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Study of Awareness Regarding Self-Medication with Over-the-Counter Analgesics: Usage and Safety

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Abstract: *Our study aimed to assess patient awareness of maximum doses and investigate the prevalence of overdosing on paracetamol from recommended doses. As we observed Paracetamol is a very commonly used medication . Incidence rates of hospital-presenting self-harm are highest in people under 25 years due to Self-medication, Lack of awareness, Lack of family communication, Over the counter medicine use and are reportedly increasing in some countries. Intentional drug overdose (IDO) is the most common self-harm method among young people, with paracetamol the drug most frequently used. A Questionnaire consisting of demographic questions and questions on illnesses in the last two months ; prior to the interview and treatment strategies was prepared and administered to the 853 people, selected as the sample population, from the total no of 1066 people 213 reported at least one episode of an illness, and 640of them practiced self-medication. Most drugs for self-medication were obtained from the pharmacy or drug stores; and the most commonly used drugs were Paracetamol and Non-steroidal anti-inflammatory drugs. The purpose of this Survey is to study the self -medication practices or the perspective of people towards self- medication .it was observed that all the surveyed drugs (acetaminophen, ibuprofen, azithromycin, multivitamin (nutritional supplements) cofsils Cetirizine, Omee Rantac, Nicip were consumed for various symptoms including: fever, fatigue, cough, sneezing, muscle pain, headache, vomiting (motion sickness),cold , Diarrhoea, people responded to a questionnaire-based survey. 922 people responded to A questionnaire-based survey.*

Keywords: Awareness, Over –The –Counter, Analgesic, Self-medication, Non-steroidal anti-inflammatory drugs

I. INTRODUCTION

Self-medication can be defined as the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms .Self-medication is an important health issue especially in developing country India. Paracetamol is one of the most widely used drugs to its analgesic and antipyretic properties. Studies in Junnar have shown paracetamol in some form was involved in overdoses. Acetaminophen overdose was a particular problem in young female/male up to 23 years of age. Public misundersatanding about the safety of paracetamol is contributimg to misuse and accidental overdose. easy access to large quantities of paracteamol may also be contributing to intentional overdose. This may be because people have large amounts of paracetamol stored at home. If you take more than the recommended amount (an overdose), it can **harm the liver and rarely the kidneys**. In a significant number of patients, in addition to taking paracetamol, they also overdosed on one or more other medicines. Most people have few or non-specific symptoms in the first 24 hours following overdose. A Questionnaire consisting of demographic questions and questions on illnesses in the last two months prior to the interview and treatment strategies was prepared and administered to the 922 selected as the sample population. Paracetamol is a very commonly used medication for the treatment various pain unintentional overdosing by patients self medicating for various pains, including detal pain ,headache ,toothache Or sprains And reduce the fevers cause by illness such as folds and flu.. The aim of our study was to estimate the prevalence of Paracetamol use in the

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general population of Junnar . The questionnaire included questions on demographic data (age, gender, residence area, occupation, level of education), and also on the presence of chronic diseases. Individuals were asked about the use of paracetamol during the last 12 months preceding the study, reasons for taking them. The epidemiological profile of self-medication was investigated in Junnar in a study conducted with 922 individuals, of both genders, aged between 0 and 95 years. It indicated of the medications used were painkillers, while the main ones used were: Cetirizine (92 .84%), Azithromycin(13.66%) and paracetamol (92.31%) Ibuprofen(17.89%). In this same study, 50.86 % of people who practiced self-medication received guidance from previous prescriptions 2.71%

