CUTANEOUS DRUG REACTIONS REPORTED IN A DERMATOLOGY OUTPATIENT CLINIC OF A TERTIARY CARE HOSPITAL

SwathiRatnam.R[1], UshaKiran.P[1], B.Balachandrudu[2]

Department of Pharmacology[1] &

Department of Dermatology[2]

Rangaraya Medical College,

Kakinada -533001, AP.

INTRODUCTION :

- Adverse drug reactions (ADRs) are negative consequences of drug therapy and major setback in clinical practice.
- ADRs are unwanted and unintended effects of drug therapy, which may be responsible for significant morbidity and mortality.
- The incidence of ADRs varies from 6-7% of all hospitalizations and could be observed in 10-20% of patients receiving drug therapy.

- Cutaneous adverse drug reactions (CADRs) are the most frequent serious adverse reactions reported in outpatient department of dermatology.

- CADRs are the commonest manifestations of ADRs occuring in 2-3% of patients receiving drug therapy for various reasons[1].

- The incidence and prevalence of CADRs may vary in different geographical regions due to difference in disease prevalence, pattern of drug use, genetic and environmental factors.

1. Breathnach SM. Adverse cutaneous reactions to drugs. Clin Med 2002;2:15-9.

AIM

- To assess the prevalence and clinical spectrum of CADR among patients attending dermatology OPD.

OBJECTIVE OF THE STUDY :

- To assess causality relationship between drug and reactions .
- To identify the offending drugs.

MATERIALS & METHODS

- Patients of both sexes attending dermatology out-patient department in the Government General Hospital, Kakinada were selected for this study.

- **STUDY DESIGN** :

  Prospective study

- **STUDY PERIOD** :

  1st December , 2013 to 30th May , 2014 (6 months).

MATERIALS & METHODS

- **SAMPLE SIZE** :
  - Basing on available number of patients reporting to OP unit of dermatology department.
  - A total of 522 patients reported ADR, out of this 217 patients were CADR enrolled in the study as per the selection criteria.
- **INCLUSION CRITERIA** :
  - Patients of all age groups and both sexes with or suspected CADRs.

MATERIALS & METHODS

- **EXCLUSION CRITERIA** :
  - Patients with reactions where the drugs taken were not known or unclear drug history.
  - Patients not willing to comply with the study procedure.

STUDY PROCEDURE :

- Patients were evaluated for the pattern, duration and severity of the reactions.
- Dechallenge test was done .
- Rechallenge test to confirm the causative drug was not done due to ethical considerations.

MATERIALS & METHODS

- When more than one drug was used, the drugs with the high suspicion for causation were withdrawn in the order of suspicion and response to withdrawal was assessed and causality established.
- Drug history was recorded in a format specified in Indian National Pharmacovigilance Programme and Causality assessment carried out as per WHO-UMC criteria[2].
- The study was approved by the Institutional Ethics Committee of Rangaraya Medical College, Kakinada .

2. Edward R, Aronson JK. Adverse drug reactions: Definitions, diagnosis, and management. Lancet 2000;356:1255-9

MATERIALS & METHODS

- **LAB INVESTIGATIONS :**
- Hemogram (Hb%, RBC, WBC)
- Absolute eosinophil count (AEC)
- Serum electrolytes
- Random Blood sugar (RBS)
- Liver functions tests (SGOT, SGPT)
- Renal functions test (serum creatinine)
- HIV (ELISA)

MATERIALS & METHODS

STATISTICAL ANALYSIS :

At the end of the study all data is compiled and statistically analysed using Descriptive data presented as mean±SD, wherever necessary, the results were depicted in the form of percentages with tables and graphs.

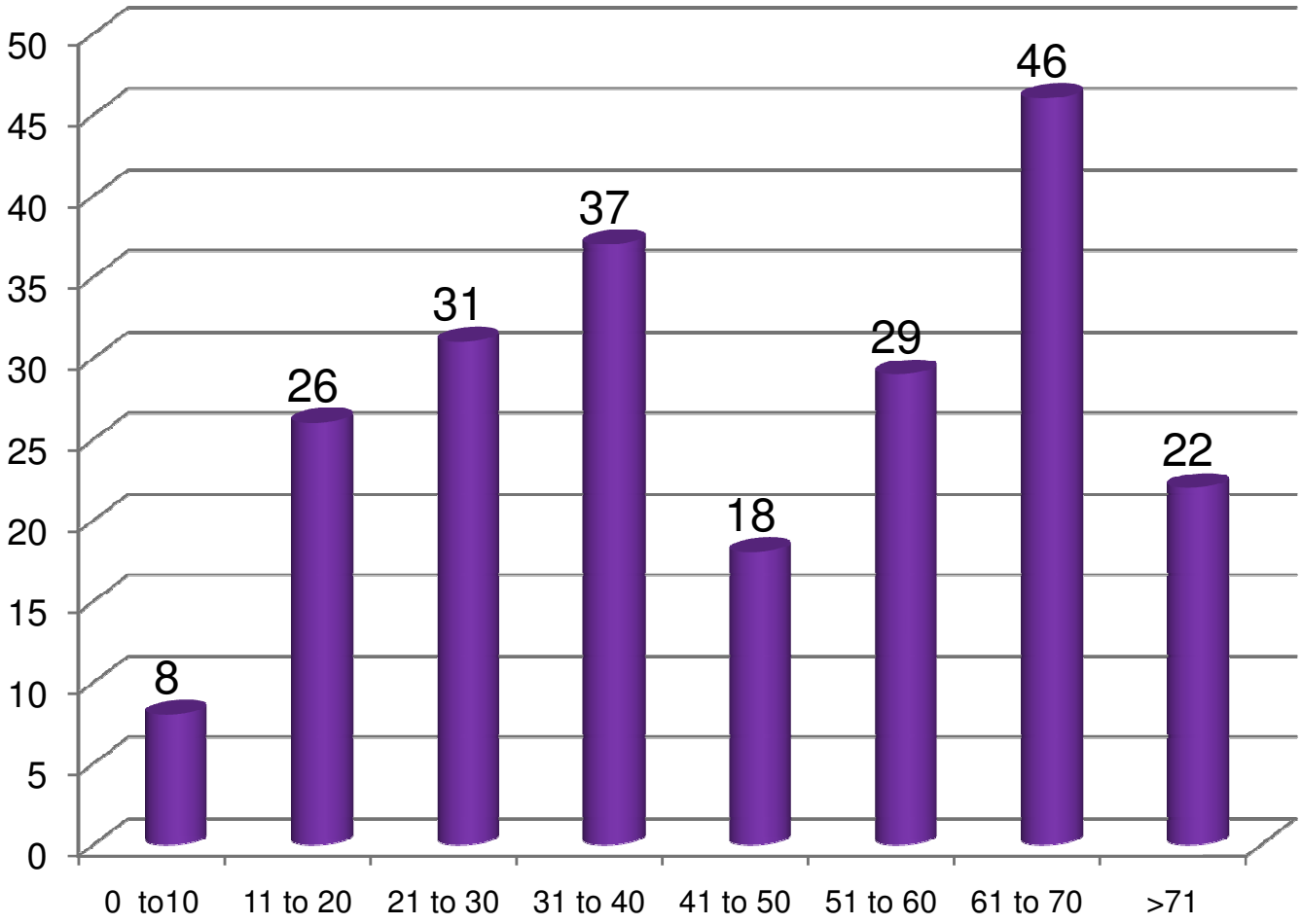
RESULTS :

