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Research

Prescription Pattern Analysis Of Antiepileptic Drugs To Detect The Diverse Adverse Drug Reactions

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	Abstract
Published on: 03 Apr 2024	<p>Epilepsy (EP) is a ceaseless issue in modern nations because of tobacco smoking, hot food varieties, way of life changes, albuminuria, ulcers, IBS, skin rashes and deferred wounds. Many of these contemporary synthetic drugs were treated through EP-associated disease conditions to expel less therapeutic efficacy, unwanted effects and unknowing unwanted effects. Our present survey found to estimate the various parameters of antiepileptic drug-consuming patients in various zones of Kerala. The literature surveyed based on a selected cohort was used. In our study, 1500 epileptic patient details were collected. The present study aimed to determine the pattern of prescription of antiepileptic drugs (AEDs) in a cohort of patients with epilepsy (PWE) attending a tertiary care centre in the Kerala zone. The related illnesses condition results communicated that the EP-related infections pervasiveness was low (502 Numbers and 51.1%) contrasted with Non-related sicknesses (300 Numbers and 57.9 %). The discoveries of extreme EP Patients' pervasiveness were more (182 Numbers and 18.5%) when contrasted with serious EP patients (18 Numbers and 3.4 %) Polytherapy is a very common practice in our tertiary care centre. Sodium VPA, a highly prescribed AED, results in good control of generalized seizures, whereas focal seizures are well controlled by CBZ alone as well as in combination. The present study highlights the commonly prescribed combinations of AEDs resulting in the control of different types of seizures.</p>
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<p>Keywords: : modern nations, synthetic drugs, therapeutic efficacy, antiepileptic drug tertiary care, seizures, and Kerala.</p>	

INTRODUCTION

EP has been quite perhaps the greatest well-known neurological infection, through exact WHO report indicating lots of individuals all over the planet assembly characteristic moralities. EP has a national of cerebrum stimulation, pronounced by intermittent seizures. Despite the current availability of additional than 20 different

AEDs almost 30% of the patients with epilepsy (PWE) do not retain seizure freedom on pharmacological treatments clinical studies have documented a budding trend in AED use, especially in refractory PWE may respond to respective surgery in the majority of a suitable AED regimen is the limiting factor. They should extensively reduce seizure frequency and minimize the risk of adverse effects Monotherapy is desirable and polytherapy is supported when PWE does not respond Varieties in the determination of AEDs PWE happen among created and emerging nations. The accessibility of more up-to-date AEDs has changed solution design for various kinds of seizures and the rules for the administration of drugs in India. The consistent development in drug improvement makes it urgent for doctors to keep a path of the different signs of AEDs with specific patient qualities. It is progressively hard to pursue suitable therapy decisions concerning an individual PWE, regardless of the presence of notable rules by eminent neurological affiliations like the Worldwide Association Against Epilepsy (ILAE) and the American Foundation of Nervous System Science and the American Epilepsy Society Evidence exists on the side of special therapy decisions in persistent gatherings, particularly limits of ages and ladies of childbearing age The direct materialness of these in the Indian setting may not be valid because of elements, for example, greater expense of more up to date AEDs and absence of clinical protection. In any case, different fresher AEDs like LEV, oxcarbazepine, zonisamide, topiramate, and lacosamide are accessible in a non-industrial nation like India, yet information on their utilization is deficient in India. The current review offers an exceptional chance to examine and look at the endorsing example of AEDs as far as their viability for various sorts of seizures, age gatherings, and orientation. This, thusly, would bring about an upgrade of general well-being and security as for the utilization of AEDs, which will be a relevant and basic issue for prescribers, well-being specialists, and policymakers.

MATERIALS AND METHODS

1. Subjects and setting

The work would be carried out in hospitals of Kerala zone and data which have been collected from inpatients and outpatients of Kerala.

2. Sample size

In our study 1500 epilepsy patients would be used, which includes visited or admitted to the hospital.

3. Studied design

The cohorts studied have been used to observe epilepsy patients over the period of three years and outcomes were recorded.

4. Studied criteria inclusion

1. Patients above 18 years and below 60 years.
2. Patient with epilepsy and with other co-morbidities.
3. Patient admitted as in-patient.
4. The patient was able to read and write the consent form.

Exclusion

1. Patients below 18 years and above 60 years.
2. The patient visited the department without epilepsy.
3. Patient attendees and bystanders.
4. Patient who is unable to read and write the consent form.
5. Studied materials patient data collection form as per standard guidelines, the form would prepare and get approval from epileptic speciality doctors towards collected patient data and pharmaceutical care issues. The form contained demographic data like age, sex, social history, family history, current treatment regimen, change of prescription drugs and current status of frequency of epileptic symptoms. Adr-monitoring form The adr-monitoring form would be used to find the type of side effects. Micromedex 0. 2 The software was a secondary source of drug information and was used to find out the suggestions and recommendations for those particular adverse drug events.

