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UNWANTED EFFECTS OF CIPROFLOXACIN IN INDIAN POPULATION

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Abstract : The present study was an attempt to evaluate epidemiological profile of adverse reactions of ciprofloxacin and factors influencing them in Indian population. The study was conducted in indoor patients of All-India Institute of Medical Sciences, New Delhi. The patients were in the age group of 21-65 years.

Gastrointestinal upsets (neusea, vomiting, abdominal discomfort), headache, dizziness and skin rash were observed. Route of administration influenced the onset of ADRs. Severity of ADRs was proportional to dose. All reactions were reversible and the incidence of ADRs is lower in Indian population as compared to USA(1) but higher than seen in Japanese (2).

Key words : adverse reactions ciproflexacin

INTRODUCTION

Adverse effects accompany drug use, Western countries are far ahead in this and have wide network for monitoring of adverse drug reactions (ADRy whereas in India this has yet to take roots. Till now we are utilising data provided by studies in Western hemisphere, ADRs are not identical in different regions of world as these are influenced by racial differences. Ciprofloxacin-a Carboxyfluoro-quinolone - has extended spectrum and is extremely active against Entrobacteriaceae and Pseudomonas acruginose - organisms resistant to most of the antibiotics. This drug therefore finds its use in urinary tract infection respiratory tract infections and gastrointestinal diseases due to Salmonella, Shigella, E Coli and Campylobactoer.

METHODS

A study was made in 326 patients ranging between 21-65 years, admitted in different wards of All-India Institute of Medical Science, New Delhi over a period of two years. Only those patients receiving ciprofloxacin as sole antimicrobial agent were included in this study.

Patients were seen daily both by the clinician and the investigator regarding the occurance of adverse reactions. Information was collected using prescribed proforma. Clinical picture and drug history were monitored throughout the stay of the patients in the hospital. Laboratory investigations were done whenever required. The observations regarding ADR were recorded and analysed. Table I gives the break up of conditons in which ciprofloxacin was used along with route of its administration. Severity of the illness determined its route of administration.

TABLE I : Type of infections in which ciprofloxacin was used.

Disease	*No. of patients*	*Route of*		
		I/V	*I/M*	*Oral*
Enteric fever	135	15	5	115
PUO	128	10	14	104
High grade fever with altered sensorium	32	10	5	17
Non-myelcid leukaemia (Neutrepenic condition)	6	1	3	2
Fever with hemoptysis	25	10	2	13

RESULTS

The most common adverse effects involve the gastrointestinal system 7.36% comprising nausea vomiting and abdominal discomfort. CNS effects were seen in 2.45% patients. There was no haematological or biochemical toxicity. All adverse reactions were reversible. Percentage incidence of ADRs of ciprofloxacin with different routes is given in Table II. Relationship of ADRs with age is given in Fig. 1.

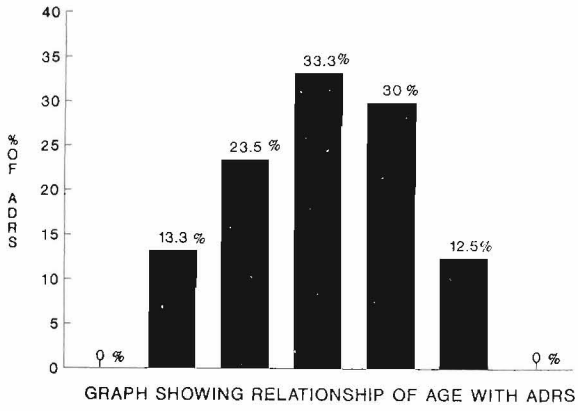

Fig. 1

Reported incidence of ADRs due to ciprofloxacin in present study as compared to Europe, Japan and the USA is given in Table III.

TABLE III : Reported Incidence (%) of ADRs due to Ciprofloxacin in present study as compared to Europe, Japan and USA.

	Present study n = 326	*Europe/U.S.A. n = 1693*	*Japan n = 2578*	*U.S.A.*
Total patients affected	11.95	6.5	3.0	13.4
Gastro-intestinal nausea	3.98	2.1	—	3.0
Pain/dyspepsia	3.37	0.6	—	—
Nervous system dizzzziness	0.92	0.9	—	—
Headache	1.53	0.4	—	—
Skin (allergy) rash	0.92	0.6	—	0.7

Incidence of ADRs was maximum in the age group 41-50 years and males were marginally more susceptible though there was no statistical difference except in abdominal discomfort.

DISCUSSION

Nature of ADRs of ciprofloxacin in Indian population is same as reported in literature (1). Renal dysfunction (2) and anaphylactoid reactions (3) were not seen in this study. The hypersensitivity

TABLE II : Incidence of ADR's of Ciprofloxacin with different routes.

ADRs	*I/V*			*I/M*			*Oral*		
	M	F	Total	M	F	Total	M	F	Total
No. of patients	29	17	46	21	2	29	140	111	251
Nausea, vomiting	1 (3.44)	—	1 (2.17)	1 (4.76)	—	1 (3.44)	5 (3.57)	6 (0.4)	11 (4.39)
Abdominal discomfort	—	2 (11.76)	2 (4.34)	—	—	—	7 (5.0)	2 (1.80)	9 (3.58)
Headache	—	—	—	—	—	—	2 (1.42)	3 (2.7)	5 (1.99)
Dizziness	—	1 (2.88)	1 (2.17)	—	—	—	1 (0.71)	1 (0.9)	2 (0.79)
Skin rash	—	—	—	—	—	—	2 (1.42)	1 (0.9)	3 (1.19)

Note : The values given in brackets show percentage.

reaction was seen in the form of skin rash in three patients (0.92%) where the drug was withdrawn.

The overall incidence of adverse reactions was 11.95% which is much lower as compared to reports from America (4). In Europe (5) and Japan (6) the overall incidence of ADRs amongst patients receiving this drug is reported to be 3.0% and 6.5% respectively. The increased incidence of ADRs in Western population in possibly due to use of higher dose. Japanese are reported to show lesser incidence of ADRs with quinolones (7).

Incidence of abdominal symptoms is higher in Indian population. The cause of this difference remains unclear. Nausea did not require discontinuation of therapy. Diarrhoea or loose stools have been reported (8) this was not a feature in this study. Ciprofloxacin has lesser effect on the bowel (9) flora therefore this drug has not been associated with super-inflection with Clostriduim difficile.

The onset of ADRs was delayed when ciprofloxacin was given by oral route (3-6th day). Intramuscular route produced least ADRs. The severity of adverse reactions was not influenced by the route.

Serious adverse reactions with ciprofloxacin are rare. Most of the adverse reactions noted in this study are trivial. However, ciprofloxacin being a new drug is recommended that its ADRs should be closely monitored for another three years.

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