DEMOGRAPHIC DATA :

Table 1 : AGE DISTRIBUTION

AGE (YEARS)	TOTAL NO. OF PATIENTS
0 to10	8
11 to 20	26
21 to 30	31
31 to 40	37
41 to 50	18
51 to 60	29
61 to 70	46
>71	22

FIG 1 : AGE DISTRIBUTION

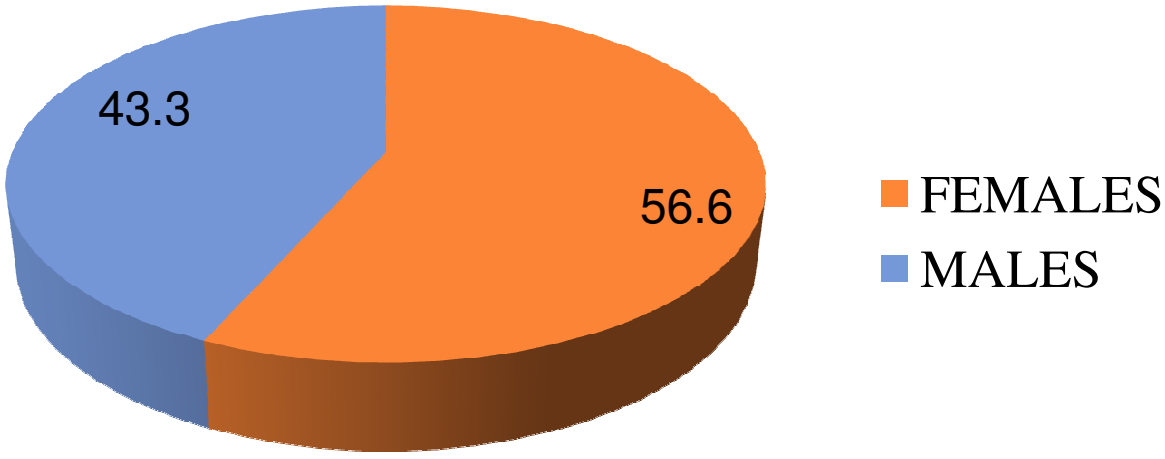


The most common age group – 6th decade, consisting of 46 (21.1%)

TABLE 2 : GENDER DISTRIBUTION

SEX	NO. OF PATIENTS (%)
FEMALES	123 (56.6)
MALES	94 (43.3)

FIG 2 : GENDER DISTRIBUTION



Male : Female Ratio = 1 : 1.3

TABLE 3 : LABORATORY ABNORMALITIES

Laboratory tests	Total No. of Patients
Hb% ↓	27
RBC ↓	29
WBC ↑	22
AEC (>500/mm3) ↑	64
RBS ↑	18
SGOT ↑	20
SGPT ↑	20
Serum creatinine ↑	23

- There is a significant deviation from the normal range.
  - None of the patients were positive with HIV test,