RESULTS AND DISCUSSION

The review results enunciated that the 13.3% besides facts 200 stayed exceptionally low when contrasted through EP-related sicknesses (802 Numbers and 53.5%) and single infections (498 Numbers and 33.2%). EP patients numbers were higher (982 Numbers and 65.5%) when contrasted (518 Numbers and 34.5%) EP patient numbers higher (200 Numbers and 38.6%). And communicated that the EP-related infection pervasiveness was low (502 Numbers and 51.1%) contrasted with Non-related sicknesses (300 Numbers and 57.9 %). The discoveries of extreme EP Patients' pervasiveness were more (182 Numbers and 18.5%) when contrasted with serious EP patients (18 Numbers and 3.4 %) were communicated in Tab. No: 1 The remedy examination consequences (Tab. No:2) of the absolute number of related illnesses in Kerala zone showed 802 Numbers and 53.5% which incorporates an assortment of sicknesses like Hypertension, Hyperlipidemic Contaminations, Thyroid illnesses, Aggravation, Myocardial Infraction, Congestive Cardiovascular breakdown, Angina Pectoris Asthma, Ulcer, IBS, Melancholy

Tachyarrhythmias, Bradyarrhythmias, and Psychosis. related Patients' commonness dramatically more (493 Numbers and 61.5%), when contrasted with Pre Patients (POP), related Patients (309 Numbers and 38.5%). The mono treatment and polytherapy results (Tab. No: and Fig. No: 6.10-6.13), uncovered that inpatients and short-term patients showed that the poly treatment of medications endorsed against EP (1155 Numbers and 77 %) were more when contrasted with monotherapy (345 Numbers and 23 %). The mono treatment and polytherapy results (Tab. No:3 and Fig. No:1-4), uncovered that inpatients and short-term patients showed that the poly treatment of medications endorsed against EP (1155 Numbers and 77 %) were more when contrasted with monotherapy (345 Numbers and 23 %). The medications endorsed poly treatment for EP examination aftereffects of all out number of related illnesses in Kerala zone (Tab. No:4) uncovered that 741 Numbers and 49.4 % which incorporates an assortment of infections like IrritationThe recommended drugs example of mono treatment results demonstrated that the all-out EP recommended drugs in the solutions EP solutions (54 numbers and 15.7 rate) made sense of Tab. No:5In our review, various details endorsed by the Doctor communicated (Tab. No: 6 and Fig. No: 5-7) absolutely 4371 quantities definitions utilized for the treatment EP related illnesses Kerala zone which incorporates Tabs, containers, injections, ointments syrups creams jelly aerosol and suppositories. The consequences endorsed definitions were available numbers solutions containers (967 Numbers and 22.1 %), infusions (512 Numbers and 11.7 %), salves (15 Numbers and 0.3 %), syrups (64 Numbers and 1.5 %), creams (13 Numbers and 0.3 %), jam (18 Numbers and 0.4 %), aerosol (5 Numbers and 0.1 %) and suppositories (8 Numbers and 0.2 %). The FDA-supported drugs were recommended (2839 Numbers and 65 %) when contrasted and the all-out number of medications (4371 Numbers) and FDA un endorsed drugs were extremely less than recommended (22 Numbers and 0.5 %) and (22 Numbers and 1.5 %) when contrasted with all out several medications (4371 Numbers) and FDA endorsed drugs and (Numbers and 7.5%). 22 brands were much of the time recommended drugs in the solutions which demonstrated that the 2819 Numbers and 34.6% and 2819 Numbers and 99.3% were not now and again endorsed brands when contrasted with the absolute number of medications (4371 Numbers) and FDA-supported drugs (23 Numbers and 0.5 %) and (23 Numbers and 1.5 %) showed Tab. No:7 and Fig. No: 8-11. EP patients when contrasted with Cetaminophen, Anti-inflammatory medicine, And diazepam (32 Numbers and 3.9%), Diphenhydramine And Naproxen (31 Numbers& 3.8 %), Fantanyl (31 Numbers and 3.8 %), Paracetamol + Ibuprofen (21 Numbers and 2.5%), Methadone (20 Numbers 2 &.4 %), Naloxone (22 Numbers and 2.6%), Naltrexone (24 Numbers and 2.9 %), Oxycodone (15 Numbers and 1.8 %), Diclofenac Sodium50mg + Paracetamol 500mg (14 Numbers and 1.7%), Serratiopeptidase 10mg + Diclofenac Sodium50mg (15 Numbers and 1.8 %), Phenytoin (135 Numbers and 16.1%), Paracetamol + Ibuprofen (21 Numbers and 2.5 %), Tramadol (10 Numbers and 1.2 %), Morphine (13 Numbers and 1.6 %) and Ibuprofen (135 Numbers and 16.1%).Micromedex programming which reports showed that they were categorized by various clinical conditions, for example, gentle (622 Numbers, 63.1 %), moderate (308 Numbers and 31.2 %), extreme (55 Numbers and 5.6 %), and deadly (1 Number and 0.1 %)which showed antiepileptics actuated gentle Hypercholesteremia (323 Numbers and 32.8 %) were continually expanded when contrasted with one another antiepileptics prompted sicknesses like as GIT Issue (32 Numbers and 3.2%), Lactic acidosis (12 Numbers and 1.2 %), Haemolysis (5 Numbers and 0.5 %), Cardiovascular breakdown (2 Numbers and 0.2 %), Hepatotoxicity (2 Numbers and 0.2 %) and Kidney disappointment (2 Numbers and 0.2 %) yet except Hypoglycemia (2 Numbers and 0.2 %). The various sorts of antiepileptic drugs actuated ADR results were communicated as Hypoglycemia (608 Numbers and 67.1 %) was more when contrasted with antiepileptics incited each other infections. One more view major ADRs announced in our review, which showed antiepileptics actuated gentle Hypercholesteremia (323 Numbers and 32.8 %) were continually expanded when contrasted with one another antiepileptics prompted sicknesses like as GIT Issue (32 Numbers and 3.2%), Lactic acidosis (12 Numbers and 1.2 %), Haemolysis (5 Numbers and 0.5 %), Cardiovascular breakdown (2 Numbers and 0.2 %), Hepatotoxicity (2 Numbers and 0.2 %) and Kidney disappointment (2 Numbers and 0.2 %) yet except Hypoglycemia (2 Numbers and 0.2 %).