II. METHODOLOGY

STUDY SITE

A cross-sectional study was carried out in a rural area of a Junnar, over a period of 90 days; from January to march .Self-medication data were collected from rural areas of junnar. [Belhe (Bangarwadi, Gunjalwadi ,Gulunchwadi) ,Rajuri (Unch khadak) Ale,Pimpalwandi, Ane, Pimpari pendhar ,Wadgaon Anand, Naryangaon (warulwadi) ,Otur , Ozar]
Also, well stocked licensed retail pharmacies located in Junnar, 6 pharmacies including(Gandhi Medical Belhe , Morya Medical Ale, Varhadi Medical Naryangaon , Tejas Medical Rajuri , Swastik Medical Outr, Shree Gajanan Medical Ozar) (out of 40 Pharmacy) was randomly selected as the study site.The inclusion criteria identified was the purchasing of medicines from the community pharmacies without prescription and survey of people in the area of junnar. The data was collected by conducting the interview with patients when they exited from the pharmacy and people in the rural area of junnar. The modified questionnaire was provided to around 922 patients and 15 pharmacists to confirm the understanding and acceptability. Changes were made and newly prepared questionnaire was used throughout the study. Questionnaires were filled by asking each question verbally to the customer in Marathi. Contents of the questionnaire were: Demographic details, how often customers practiced self-medication, sources from where they came to know about choices of drugs, reasons for practicing self-medication and perception about self- medication practice.

villages	Count
Belhe : Bangarwadi	60
Gunjalwadi Gulunchwadi	20
	20
	15
Rajuri : Unch khadak	150
	20
Ale	60
Pimpalwandi	45
Naryangaon : Warulwadi	210
	70
Ane	25
Pimpari pendhar	40
Wadgaon Anand	25
Ozar	12
Otur	175

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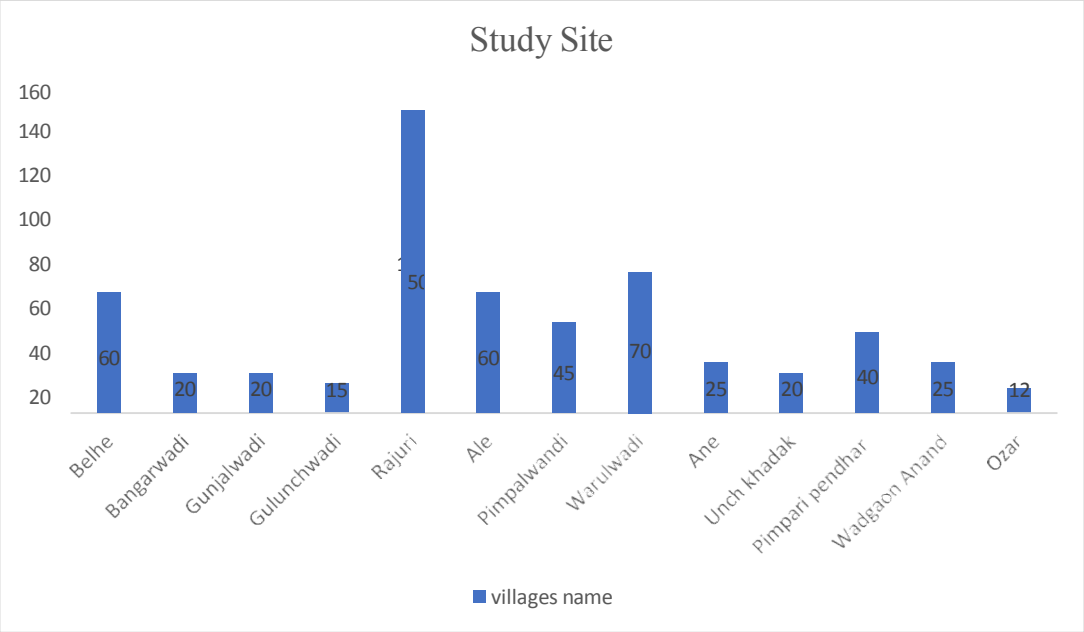

STUDY POPULATION

Junnar rural area were selected randomly with population of 4,78,703 and the area with Random sampling of inhabitants from these area was made by the National Population Registry at the Junnar Statistical Department that provides data on the age and gender of the population. The overall response rate was 144 completed and returned questionnaires). Finally, 30 questionnaires were accepted for the analysis 922 Participants (355males,567females) were randomly selected.