FIG 3 : LABORATORY ABNORMALITIES

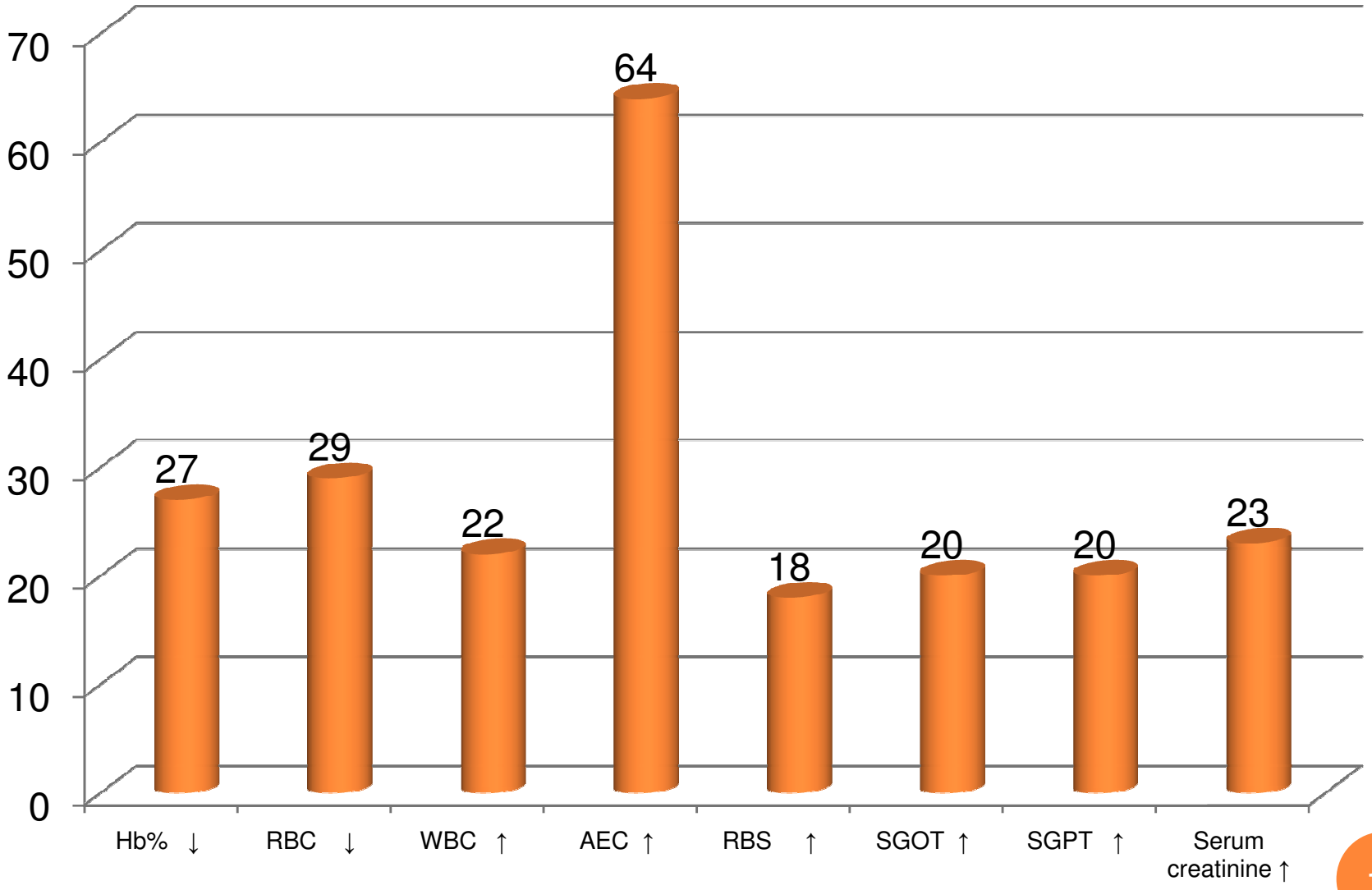


TABLE 4 : CLINICAL PATTERN OF REACTIONS

REACTIONS	TOTAL NO. OF PATIENTS
MACULOPAPULAR RASH	55
PHOTOSENSITIVITY	46
URTICARIA	38
BULLOUS ERUPTIONS	26
SEVERE MUCOSITIES	22
FIXED DRUG ERUPTIONS (FDE)	6
STEVENS JOHNSON SYNDROME (SJS)	2
TOXIC EPIDERMAL NECROLYSIS (TEN)	2
ERYTHEMA MULTIFORMAE	1
PRURITIS	11