Table 1: Remedy Design Investigation for EP

Different types of Prescription	Handled prescriptions				Total	
	Severe EP associated Pre-operative		Severe EP associated with Post-operative			
	Nos	%	Nos	%	Nos	%
Total	982	65.5	518	34.5	1500	100
Single diseases With EP	298	30.4	200	38.6	498	33.2
Associated diseases With EP	502	51.1	300	57.9	802	53.5
Severe EP	182	18.5	18	3.4	200	13.3

Table 2: Prescription pattern analysis for various associated diseases

S.No	Handled Prescription for EP with associated diseases	NP		POP	
		Nos	%	Nos	%
1	Hypertension	21	2.7	33	4.4
2	Hyperlipidemic	42	5.2	38	4.8
3	Infections	52	6.5	28	3.5
4	Thyroid diseases	54	6.7	32	4
5	Inflammation	33	4.1	27	3.4
6	MyocardialInfraction	56	7	17	2.1
7	Congestive Heart Failure	45	5.6	14	1.7
8	Tachyarrhythmias	34	4.2	21	2.6
9.	Bradyarrhythmias	39	4.9	27	3.4
10	Angina Pectoris	28	3.5	30	3.7
11	Asthuma	34	4.2	15	1.9
12	Ulcer	32	4	17	2.1
13	IBS	21	2.7	10	1.2
14	Depression	1	0.1	---	---
15	Psychosis	---	---	1	0.1
Total		493	61.5	309	38.5
Total No. of Prescription		802			
% of Prescriptions Handled		53.5			

Table 3: Prescription pattern analysis for various associated diseases

S.No	Handled Prescription for EP with associated diseases	NP		POP	
		Nos	%	Nos	%
1	Hypertension	21	2.7	33	4.4
2	Hyperlipidemic	42	5.2	38	4.8
3	Infections	52	6.5	28	3.5
4	Thyroid diseases	54	6.7	32	4
5	Inflammation	33	4.1	27	3.4
6	MyocardialInfraction	56	7	17	2.1
7	Congestive Heart Failure	45	5.6	14	1.7
8	Tachyarrhythmias	34	4.2	21	2.6
9.	Bradyarrhythmias	39	4.9	27	3.4
10	Angina Pectoris	28	3.5	30	3.7
11	Asthuma	34	4.2	15	1.9
12	Ulcer	32	4	17	2.1
13	IBS	21	2.7	10	1.2
14	Depression	1	0.1	---	---
15	Psychosis	---	---	1	0.1
Total		493	61.5	309	38.5
Total No. of Prescription		802			
% of Prescriptions Handled		53.5			

Table 4: Scrutiny of prescribed drugs pattern

S.No	Prescription Pattern	Number of Prescriptions handled	% of Prescriptions
1	Total	1500	100
2	Mono Therapy	345	23
3	Poly Therapy	1155	77

