ORIGINAL RESEARCH PAPER

Dermatology

AN OBSERVATIONAL STUDY ON ADVERSE CUTANEOUS DRUG REACTION IN A TERTIARY CARE CENTRE

KEY WORDS: Adverse cutaneous drug reaction, fixed drug eruption, antibiotics.

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ABSTRACT

Aim : Drug reactions are unwanted reactions of the body following the administration of drugs and range from transient maculopapular rash to fatal toxic epidermal necrolysis (TEN). This study was undertaken to ascertain the clinical spectrum of adverse cutaneous drug reaction (ACDR) and the causative drugs, in a tertiary care centre.

Materials and methods : An observational study conducted in Department of Dermatology at a tertiary care centre during the period of January -December 2016. Severity of the reaction assessed using World Health Organisation-Uppsala Monitoring Centre (WHO-UMC) criteria.

Results and conclusion: Fixed drug eruption (FDE) was the commonest ACDR. Females outnumbered males. More cases reported in elderly patients in the age group of 18-40 years. Antibiotics were the common drug to cause ACDRs followed by antiepileptics. Knowledge of these drug eruptions are essential for the treating clinician.

Introduction

An adverse drug reaction (ADR) is defined by World Health Organization (WHO) as "Any response to a drug which is noxious, unintended and occurs at doses used in man for prophylaxis, diagnosis or therapy (1). ADRs are important public health problem and one of the leading causes of morbidity and mortality (2). A recent study from a South Indian tertiary care teaching hospital on pattern of adverse drug reactions has reported Dermatological system (23.5%) as the most commonly affected organ system (3).

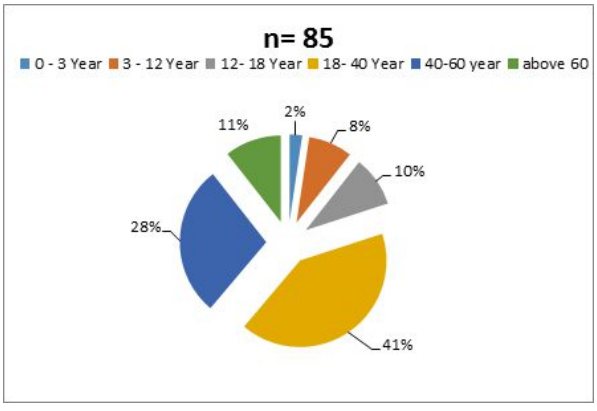
Materials and methods

Our observational study included 85 patients during the period of January 2016-December 2016 (1year) in Department of Dermatology, Government Rajaji Hospital, Madurai Medical College, Madurai, South India. A detailed clinical history and examination was done and all the ACDRs which occurred were noted according to predesigned proforma. Causality of the drug was assessed using WHO-UMC system (4).

Results

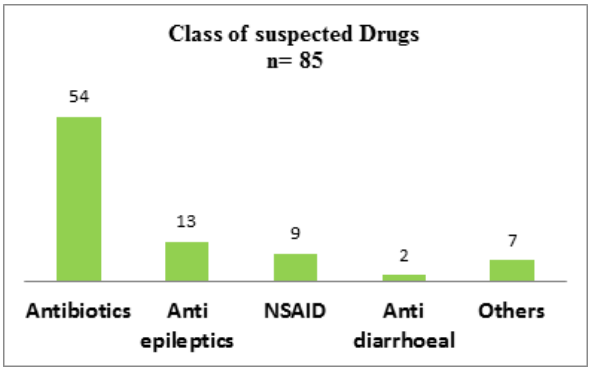
Among the total 85 patients in our study 41% of the patients affected were in age group between 18-40 years followed by 28% belong to age group 40-60years (figure 1). Affected females were 54% whereas affected males were 46%.

Figure1: Percentage of age wise distribution of ADR's



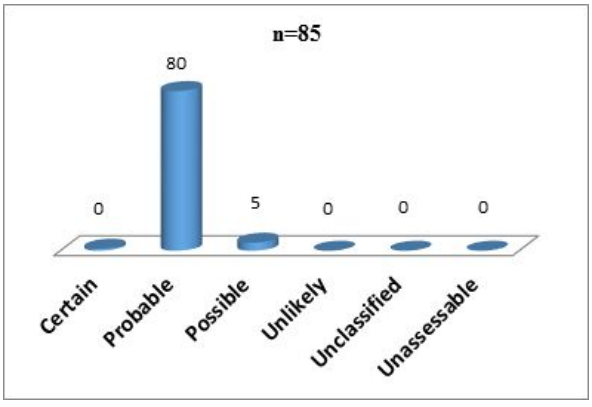
Among the drugs 54 cases were affected by antibiotics, 13 cases by antiepileptics, 9 cases by NSAIDs, 3cases by antidiarrhoeal drugs and remaining 7 cases by other drugs. Others include anti diabetic, antipsychiatric, antiemetic, T.T. Vaccine, anti-retroviral drugs and immunosuppressant (figure 2).

Figure 2: Distribution of suspected drugs



According to causality assessment, the cases were reported as either probable or possible and no case was reported as certain as per WHO-UMC causality assessment scale (figure 3).

Figure 3: Causality Assessment



FDE was the common adverse reaction observed followed by erythematous rash and bullous eruption. (Table1).

Table 1: Various clinical types of ACDRs

Sl.no	Adverse event	Total
1	FDE	27
2	Erythematous rash	12
3	Bullous eruption	11
4	Urticaria	6

5	SJS	6
6	Facial edema	4
7	Skin exfoliation	3
8	Maculopapular rash	3
9	TEN	2
10	Angioedema	2
11	Genital eruption	1
12	Generalized FDE	1
13	AGEP	1
14	Upper limb edema	1
15	Oral mucositis	1
16	Pedal edema	1
17	DRESS	1
18	Acute hepatitis	1
19	Acne	1
	Total	85

More number of ACDR was caused by antibiotics. Among them amoxicillin was notorious to cause cutaneous adverse drug reactions.