FIG 4 : CLINICAL PATTERN OF REACTIONS

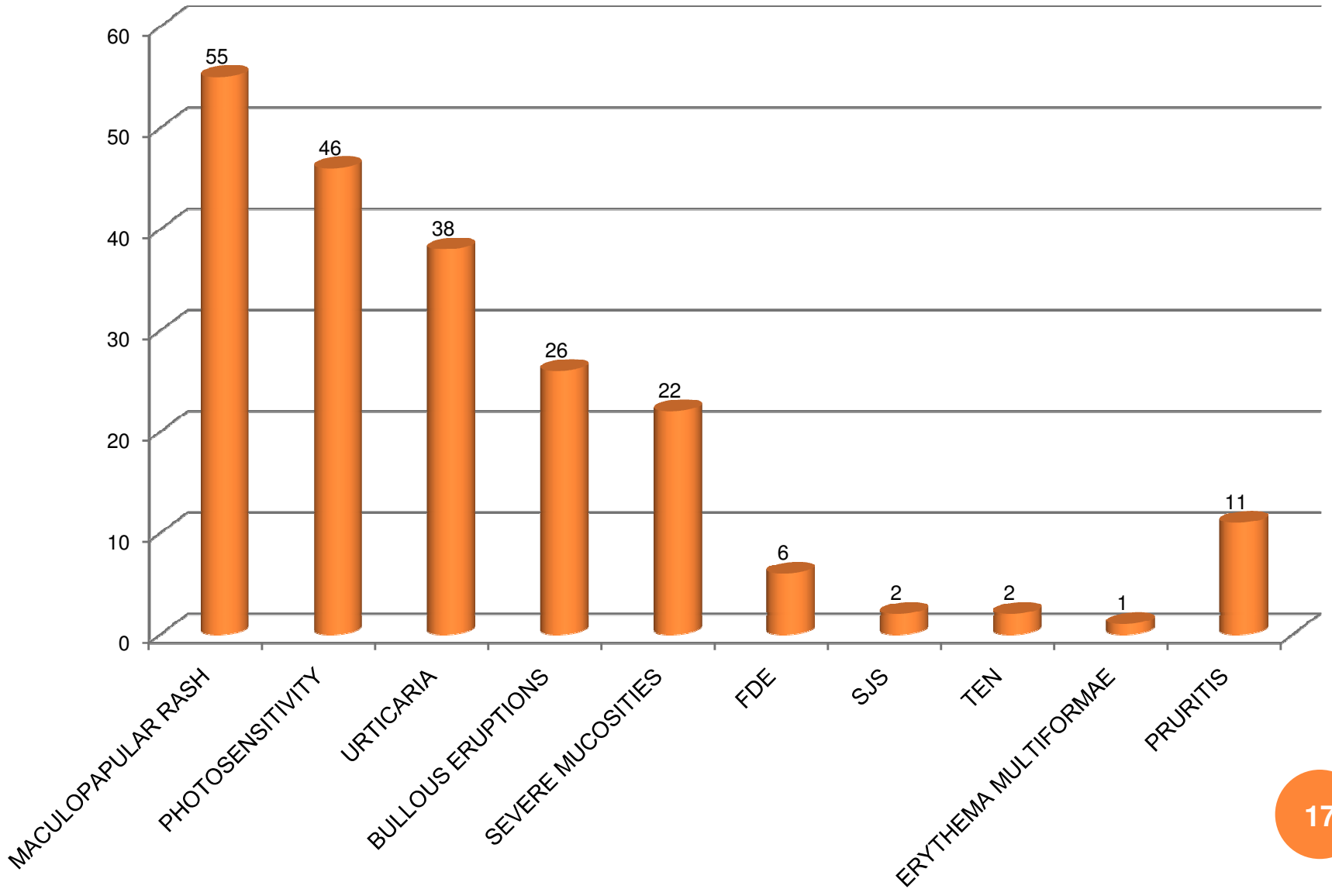


TABLE NO 5 : CAUSATIVE DRUGS CATEGORY

DRUG CATEGORY	TOTAL (%)
ANTIMICROBIALS	30.4
NSAIDS	26.2
STEROIDS	23.9
OTHERS	19.3

FIG 5 : CAUSATIVE DRUG CATEGORY (%)

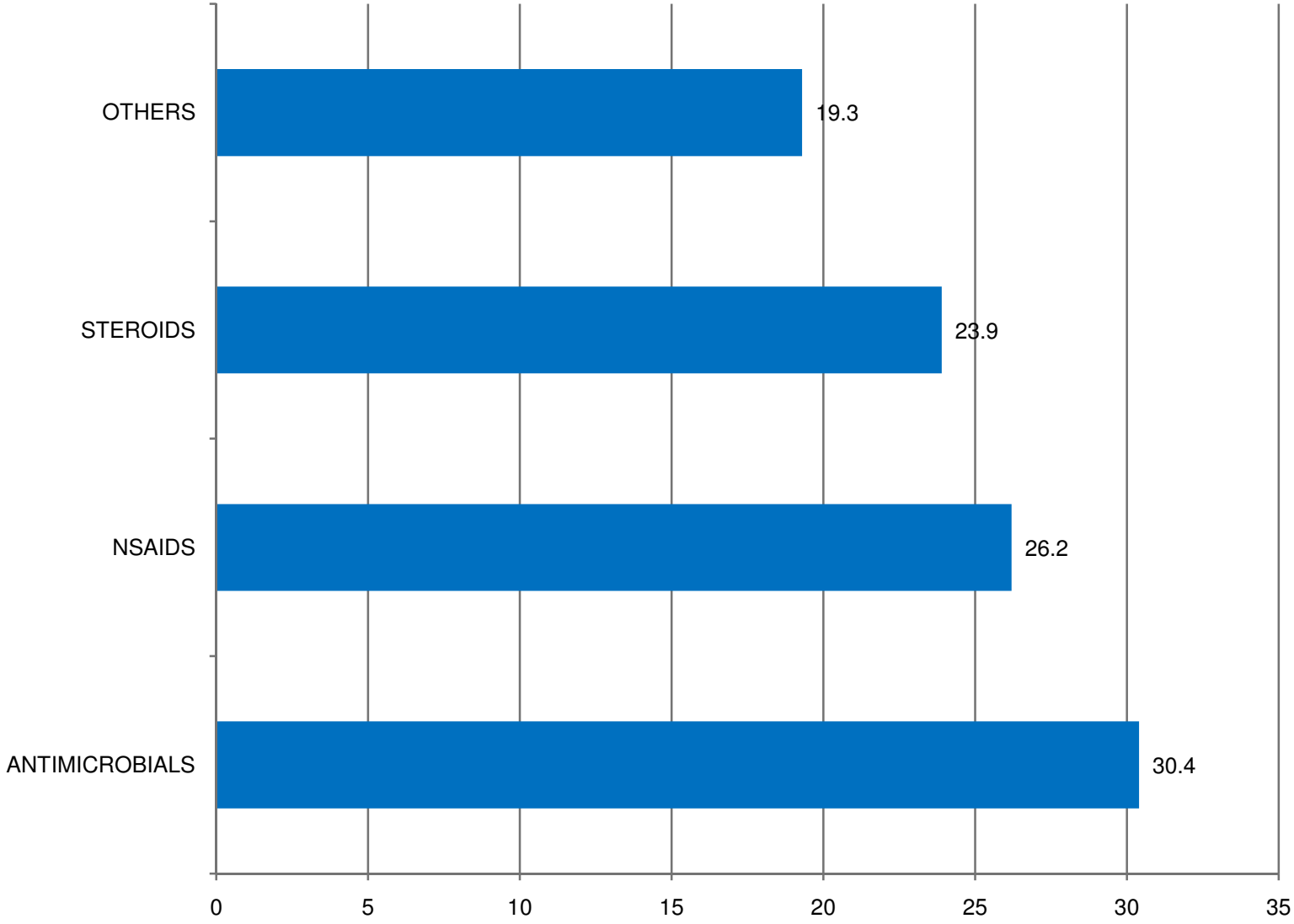


TABLE NO 6 : CASUATIVE DRUGS

DRUG	No. of patients (%)
COTRIMOXAZOLE	28(12.9)
IBUPROFEN	14(6.4)
BETAMETHASONE	12 (5.5)
AMPICILLIN	11(5.0)
CARBAMAZEPINE	9 (4.1)
PHENYTOIN	9(4.1)
CIPROFLOXACIN	6(2.7)
OFLOXACIN	7(3.2)
CEPHALEXIN	9(4.1)
CHLOROQUINE	9(4.1)
PARACETAMOL	13(5.9)
DICLOFENAC	15(6.9)
QUINOLONE+NITROIMIDAZOLE	9(4.1)
ISONIAZID	11(5.0)
NORFLOXACIN	9(4.1)
TETRACYCLINS	6(2.7)
VALPROIC ACID	4(1.8)
OTHERS	36 (16.5)