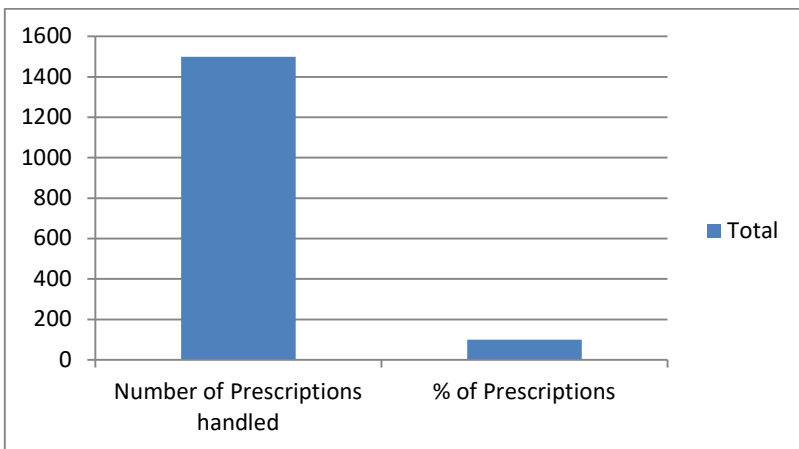


Fig 1: Prescription pattern examination (Numbers & %)

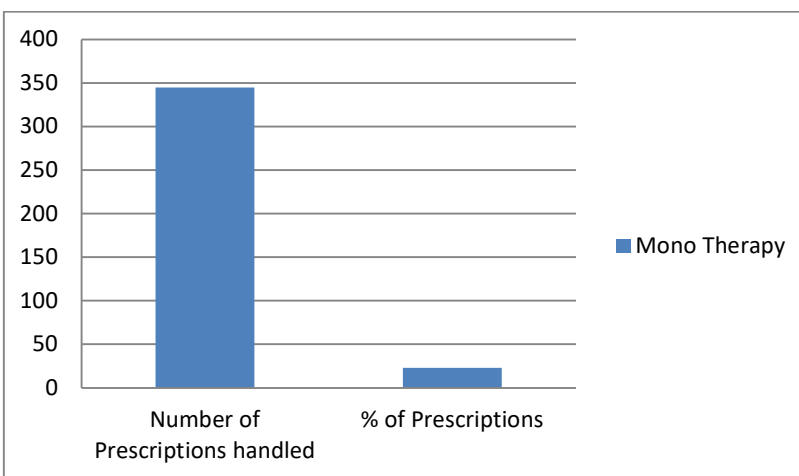


Fig 2: Prescription pattern study of monotherapy

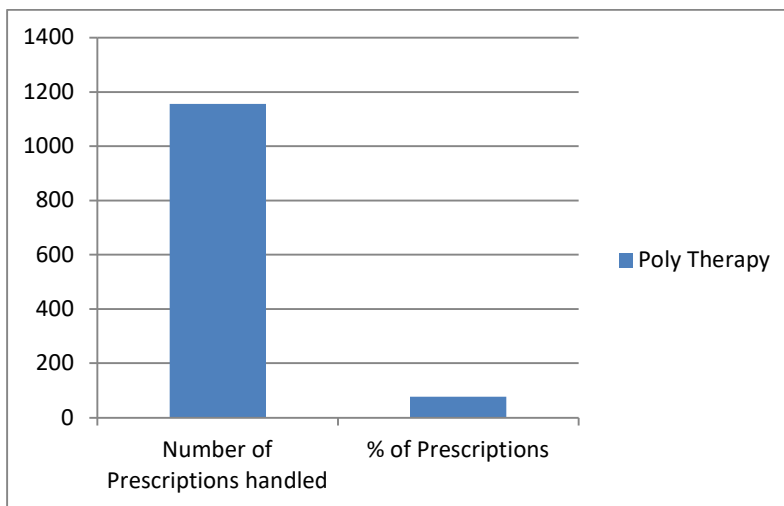


Fig 3: Prescription pattern analysis of polytherapy

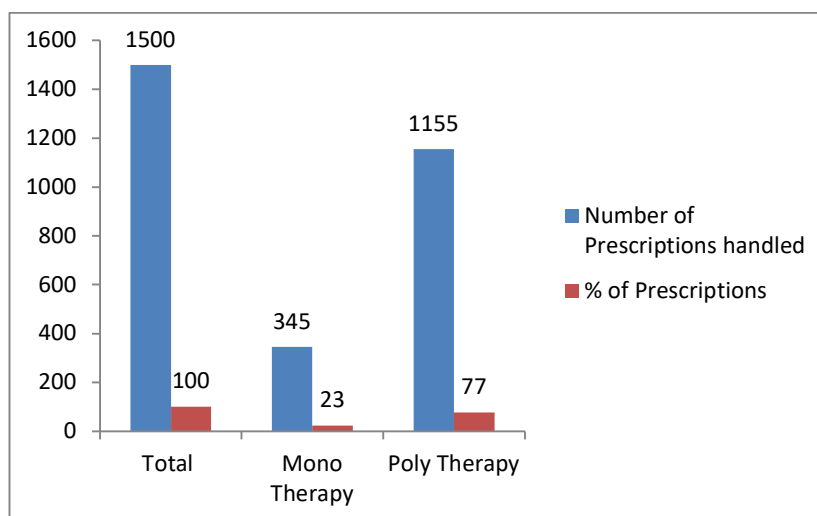


Fig 4: Examination of total numbers Vs. polytherapy and monotherapy

Table 5: Analysis polytherapy of prescribed drugs for POP and associated diseases