Table 2: Adverse cutaneous drug reaction to specific drugs

Sl.no	Adverse event	Drugs causing
1	Acne	INH
2	Acute hepatitis	Dapsone
3	AGEP	HCQS
4	Angioedema	Ampicillin and Cefotaxime
4	Bullous eruption	Cotrimoxazole, Doxycycline and Paracetamol
5	DRESS	Carbamazepine
6	Erythematous rash	Diclofenac, amoxicillin, ciprofloxacin, carbamazepine, cotrimoxazole, ibuprofen, loperamide, norfloxacin, phenobarbitone and phenytoin
7	FDE	Amoxicillin, ciprofloxacin, carbamazepine, cotrimoxazole, ibuprofen, loperamide, norfloxacin, ofloxacin, glimepride, diclofenac and cefadroxil
8	Facial edema	Amoxicillin, doxycycline and rifampicin
9	Genital eruption	Ciprofloxacin
10	Generalized FDE	Ondansetron/dicyclomine
11	Maculopapular rash	Cotrimoxazole and phenytoin
12	Upper limb edema	Amoxicillin/clavulanic acid
13	Oral mucositis	Phenytoin
14	Pedal edema	Etoricoxib
15	SJS	Carbamazepine and ofloxacin
16	Skin exfoliation	Chlorpromazine/olanzapine/methotrexate
17	TEN	Carbamazepine and efavirenz
18	Urticaria	Aceclofenac, amoxicillin, cetirizine.

Discussion

In our study the incidence of ACDRs was 85%. FDE was the most common drug eruption observed which was consistent with the study conducted by Thappa et al (5). Erythematous eruption was found to be common in a study conducted by Sullivan et al (6). In a study conducted in North India maculopapular rash reported was common (7). Antibiotics was the most common drug to cause adverse drug reactions followed by antiepileptics and NSAIDS in our study. Similar to our study adverse drug reactions due to antibiotic drugs were predominantly reported in Thappa and Nanda et al studies (5, 8). In particular amoxicillin, cotrimoxazole, ciprofloxacin, doxycycline, cefadroxil, norfloxacin and ofloxacinwere notorious to cause cutaneous adverse drug reactions. In total number of 85 ADRs reported, majority reported were adult group when compared to child and infant groups which was similar to the studies by Leape LL and Hafner JW et al (9, 10). Females were affected more in number when compared to males in our study which coincide with Sharma et al study (11). The antiepileptics carbamazepine and antibiotic ofloxacin and antiretroviral drug efavirenz were reported for more serious cutaneous adverse drug reactions like Stevens-Johnson syndrome and TEN. A single case was reported with urticaria for Tetanus toxoid in the age group between 3-12 years.

Conclusion:

The overall incidence of ACDRs found in this study was 85%. Antibiotics were the common drug to cause more ACDR. Elderly patients were affected predominantly, as they were taking multi drugs for various illnesses, the chances of occurrence of ADRs in that age group is likely high. With the advent of newer and targeted therapy in the field of dermatology, the pattern of cutaneous adverse drug eruptions and the drugs responsible for them keep changing every year. Knowledge of these drug eruptions, the causative drugs and the prognostic indicators are essential for the treating clinician.

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REFERENCES

1. Susser WS, Whitaker-Worth DL, Grant-Kels JM. Mucocutaneous reactions to chemotherapy. J Am AcadDermatol 1999; 40 (3); 367-398.
2. John LJ, Arifulla M, Cheriathu J et al. Reporting of Adverse Drug Reactions: a study among Clinicians, Journal of Applied Pharmaceutical Science 2012; 02 (06): 135-139
3. Jose J, Rao PG. Pattern of adverse drug reactions notified by spontaneous reporting in an Indian tertiary care teaching hospital. Pharmacol Res 2006; 54(3):226-233.
4. Zaki SA. Adverse drug reaction and causality assessment scales. Lung India: Official Organ of Indian Chest Society. 2011;28(2): 152-153.doi:10.4103/0970-2113.80343.
5. Pudukadan D, Thappa DV. Adverse cutaneous drug reactions: Clinical pattern and causative agents in a tertiary care center in South India. Indian J DermatolVenereolLeprol 2004; 70:20-4.
6. Sullivan JR, Shear NH. Drug eruptions and other adverse drug effects in aged skin. ClinGeriatr Med 2002; 18:21-42.
7. Sharma VK, Sethuraman G, Kumar B. Cutaneous adverse drug reactions: Clinical pattern and causative agents-A six-year series from Chandigarh, India. J Postgrad Med 2001; 47: 95-9.
8. Nandha R, Gupta A, Hashmi A. Cutaneous adverse drug reactions in a tertiary care teaching hospital: A North Indian perspective. Int J Appl Basic Med Res 2011; 1:50-3
9. Leape LL, Troyen AB, Laird N, Lawthers AG, Localio AR, Barnes BA, et al. The nature of adverse events in hospitalized patients. Results of the Harvard Medical Practice Study II. N Engl J Med 1991; 324: 377-84.
10. Hafner JW, Belknap SW, Squillante MD, Bucheit KA. Adverse drug events in emergency department patients. Ann Emerg Med 2002; 39: 258-67.
11. Sharma R, Dogra D, Dogra N. A study of cutaneous adverse drug reactions at a tertiary center in Jammu, India. Indian Dermatol Online J 2015; 6: 168-71.