FIG 6 : PERCENTAGE OF CAUSATIVE DRUGS

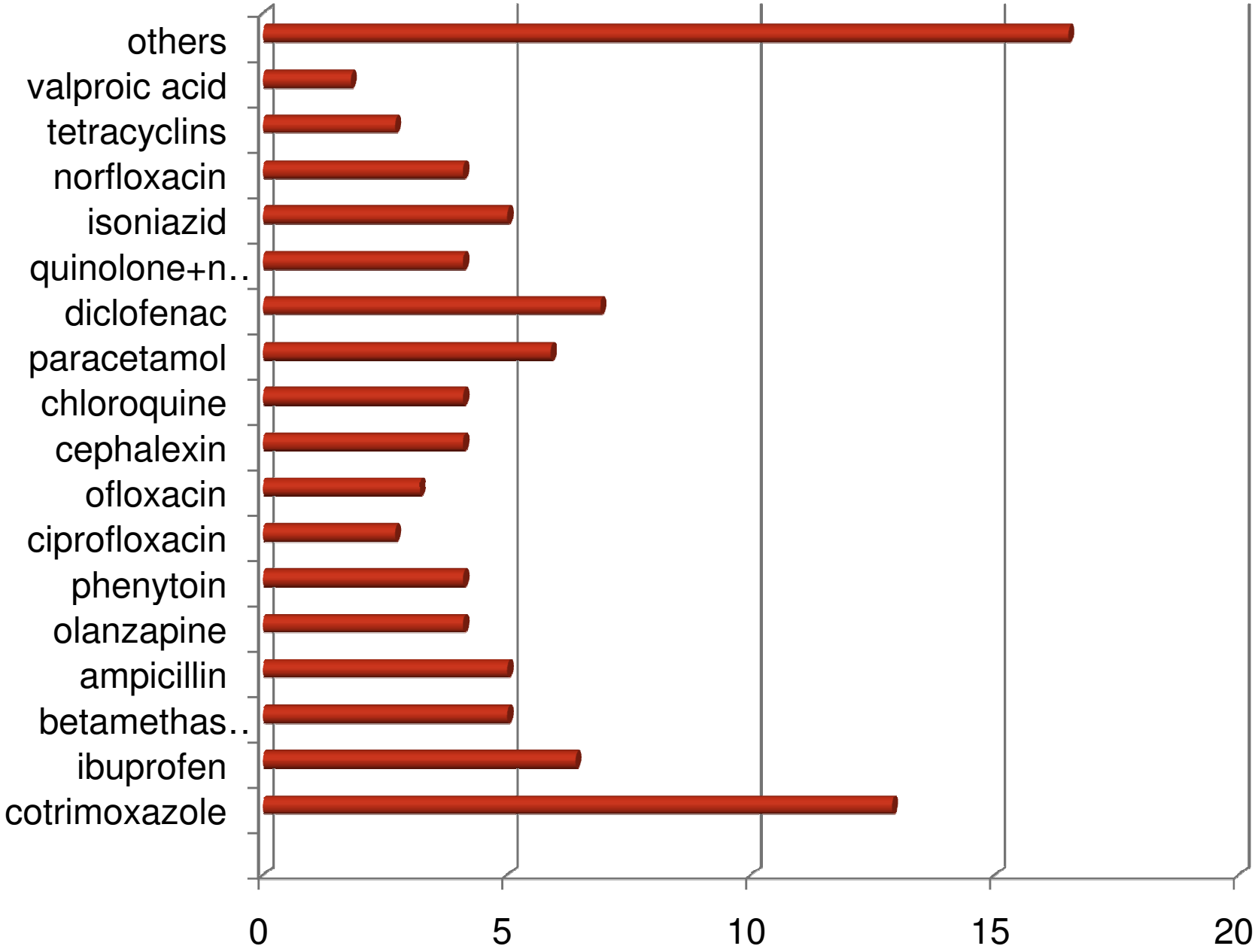


TABLE NO 7 : PATTERN OF DRUG CONSUMPTION :

Drug category	On prescription	self medication	Supervised administration
ANTIMICROBIALS	62	11	17
NSAIDS	37	22	-
STEROIDS	19	19	13
OTHERS	10	3	4