DM with associated diseases	PEOP different drugs: Numbers					POP Prescription of different drugs: % of drugs				
	2	3	4	5	6	2	3	4	5	6
Hypertension	6	5	3	4	4	0.4	0.3	0.2	0.3	0.3
Hyperlipidemic	10	12	8	7	5	0.7	0.8	0.5	0.5	0.3
Infections	15	13	10	2	12	1	0.9	0.7	0.1	0.8
Thyroid diseases	9	16	18	6	5	0.6	1.1	1.2	0.4	0.3
Inflammation	5	7	4	9	8	0.3	0.5	0.3	0.6	0.5
Myocardial Infraction	6	10	15	11	14	0.4	0.7	1	0.7	0.9
Congestive Heart Failure	8	7	12	6	12	0.5	0.5	0.8	0.4	0.8
Tachyarrhythmias	7	6	9	8	4	0.5	0.4	0.6	0.5	0.3
Bradyarrhythmias	8	4	9	12	6	0.5	0.3	0.6	0.8	0.4
Angina Pectoris	3	7	4	9	5	0.2	0.5	0.3	0.6	0.3
Asthma	5	6	10	4	9	0.3	0.4	0.7	0.3	0.6
Ulcer	8	4	12	5	3	0.5	0.3	0.8	0.3	0.2
IBS	3	7	5	2	4	0.2	0.5	0.3	0.1	0.3
Depression	-	1	-	-	-	-	0.1	-	-	-
Single	60	56	45	53	54	4	3.7	3	3.5	3.6
Total	153	161	164	118	145	10.1	11	11	9.1	9.6
			741					49.4		

Table 6: Analysis Mono Therapy of Prescribed Drugs on EP

Clinical condition	No. of Prescriptions	% of Prescription
Total No. of Mono Therapy	345	100
PEOPLE	184	53.3
POP	54	15.7
Severe EP (other EP)	107	31.0

Table 7: Analysis of different formulations

Formulations	No. of formulations	% of Formulations
Tablets	2769	63.4
Capsules	967	22.1
Injections	512	11.7

Ointments	15	0.3
Syrups	64	1.5
Cream	13	0.3
Jelly	18	0.4
Aerosol	5	0.1
Suppositories	8	0.2
Total No. of prescribed drugs	4371	