The reported self-medication was 100% population (males 38.50% females 61.50% The most common route of administration was oral in the form of tablets and syrups. In rural population, commonly used medicines were analgesic, antibiotics followed by antacids, whereas for rural people, commonly used medicine were analgesic , antacids and antibiotics.

DATA COLLECTION

The semi-structured interview questionnaire was the tool used to collect the data. Information's had been collected by the direct interview method. All respondent from one household was interviewed followed by informal health education about self-medication and adverse events. Subjects often had difficulty in recalling the particular drug use. So, in these cases, we have crosschecked with the tablet strips, medicine packets, medicine bottles kept in the house by the subjects. (Apropriate drug use, Proper drug selection, Get known about Expiry date, Reconstitution of drug with sterile proper method, Proper storage of drugs,MRP of drugs) Data were entered into paper and all entries were cross-checked against the questionnaire.

ETHICAL ISSUE

OTC medications are easily available because they have been deemed safe for self-medication by regulatory agencies based on the scientific evidence provided by their manufacturers. This means that people can buy these medications without a prescription, saving time and money by avoiding a trip to the doctor. Unlike US, European Union and Australia which have well defined OTC law, at present India does not have an OTC policy. The drug regulators in India are in fact seized of the issue as an OTC drug policy has been in the works for more than five years. During the 52nd meeting on September 18, 2017, the Drugs Consultative Committee (DCC) of the Union Health Ministry had recommended for the creation of a separate category of OTC drugs.

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It's important to note that even though OTC medications are legally available without a prescription, they can still have side effects and risks. It's important to use these medications as directed and to consult with a healthcare professional if you have any questions or concerns. Additionally, some medications that are available without a prescription in one country may require a prescription in another country, so it's important to familiarize yourself with the laws and regulations of the country you are in has taken notice of the OTC (over-the-counter) drugs used to treat cough and cold. It directs companies to stop making and distributing any unapproved drug product containing hydrocodone bitartrate, the strongest and most widely used medication.(United States Food Drug Administration) Drug products can be marketed without a prescription (i.e., non- prescription) or over-the-counter (OTC) if the Food and Drug Administration (FDA) determines they are safe and effective for use by a consumer without supervision by a licensed health care professional. purchase non-prescription drugs and health-related items such as aspirin, vitamins, eye drops, laxatives, and more at participating pharmacies and other retailers.

OTC drugs are medications that can be purchased without a prescription from a healthcare provider. In many cases, OTC drugs are considered safe for self-medication and are widely available in pharmacies, drug stores, and grocery stores.

Example :paracip-500, Omee ,lomovex, Crosin ,Cofsils ,lomofen,Iodex ,Zandubam,Vicks Vaporub ,ENO, Lomotil, Nicip Plus, Disprin, Cyclopam, Okacet, Bandy plus, Crocin, Nise, Pan D,Diclofenac, Azee 500, Spasmonil, Rantac150

The availability of specific OTC drugs can vary depending on a number of factors, including the regulations in a particular country or region, as well as the perceived safety and efficacy of the drug.

For instant cetirizine are easily available, there could be several reasons. One possible reason is that these drugs have been deemed safe and effective for self-medication by regulatory agencies. (Cetirizine was FDA-approved in the United States as a prescription only product) Additionally, these drugs may be less prone to abuse or misuse compared to prescription medications, which could make them more readily available.

It's worth nothing that just because a drug is available over-the-counter does not mean it is completely safe for everyone to use. All medications, including OTC drugs, can have potential side effects or interactions with other medications or health conditions, and it is always important to consult with a healthcare provider before taking any new medication.