FIG 7 : PATTERN OF DRUG CONSUMPTION

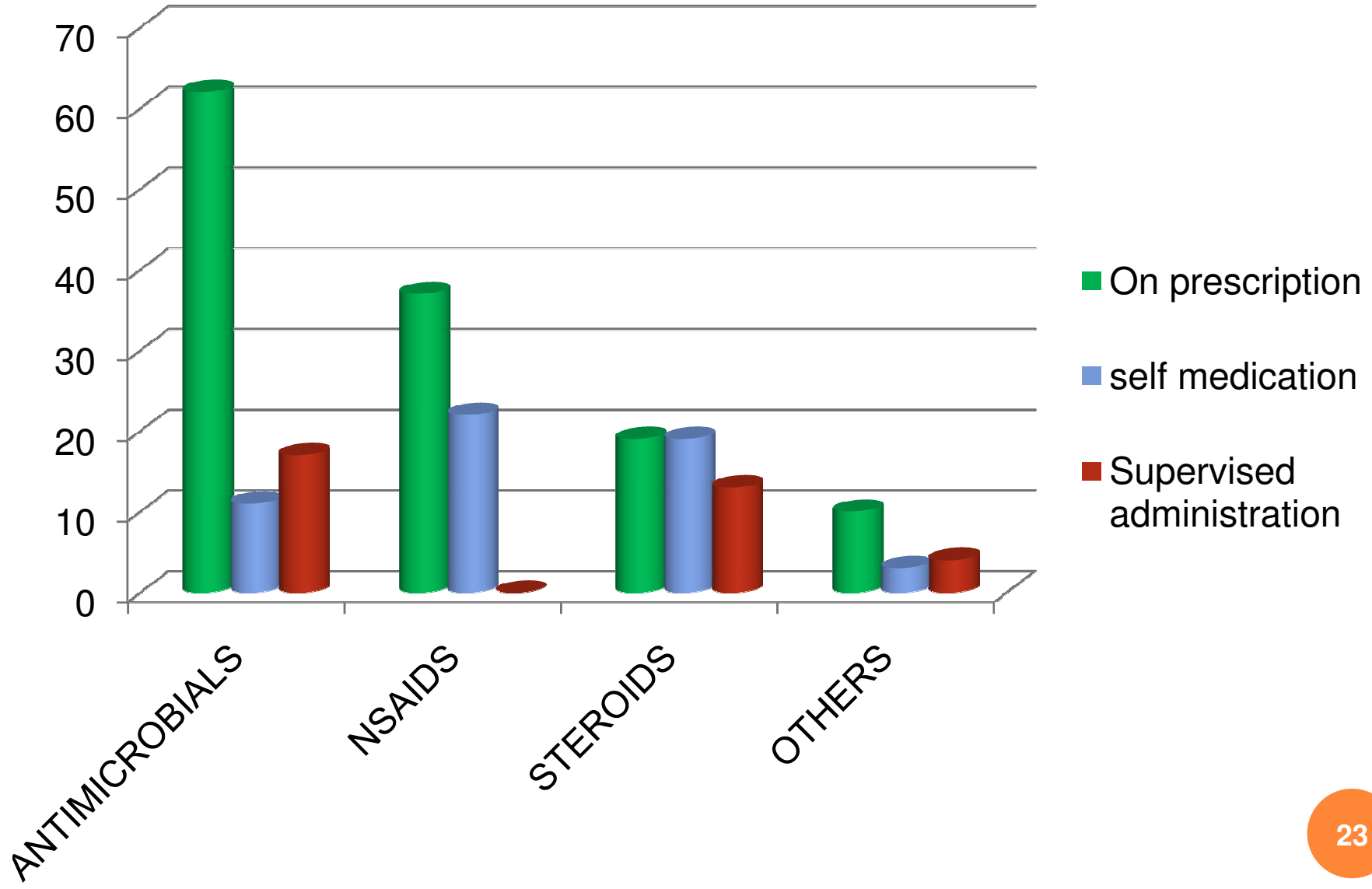


TABLE 8 : ROUTE OF DRUG ADMINISTARTION

Drug category	oral	PARENTAL ROUTE		topically
		IM	IV	
ANTIMICROBIALS	89	-	13	18
NSAIDS	66	32	-	-
STEROIDS	27	-	-	22
OTHERS	16	7	-	6