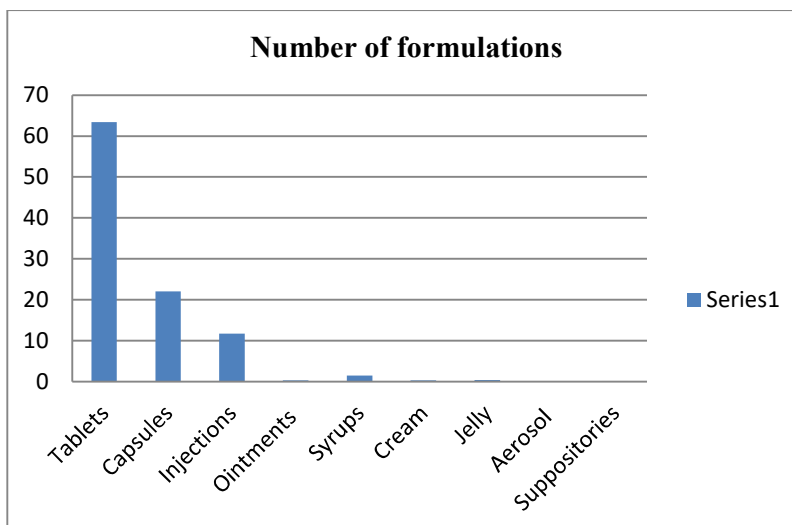


Fig 5: Number of Formulations

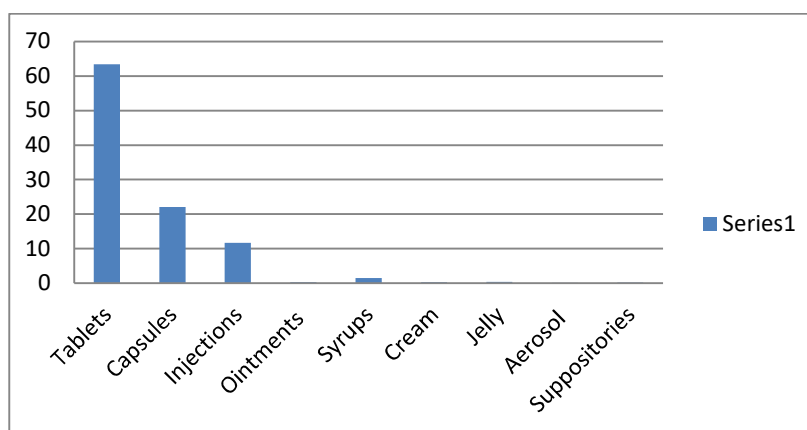


Fig 6: Percentage of Formulations

Table 8: Study of altered branded drugs

S.No	Particulars	Numbers	%	
1	Total No. of Prescription	1500	---	
2	Total No. of Drugs Prescribed	4370	100	
3	Prescribed branded drugs (FDA Approved)	2838	65.0	100
4	Prescribed branded drugs (Not FDA Approved)	1531	35	54
5	Frequently prescribed brands	22 brands for Antiepileptics / 833 times for repeatedly prescribed in the prescriptions / Out of 1500 prescriptions.	0.5	1.5
6	Not frequently prescribed brands	2819	34.6	99.3

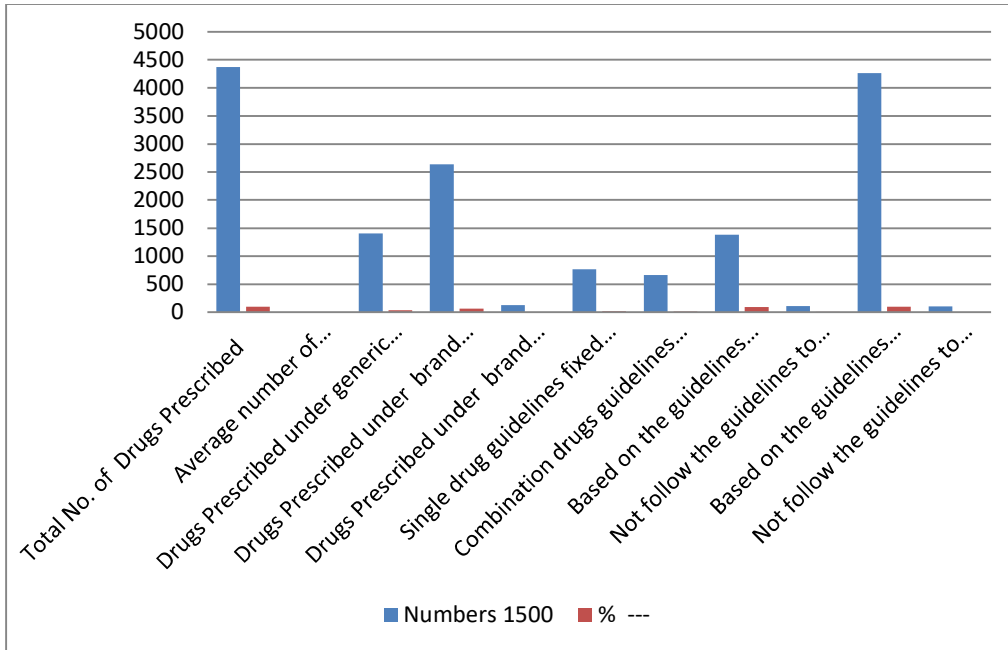


Fig 7: Comparison of branded antiepileptics

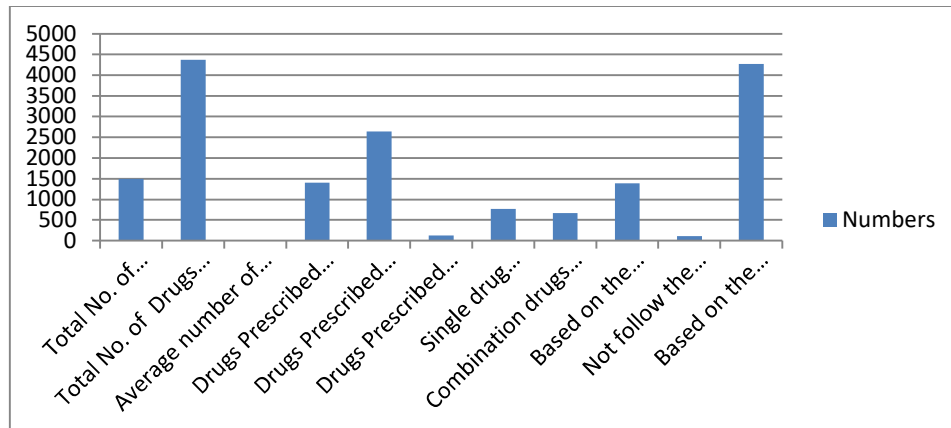


Fig 8: Prescription pattern analysis of different brands (Numbers)