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Factors of self-medication

Self-medication is influenced by many factors such as education, family, society, law, availability of drugs and exposure to advertisements. patients younger than 25-40 years old, those who lived in the rural area , and those who earned more than 7000 were more likely to self-medicate. Although the prevalence of self-medication among females was higher compared to males The prevalence of self-medication was 567 for women and 355 for men .The variables that were independently and significantly associated with a greater probability of self-medicated consumption in women.It was observed that the female gender and begin a homemaker were associated with an increase likelihood of consuming medicine without the prescription from a medical practitioner no significant association was found between practicing self-medication and gender . We found out that the most common factors that led to self-medication among students were attributed to unfriendly attitude of health care workers at the school clinic - 15%

busy schedule of students that resulted into lack of time to visit the clinic- 40%

distance of the school clinic to the hostel - 65%

perceived inefficacy of prescribed drug - 25 %

Various studies reported different reasons for engaging self-medication. These include knowledge about the disease/treatment , previous experience , availability of medications , mild diseases , affordability and to save time. observed a higher preponderance in younger age groups. The occupation of the study subjects was a significant factor influencing the practice of self-medication in various studies, including the present study. The present study revealed that the higher the level of education, the more the chances of self-medication. The results of the present study indicated that pharmacists and family members were the main sources from whom the respondent's got information about the choice of drug for practicing self-medication.

These reasons however are subject to the environment and study populations where the studies were carried out

III. RESULT

TABLE 1: Demographic characteristics 0f people who reported illness in the last two months in Junnar in 2023:

Variable	Category	Total No of count
Age	<16 years 16-35 years 36-60 years >60 years	(97) (231) (475) (119)
Sex	Male- 355 Female-567	(922)
Material status	Married Unmarried Separated	(629) (191) (102)
Occupation	Employed Unemployed Student Framer Housewife	(118) (69) (135) (248) (352)
Education qualification	<10	(427)
	>10-12 Graduation	(279) (216)
Chronic medical condition	Yes No	(19) (903)

TABLE 2:Frequency of reported symptoms /disease :

Indication	Frequency	Percentage
Headache	212	22.99%
Cold	169	18.32%

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Leg pain	51	5.53%
Fever	99	10.73%
Gas trouble	77	8.35%
Diarrhoea	66	7.15%
Acidity	49	5.31%
Cough	178	19.30%
Sore throat	94	10.19%
Stomach ache	18	1.95%
Vomiting	48	5.20%
Dyspnoea	42	4.55%
Skin allergy	27	2.92%
Insomnia	21	2.27%
Runny nose	149	16.16%

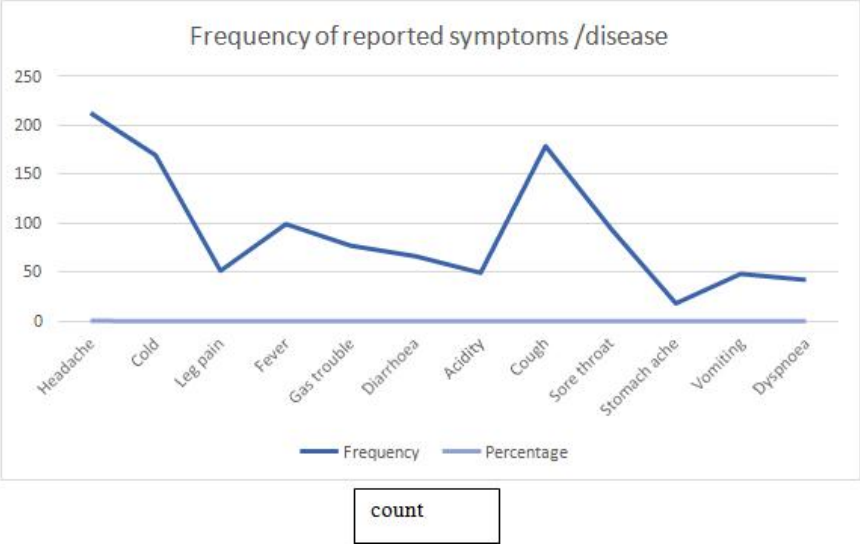

TABLE 3: Measures taken by source who reported an illness :

