48 cases 10 were mild, 37 cases were moderate and one was severe.

Table 1.WHO Causality assessment of Cutaneous adverse drug reactions

Total number of cases	48
probable	39
possible	9

Table 2. Commonly involved drug groups in cutaneous adverse drug reaction

Drug Groups	Reaction type
Antibiotics	Maculopapular rash Fixed Drug Eruptions Toxic Epidermal Necrolysis Photosensitivity
NSAIDS	Maculopapular rash Fixed Drug Eruptions Urticaria Erythema multiforme
Anticonvulsants	Maculopapular rash
Immunosuppressant	Maculopapular rash Erythema multiforme

Table 3. Severity assessment of CADRs (Modified Hartwig and Seigel-1992)

Total cases	48
mild	10
moderate	37
severe	1

Table 4. clinical pattern of CADRs

Total Cases	48
Maculopapular rash	25
Fixed Drug Eruptions	06
Urticaria	05
Acnei form eruptions	03
Erythema multi forme	03
Photosensitivity	02
Contact dermatitis	02
Angioedema	01
Toxic Epidermal Necrolysin	01

DISCUSSION

This study was carried out with an objective of revealing the types of CADRs of the patients attending general practitioners in a semi urban area like Villupuram. Drug history is mandatory for the diagnosis. Polypharmacy is the main risk for CADRs in the study. We did not carry out rechallenge test during the study period. It has to be done with great caution and only if extremely necessary, because a rechallenge test may cause severe or even fatal reactions (Sushma *et al.,* 2005).

In most of the cases, the suspected drug was withdrawn. In cases where the drugs were absolutely necessary and were not easily modified, the drugs were continued on supervision (eg) Anti tubercular drugs. Dermatologist opinion was obtained for serious CADRs like erythema multiforme and TEN and were closely monitored (Albala *et al.,* 2003). CADRs were common among men compared to women in our study (Acharya *et al.,* 2013). Majority of the patients were in the age group of 20-40 in our trial and it is in accordance with other studies (Davidovici and Wolf, 2010). In some studies elderly population was more susceptible to CADRs (Akpinar and Dervis, 2012). The difference in various studies may be due to the regional variation in the health care seeking behavior of the different population (Nandha *et al.,* 2011). Among the various types of CADRs seen in this study, Maculopapular rash was the most common followed by fixed drug eruption which is similar to some other studies (Ding *et al.,* 2010).

In accordance to the earlier studies antimicrobials were the most common causative agent followed by NSAIDs and anti-convulsants (Liao *et al.,* 2013). Among the antimicrobials, β lactams are the most common causative agent but in some studies fluoroquinolones cause more CADRs. These variations may be due to differences in prescription pattern of drug in different part of the world[19].

Conclusion

In our study, a wide clinical spectrum of cutaneous ADRs ranging from mild maculopapular rash to serious TEN were observed. Antibiotics, NSAIDS and anti- convulsants were the most frequently implicated drug groups. This study on CADRs gains importance as the pattern of drug use is changing periodically and everyday many new drugs enter the market. The patients diagnosed with CADRs were informed about the suspected drugs and the chances of cross reactivity with related groups.

REFERENCES

Acharya, T., Mehta, D., Shah, H. and Dave, J. 2013. Pharmaco vigilance study of adverse drug reactions in a tertiary care hospital. *Natl. J. Physiol. Pharm. Pharmacol.,* 3:75-81.

Akpinar, F. and Dervis, E. 2012. Drug Eruptions: An 8- year study Including 106 In patients at a Dermatology Clinic in Turkey. *Indian J. Dermatol.,* 2012; 57: 194-198.

Albala, F.F, Auzerie, V., Mahe, E., Farnotti, R., Stocco, C.D. Crickx, B.and Descamps, V.A. 2003. 6-month prospective survey of cutaneous drug reaction a hospital setting. *Br. J. Dermatol.,* 149: 1018-1022.

Bigby, M., Jick, S., Jick, H. and Arndt, K. 1986. Drug Induced cutaneous reaction: a report from the Boston Collaborative Drug Surveillance program on 15,438 consecutive inpatients, 1975 to 1982. *JAMA,* 256: 3358-3363.

Davidovici, B.B. and Wolf, R. 2010. The challenge of drug-rechallenge: facts and controversies. *Clin. Dermatol.,* 28: 349-353.

Ding,W.Y., Lee, C. K. and Choon, S.E. 2010. Cutaneous adverse drug reactions seen in a tertiary hospital in Johor, Malaysia. Int. J. Dermatol., 49: 834-841.

Dubey, A.K., Prabhu, S., Shankar, P.R., Subish, P., Prabhu, M.M. and Mishra, P. 2006. Dermatological adverse drug reactions due to systemic medications. A review of literature. *J. Pak. Assoc Derma,* 16: 28-38.

Edwards, I.R. 2000. Aronson J.K. Adverse drug reaction: definitions, diagnosis, and management. Lancet. 356:1255-1259.

Liao, P.J., Shih, C.P., Mao, C.T., Deng, S.T., Hsieh, M.C. and Hsu, K.H. 2013. The cutaneous aadverse drug reactions. Risk factors, prognosis and economic impacts. *Int. J. Clin. Parct.,* 67: 576-584.

Nandha, R., Gupta, A. and Hashmi, A. 2011. Cutaneous adverse drug reactions in a tertiary care teaching hospital: A North Indian perpective. *Int. J. Appl. Basic Med Res.,* 1: 50-53.

Nayak, S. and Acharjya, B. 2008. Adverse cutaneous drug reaction. *Indian J. Dermatol.,* 2008; 53:28.

Nerurkar, R.P., Nadkar, M.Y. and Bichile, S.K. 1998. Need for monitoring adverse drug reactions. *J. Assoc. Physicians India,* 46:673-674.

Puavilai, S. and Choonhakarn, C. 1998. Drug eruptions in Bangkok: a 1- year study at Ramathibody Hospital. *Int. J. Dermatol.,* 37: 747-751.

Pudukadan, D. and Thappa, D.M. 2004. Adverse cutaneous drug reaction; Clinical pattern and causative agents in a tertiary care centre in south India. *Indian J. Dermatol. venereal Leprol.,* 70:20-24.

Roujeau, J.C. 1994. Severe adverse cutaneous reaction to drugs. *N. Engl. J. Med.,* 331: 1272-1285.

Saha, A., Das, N.K., Hazra, A., Gharami, R.C., Chowdhury, N. S. and Datta, P. K. 2012. Cutaneous adverse drug reaction profile in a tertiary care outpatient setting in Eastern India. *Indian J .Pharmacol.,* 44: 792-797.

Segal, A.R., Doherty, K.M., Leggott, J., Zlotoff, B. 2007. Cutaneous reaction to drug in children. Pediatrics, 120: 1082-1096.

Sushma, M., Noel, M. V. Ritika, M. C., James, J. and Guido, S. 2005. Cutaneous adverse drug reaction: a 9- years study from a South Indian Hospital. Pharmaco epidemiol drug saf., 14: 567-570.

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