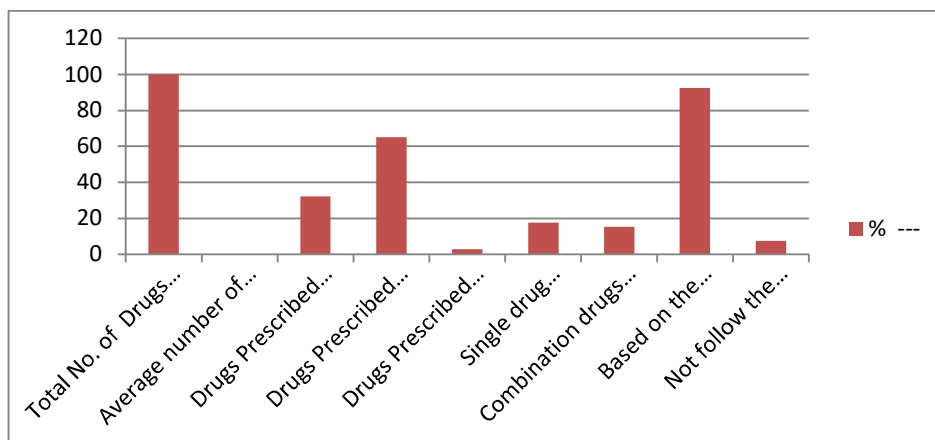


Fig 9: Prescription pattern analysis of different brands (%)

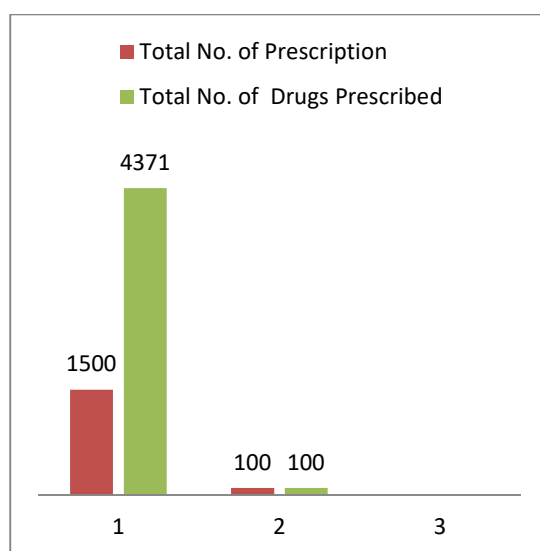


Fig 10: comparison between the total number of prescribed drugs and the total number of prescriptions

Table 9: Scrutiny of ADRs

Particulars	No. of Prescription	% of Prescriptions
Total No. of Prescription	1500	---
Total No. of ADRs in Prescription	986	65.7&100
Mild	622	63.1
Moderate	308	31.2
Severe	55	5.6
Lethal	1	0.1

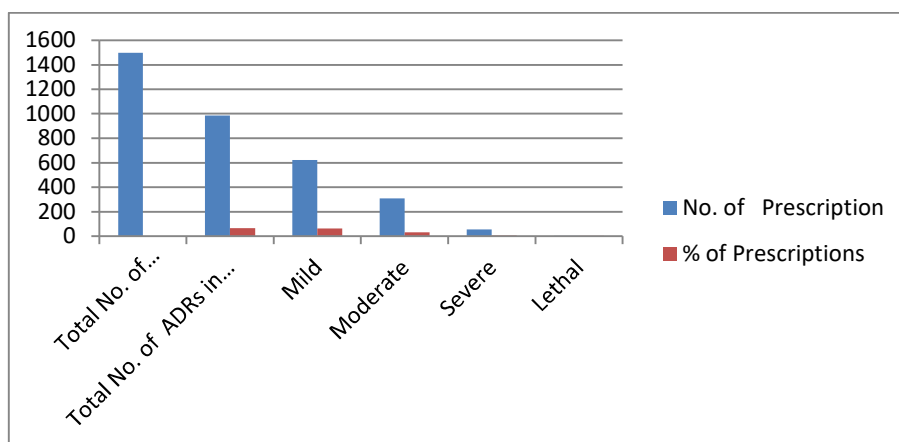


Fig 11: Specifics of ADRs monitoring on dissimilar grades

Micromedex Software

The aftereffects of web and books were utilized to establish the ADRs by the mixes (514 Numbers and 52.1 %) and single medications (257 Numbers and 26.1 %). The micromedex programming utilized for the mix of 215 Numbers and 21.8 % antiepileptics+used for the other category of the medications for the treatment of related illnesses conditions were applied to noticed various boundaries results demonstrated that Medication Collaborations (DI) (28 Numbers and 0.2 %) were noticed more when contrasting with Food and Liquor Connection (F&AI) (5 Numbers and 0.5 %), Intravenous Similarity (IVC) (Not Shown).