FIG 8 : ROUTE OF DRUG ADMINISTRATION

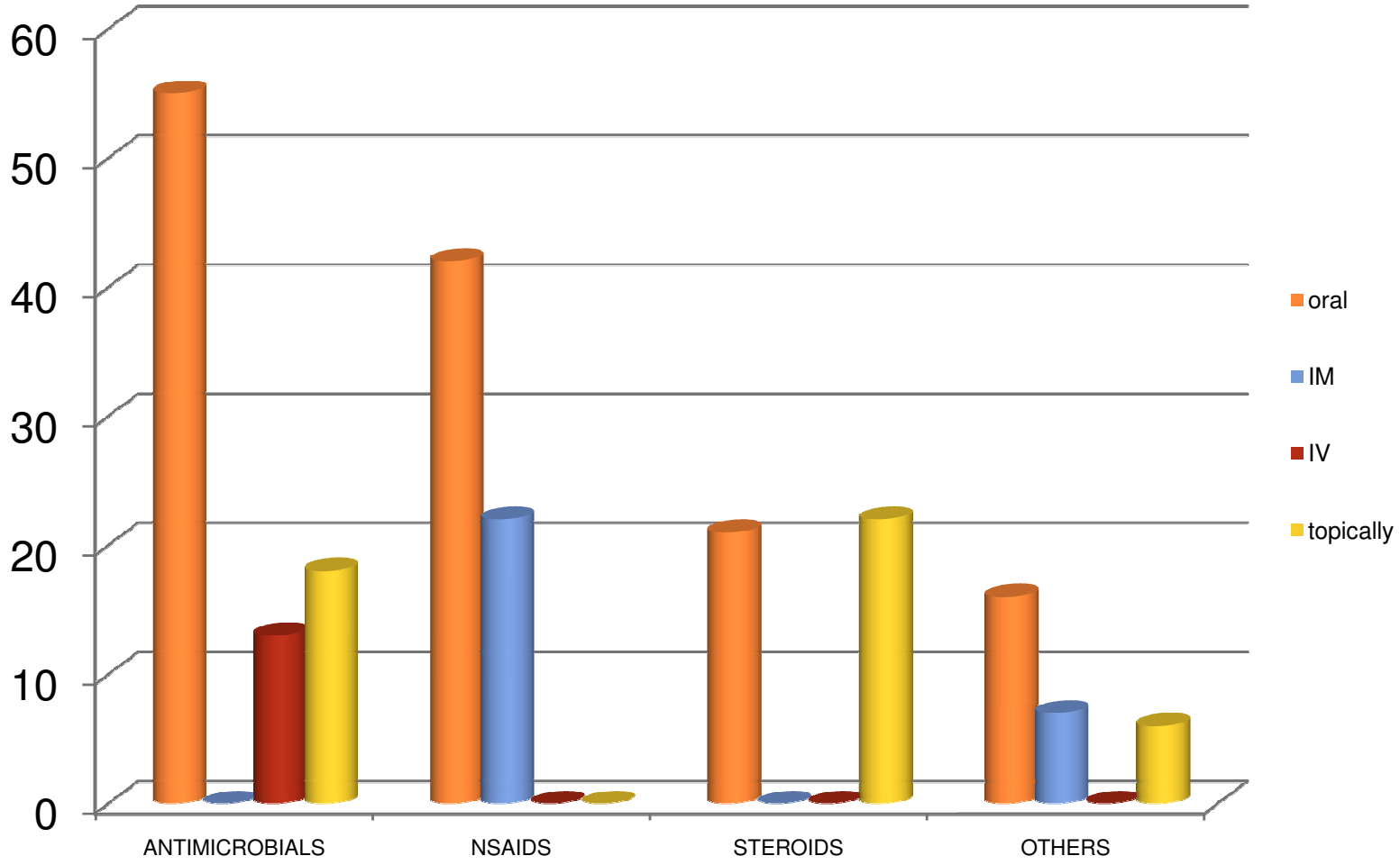


TABLE NO 9 : PROBABILITY* OF REACTIONS

Drug Category	PROBABILITY n = 217		
	Possible(108)	Probable(33)	Certain(76)
ANTIMICROBIALS	52	14	44
NSAIDS	28	9	16
STEROIDS	17	6	11
OTHERS	11	4	5

*The use of WHO – UMC system for standardised case causality assessment

FIG 9 : PROBABILITY OF REACTIONS

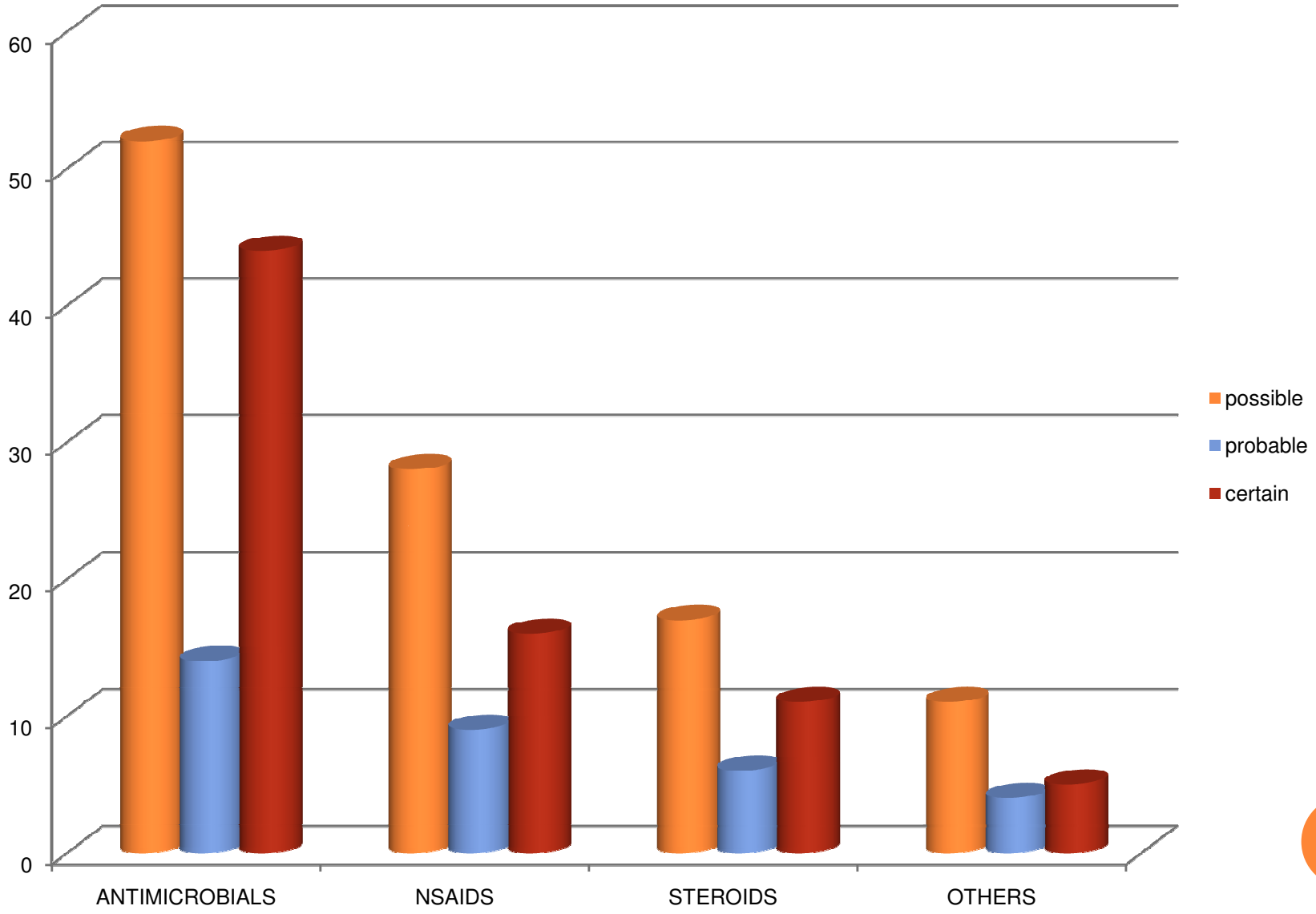


FIG 10 : TOXIC EPIDERMAL NECROLYSIS











FIG 11 : BULLOUS ERUPTIONS





FIG 12 : PHOTOSENSITIVITY REACTION



FIG 13 : URTICARIA



DISCUSSION

- Among the patients enrolled in the study, the most common age group – 6th decade, consisting of 46 (21.1%).
- The present study constituted 56.6% females patients and 43.3% males patients with CADRs.
- In the present study we found that CADRs, was one of the most common types of ADRs, which contributes 41.5% of total ADRs.
- Various studies suggest that the contribution of CADRs is 2-40% in total adverse drug reactions.[3-5]

3. Ghosh S, Leelavathi D, Padma GM Rao. Study and evaluation of the various cutaneous adverse drug reactions in kasturrba Hospital, Manipal. Indian J Pharma Sci March 2006;68:212.
4. Jhaj R, Uppal R, Malhotra S, Bhargava VK. Cutaneous adverse reactions in inpatients in a tertiary care hospital. Indian J Dermatol Venerol Leprol 1999;65:14-7.
5. Noel MV, Sushma M, Guido S. Cutaneous adverse drug reactions in hospitalized patients in a tertiary care centre. Indian J Pharmacol 2004;36:292-5.