Source of drug	Frequency	Percentages
Visiting physician	46	4.98%
Self medication	469	50.86%
Drug store	143	15.50%
Advertisement	67	7.26%
Neighbour/friends	89	9.65%
Drug dictionary	44	4.77%
Pharmacist	39	4.22%
Previous prescription	25	2.71%

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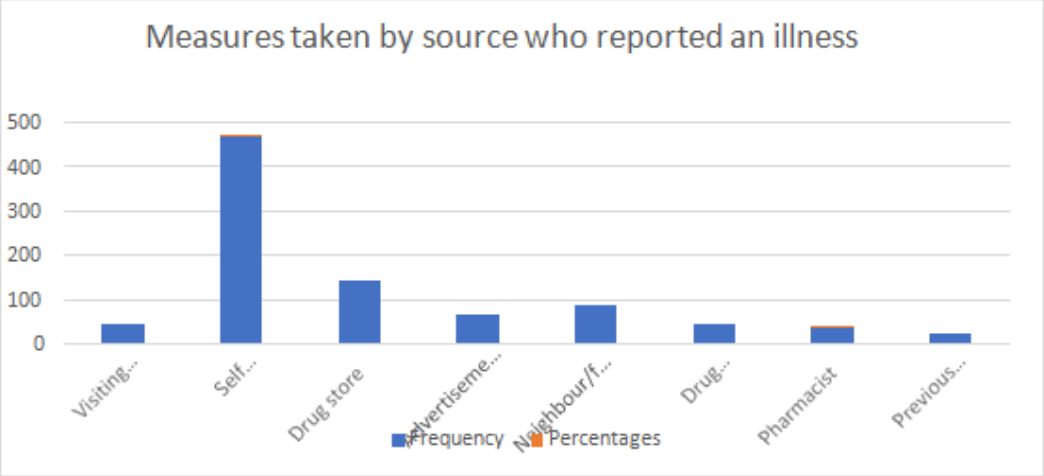

TABLE 4: Drug or drug group used by the student for self -medication:

Drug group	Name of drug	Frequency	Percentage
Analgesic	Paracetamol Aspirin	853	92.31%
	Ibuprofen Naproxen	241	26.13%
	Acetaminophen Crosin	165	17.89%
	Nicip	41	4.44%
		282	30.58%
		456	49.45%
		365	39.58%
Antibiotics	Azithromycin Cifixime	126	13.66%
	Clindamycin	93	10.08%
		56	6.07%
Antihistamine	Cetirizine Levo-cetirizine	856	92.84%
		566	61.38%
	zyrtec	89	9.65%
antitussives and expectorants	Cofsils Cheston Cold Kufril syrup	899	97.50%
		736	79.82%
		52	5.63%
Anti-diabetic	Metformin Insulin	41	4.44%
		69	7.48%
Vitamins	Vitamin D Zincovit	607	65.83%
	Supradyl Vitamin B12 Celin	223	25.27%
	Folic acid	97	10.52%
		883	95.78%
		201	21.80%
		787	85.35%
Antacid	Omeprazol Rantac	869	94.25%
		633	68.65%

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TABLE 5: Factor for self-medication:

Reasons	Frequency	Percentage
Previous good experience	226	24.51%
Emergency	239	25.92%
Quick relief	84	9.11%
Poor quality care by govt doctors	42	4.55%
No time	115	12.47%
High cost by private doctors	81	8.78%
Loss of wages	76	8.24%
Economic	59	6.39%