Table 10: Scrutiny of dissimilar parameters Micromedex Software

Particulars	No. of Prescription				% of Prescriptions Drugs			
Total No. of ADRs in Prescription	986				100			
Books & Internets findings(Combinations)	514				52.1			
Books &Internets findings (Single)	257				26.1			
Combinations	No. of Prescription				% of Prescriptions Drugs			
Observed Parameters→	DI	F&AI	IVC	DC	DI	F&AI	IVC	DC
phenytoin Sodium50mg + Paracetamol 500mg	28	5	--	8	2.8	0.5	--	0.8
Cabamzeipin 10mg + Diclofenac Sodium50mg	22	7	--	5	2.2	0.7	--	0.5
DiazepamSodium5 mg + Paracetamol 325mg + Chlorozoxazone 250mg	32	6	--	8	3.2	0.6	--	0.8
Acetaminophen, butalbital, and caffeine	12	7	--	6	1.2	0.7	--	0.6
Acetaminophen, Aspirin, And Valpropicacid (Gl	5	2	--	7	0.5	0.2	--	0.7
<u>Diphenhydramine And Naproxen</u>	2	2	--	2	0.2	0.2	--	0.2
Paracetamol + Ibuprofen	2	2	2	2	0.2	0.2	0.2	0.2
Diclofenac+ Chlorozoxazone 250mg	2	2	2	2	0.2	0.2	0.2	0.2
Ibuprofen+ Chlorozoxazone 250mg	5	6	--	9	0.5	0.6	--	0.9
Acetaminophen+ caffeine	6	7	--	6	0.6	0.7	--	0.6

SUMMARY AND CONCLUSION

The World Prospering Association has depicted drug use as the "impelling, disseminating, plan and utilization of prescriptions in an overall people, with an unprecedented component on the resulting clinical, social and monetary results. For the particular patient, the normal usage of a prescription proposes the blueprint of an especially recorded cure at an optimal piece, near the right information, at a sensible expense epidemiological assessments in Kerala zone have set up that the undeniability is bringing unequivocally up in our Country and Government should foster after substance

- To make enemies of epileptic core interests.
- To supply free prescriptions to clinical benefits associations.
- Government will be referred to purchase enemies of adversaries of epileptics drugs % cost decline for all mysterious region stores when stood separated from various remedies
- The public power will propose the deals to pick chosen drug experts to check remedies fittingly set aside in regional stores.

REFERENCES

1. A.D.T.Covan, P.S Macflarne and R.Callender, Pathology Illustrated, ISBN:0-443-044321, Vol-5, Page No; 836-839,(1992).
2. Dhiman V, Menon GR, Kaur S, Mishra A, John D, Vishnu MV, Tiwari RR. A systematic review and meta-analysis of prevalence of epilepsy, dementia, headache, and Parkinson disease in India. *Neurology India*. 2021 Mar 1;69(2):294-301. https://journals.lww.com/neur/fulltext/2021/69020/a_systematic_review_and_meta_analysis_of.8.aspx
3. Senthil Amudhan SA, Gopalkrishna Gururaj GG, Parthasarathy Satishchandra PS. Epilepsy in India I: Epidemiology and public health. 2015; 18:263-277 <https://www.cabidigitallibrary.org/doi/full/10.5555/20153312648>
4. Gayathri K, Shireen RM, Lalasa V, Suresh A, Andhuvan G, Iyer RS. Trends in antiepileptic drugs prescription pattern among patients visiting a tertiary care center. *Int J Pharm Sci Res*. 2020;11:2914-9. <https://ijpsr.com/bft-article/trends-in-antiepileptic-drugs-prescription-pattern-among-patients-visiting-a-tertiary-care-center/>
5. Sori RK, Gandigawad P. Drug utilization pattern of anti-epileptic drugs in tertiary care hospital. *National Journal of Physiology, Pharmacy and Pharmacology*. 2021;11(4):385-8. <https://search.proquest.com/openview/029cc4e7bf2bd3030228241daff86bdd/1?pq-origsite=gscholar&cbl=706378>
6. Vyas N, Shahani S, Gandhi M. Prescription pattern of antiepileptic drugs in seizure disorder, their adverse reactions and cost analysis: A tertiary care hospital-based study. *National Journal of Physiology, Pharmacy and Pharmacology*. 2020 Jan 3;10(3):215. <https://njppp.com/fulltext/28-1578290322.pdf>
7. Chandrarathna N, Parida A, Manju V, Adiga US. Drug utilization study in epilepsy in a tertiary care hospital. *Biomedical and Pharmacology Journal*. 2019 Jun 25;12(2):697-701. <https://biomedpharmajournal.org/vol12no2/drug-utilization-study-in-epilepsy-in-a-tertiary-care-hospital/>
8. Morales-Plaza CD, Machado-Alba JE. Anticonvulsant prescription patterns in patients covered by the Colombian Health System. *Neurología (English Edition)*. 2017 Jan 1;32(1):6-14. <https://www.sciencedirect.com/science/article/pii/S2173580816301183>
9. Rang HP, Dale MM, Ritter JM, Flower RJ. *Pharmacology*, 6th edition. Edinburgh: Churchill Livingstone; 2003: 575-87
10. A. Manosroi, P. Wongtrakul, J. Manosroi et al., Portrayal of vesicles arranged amid different non-ionic surfactants blended amid cholesterol. *Colloids & Surfaces*. 2003: 30,1-2; 129–138