DISCUSSION

- We found that maculopapular rash 25.3% reported morphological variant of CADR.
- Various studies and literatures have already concluded that maculopapular rash is the most common CADRs[3].
- The commonest offending drug group for CADRs was antimicrobials (30.4%). The second being NSAIDs (26.2%) while steroids was third most common group (23.9%) .
- A study by Hiware, et al.: Cutaneous drug reaction in IGGMC, Nagpur found that Topical and oral steroids are the third common cause for CADR followed by antimicrobials and NSAIDs[6].

6. Hiware S, Shrivastava M, Mishra D, Mukhi J, Puppalwar G. Evaluation of cutaneous drug reactions in patients visiting out patient departments of Indira Gandhi Government Medical College and Hospital (IGGMC and H), Nagpur. Indian J Dermatol 2013;58:18-21.

DISCUSSION

- A study performed by Ghosh, et al. in Manipal found that antimicrobials (30%) were the most common group causing CADRs[3] .
- Another study done by Jhaj, et al., found that maculopapular rashes (50%) and urticaria (21.5%) were common morphological CADRs and antimicrobials (56.9%) were the most common culprits[4].
- Also Noel, et al., found that maculopapular rash was (35%) the most common CADR in the hospitalized patients[5]. Chatterjee, et al., in their study also found that antimicrobials were topmost in causation of CADRs (34.10%) followed by anticonvulsants (32.88%) and NSAIDs (21.51%)[7]. Results of our study were comparably similar to above mentioned studies.

7. Pudukadan D, Thappa D. Adverse cutaneous drug reactions: Clinical pattern and causative agents in a tertiary care center in south India. Indian J Dermatol Venerol Leprol 2004;70:20-4.

DISCUSSION

- The common offending drugs causing CADRs include Cotrimoxazole (12.9%) showed highest CADRs followed by diclofenac sodium (6.9%), ibuprofen (6.4%), paracetamol (5.9%), betamethasone (5.5%) and sulfonamides (5.0%).
- A study by chattergy S et al found that cotrimoxazole showed highest CADRs[8].
- In our study most of the offending drugs were taken orally (198) , by parenteral route (52) and topically (46) .
- In our study causality analysis was done by using WHO assessment scale and it was found to have (76) certain, (33) probable and (108) possible CADRs.

8.Chattergy S, Ghosh AP, Barbhujia, Dey SK. Adverse cutaneous drug reactions: A one year survey at a dermatology outpatient clinic of a tertiary care hospital. Indian J Pharmacol 2006;38:429-31.

CONCLUSION

- A wide clinical spectrum of CADRs ranging from mild to severe i.e., erythema multiformae to SJS/TEN was observed.
- The commonest causative drugs are antimicrobials , NSAIDS and Steroids .
- Cotrimoxazole were the leading causative drugs among the antimicrobials , Diclofenac among NSAIDS and Betamethasone among the steroids.
- The common causative agents for SJS / TEN were carbamazepine and phenytoin.

CONCLUSION

- Most of the CADRs were not preventable as predisposing risk factors were not clearly ascertained.
- Mild to moderate reactions were managed by drug withdrawal and appropriate rescue measures.
- CADRs are utmost necessity for a physician to have understanding, as well as knowledge of the drugs essential for diagnosis and prevention.
- Hence, there is necessity for awareness of clinicians about this data on ADRs in order to avoid irrational drug use.

REFERENCES :

1. Breathnach SM. Adverse cutaneous reactions to drugs. Clin Med 2002;2:15-9.
2. Edward R, Aronson JK. Adverse drug reactions: Definitions, diagnosis, and management. Lancet 2000;356:1255-9
3. Ghosh S, Leelavathi D, Padma GM Rao. Study and evaluation of the various cutaneous adverse drug reactions in kasturrba Hospital, Manipal. Indian J Pharma Sci March 2006;68:212.
4. Jhaj R, Uppal R, Malhotra S, Bhargava VK. Cutaneous adverse reactions in inpatients in a tertiary care hospital. Indian J Dermatol Venerol Leprol 1999;65:14-7.
5. Noel MV, Sushma M, Guido S. Cutaneous adverse drug reactions in hospitalized patients in a tertiary care centre. Indian J Pharmacol 2004;36:292-5.

REFERENCES

6. Hiware S, Shrivastava M, Mishra D, Mukhi J, Puppalwar G. Evaluation of cutaneous drug reactions in patients visiting out patient departments of Indira Gandhi Government Medical College and Hospital (IGGMC and H), Nagpur. Indian J Dermatol 2013;58:18-21.
7. Chattergy S, Ghosh AP, Barbhujia, Dey SK. Adverse cutaneous drug reactions: A one year survey at a dermatology outpatient clinic of a tertiary care hospital. Indian J Pharmacol 2006;38:429-31.
8. Pudukadan D, Thappa D. Adverse cutaneous drug reactions: Clinical pattern and causative agents in a tertiary care center in south India. Indian J Dermatol Venerol Leprol 2004;70:20-4.
9. Naranjo CA, Busto U, Sellers EM, Sandor P, Ruiz I, Roberts EA, Janecek E, et al. A method for estimating the probability of adverse drug reactions. Clin Pharacol Ther 1981; 30: 239-45.



© TemplatesWise.com