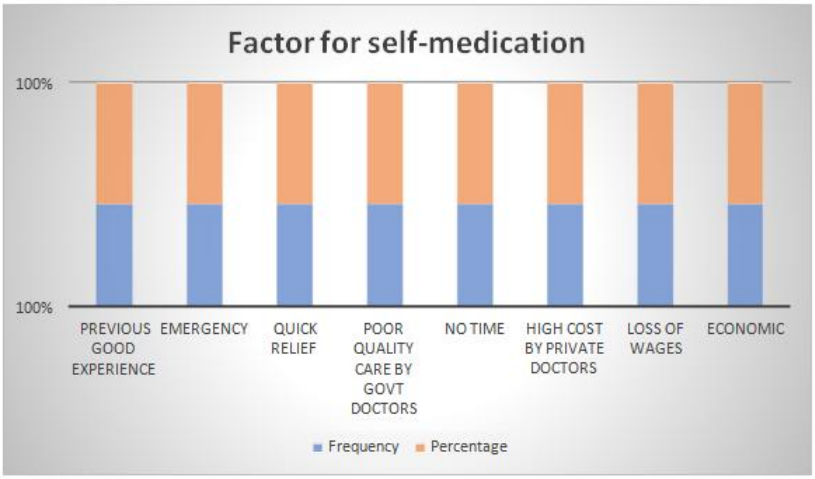

TABLE 6: Information source for those who practiced self -medication :

Information source	Frequency	Percentage
Reading material	112	12.14%
Advice from pharmacist	467	50.65%
Advice from friends	253	27.44%
Advice from traditional healers	88	9.54%

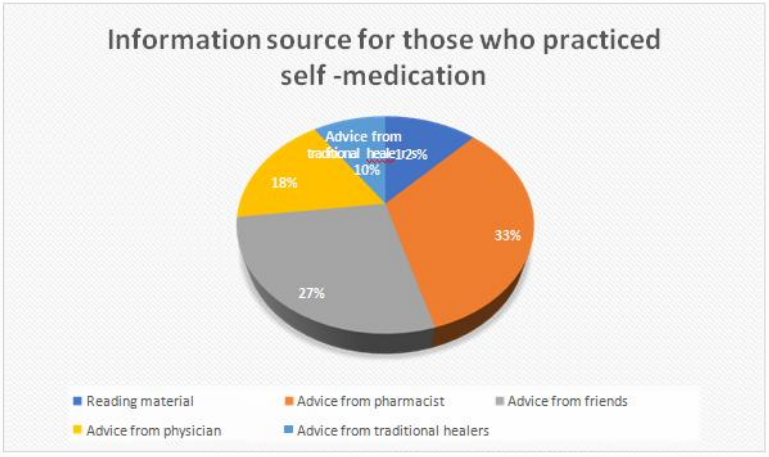

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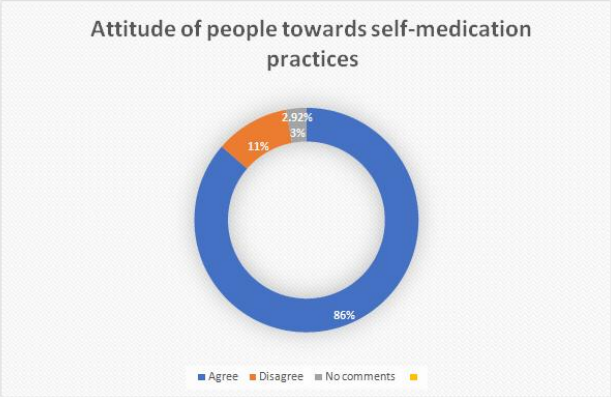
TABLE 7: fill the information about surveys

Responses to the questions related to awareness of self-prescribed Paracetamol, Cetirizine and attitude toward self-medication:

Question	Answer	N (%)
What was your reason for self –medication ?	No Yes	0% 100%
What do you consider ,while selecting the drug for self-medication ?	No Yes	4% 95%
Do you check the prescribing information before self-medicating?	No, never Yes, always Yes, sometimes	0% 96% 4%
If yes, how much did you understand from the instructions of prescribing information?	Not at all Partially understood Fully understood	26% 40% 34%
Do you know about the hazards of the over-dosage?	No Yes	75% 25%
Do you know about drug interactions?	No Yes	88% 12%
Do you think self-medication may harm your health?	No Yes	80% 20%
Do you share drugs with family members, friends, neighbours, etc.?	No Yes	85% 15%
Do you store medicine at home?	No Yes	26% 74%
Are you taking self –medication for any chronic disease ?	No Yes	93% 7%
Do you believe that over the counter medicine as effective as those prescribed by doctor ?	No Yes	7% 93%

TABLE 8 : fill the information about surveys Attitude of people towards self-medication practices :

Attitude	Frequency	Percentage
Agree	797	86%
Disagree	98	10.65%
No comments	27	2.92%



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IV. CONCLUSION

The prevalence of self-medication in the community at the study site was high. Self- medication was higher in people with less education or in people, who were illiterate, had low income, were female and those aged above 30-60 years. Pharmacists have to inform and educate customers. In simple ways, awareness about self- medication can be created through media such as newspaper, magazine and TV.

Self-medication is one of the components of self-care adopted by the WHO. The drug regulatory and health authorities have to increase awareness among the general public especially in rural areas on the pros and cons of responsible self-medications to eventually improve their attitudes towards the practices of self-medication

Analgesic, NSAIDs, antibiotics, vitamins and GIT ailment drugs Paracetamol,Omee,Cetirizine,Vitamin B12 ,Rantac , paracip-500, Omee ,lomovex, Crosin, Cofsils ,lomofen,Iodex ,Zandubam,Vicks Vaporub ,ENO, Lomotil, Nicip Plus, Disprin, Cyclopam, Okacet, Bandy plus, Crocin, Nise, Pan D,Diclofenac, Azee 500, Spasmonil are commonly self medicated rural areas of Junnar. The self- medication of antibiotics is disturbing, as these are liable for drug resistance and severe ADRs, overdose and hence should be taken under supervision only. Pharmacists, key person in rural areas, can provide information about adverse effects of self medicated drugs and also can guide about proper precautions to be taken for self- medication.Our survey suggests that over a third of individuals with some paracetamol have 92% or more tablets stored at home, a potentially fatal dose if taken at one time.

Case Report

A previously well 55□year□old man presented to the emergency department 2 h after taking 500mg of paracetamol, 75 mg of aspirin and 25m g of cinnarizine. His 4 h paracetamol level was 534 mg/l. He was not identified as at high risk for paracetamol poisoning for the purposes of the N□acetylcysteine (NAC) nomogram. Arterial blood gases at 8 h after ingestion showed a marked compensated lactic acidosis despite adequate fluid resuscitation, pH 7.35, partial pressure of carbon dioxide 22.2, partial pressure of oxygen 118.7, and glucose 20.6 mmol/l. Salicylate levels were not significantly raised on immediate and later testing. Infusion of N-Acetylcysteine was commenced at 6 h after ingestion after obtaining the 4□h paracetamol level. 1 At 8 h after ingestion, the patient developed signs of agitation, confusion and a falling conscious level. Over the next 48 h, he developed non□oliguric acute renal failure with creatinine peaking at and continuous renal replacement treatment was commenced at an early stage. Interestingly, his liver function tests did not become grossly abnormal. The N- Acetylcysteine infusion was continued. In the 24 h that followed, his condition deteriorated rapidly. A vasodilatory state of shock developed, and he required high doses of vasopressors to maintain adequate mean arterial pressure guided by invasive cardiac output monitoring. Oxygenation became problematic and chest x ray showed four□quadrant alveolar shadowing consistent with acute respiratory distress syndrome. The international normalised ratio peaked at 2.5 at 72 h after ingestion,ALT(Alanine Transaminase)remained only moderately increased at 145 U/l and bilirubin never rose above 25 µmol/l. The patient became hypoglycaemic, requiring a 50% dextrose infusion to maintain acceptable blood glucose levels. His cardiovascular status continued to deteriorate and he died at 84 h after ingestion

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