Pharmacy Practice NEWS LETTER

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DEPARTMENT OF PHARMACY PRACTICE

St. JAMES'

College of Pharmaceutical Sciences, Chalakudy

Affiliated to Kerala University of Health Sciences (KUHS),
Approved by Pharmacy Council of India (PCI), **Accredited by NAAC,**
Recognized by DSIR, Approved by Indian Pharmacopoeia Commission (IPC)
as Materiovigilance & Pharmacovigilance Centre

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OBESITY

Obesity is a silent epidemic that is globally expanding. Obesity is the root cause of multiple co-morbidities and has indirectly taken numerous lives. Approximately 13% of world adult populations (11% men and 15% women) are obese. Obesity prevalence has risen dramatically in children as a result of greater economic development and nutrition transition. The population of obese and overweight children and adolescents aged 5-19 years is 18% in 2016.

Obesity is defined as excess of body weight in relation to an individual's height as assessed by the body mass index. BMI is measured by dividing body weight in kilograms by height in metre squares. Underweight are those below 18.5kg/m^2 and overweight are those having BMI above 25kg/m^2 and obesity are those having BMI above 30kg/m^2, morbid obesity are those with BMI above 40kg/m^2.

Obesity is a multifactorial in origin with the causal factor being having less energy and expenditure compared to energy consumption. However underlying mechanism is more complex and psychological, socio-economic and even cultural factors contribute to it. Obesogenic factors are rampant not only in higher socio-economic areas but low and middle socio-economic countries also. As a result the co-morbidities associated with obesity like sleep apnea, cardiovascular diseases, type 2 diabetes mellitus, joint disorders, hypertension, dyslipidemia and stroke are on the rise. After completion of human genome project we have identified many genes that play a role in obesity.

Obesity has imposed a tremendous burden as the health care sections and the economy posing a threat to double the financial crisis in the coming days. Among many etiological factors responsible for obesity, genetic causes are the striking ones. With the advent of genome under association study (GWAS) around 127 sites has been discovered in the human genome that is associated with obesity. The gene environment interaction that is contributed

to the cause of obesity can be explained by the Thrifty genotype hypothesis. Genes inherited from the ancestors who faced famines are said to be passed down under selective pressure which were meant to store energy is the basis of this hypothesis.

Obesity can be caused by monogenic obesity where a single gene mutation is responsible. In polygenic obesity, a set of genes are responsible for obesity. In syndromic obesity like Grader-Willi Syndrome, Cohen syndrome etc. Obesity's part of syndromes.

Pharmacotherapy for obesity has become a matter of concern. Currently five drugs approved for obesity by FDA are Orlistat, Phentermine/ Topiramate, Liraglutide, Lorcaserin and Naltrexone/Bupropion.

Obesity related co-morbidities are expected to rise dramatically over the next decades along with co-morbidities fewer preventive measures has to stressed and this makes a compelling care for a holistic method. Policy makers, national and local organizations, commercial institution, community leaders, schools, daycare and healthcare professional should work together to establish an environment that promotes a healthy lifestyle and prevent obesity.

DEPARTMENT ACTIVITIES

1. A Road Safety Mirror was installed by the NSS volunteers with the support of Nexus Alumni association of St. James of St. James College of Pharmaceutical Sciences at Palace Road, Chalakudy on 2nd November 2022

Installation of Road Safety Mirror

2. National Unity Day was celebrated on 31st October, 2022. The National Unity Day pledge was taken by the students in the class room at 9.00 am and an elocution competition on topic "Ideas for strengthening the unity of Indians and Integrity of our Nation" was conducted on the same day.

Staff and Students are taking National Unity pledge

National Unity Day Celebration-Elocution competition

3. Staff and Students of St.James' College of Pharmaceutical Sciences, Chalakudy participated in the Diamond Jubilee Celebration of Pharmacy Act 1948 and One Day International Seminar organized by Kerala State Pharmacy Council on 27th October 2022 at AKG Memorial Hall Thiruvananthapuram.

Meet up with Smt.Veena George, Minister of Health &Family Welfare

4. On the occasion of Gandhi Jayanthi day,'Swatch Bharath abhiyan- 'Clean India Safe India' campaign was organized by NSS unit on 1/10/2021 and 2/10/2021.1stOctober, 2022 considered as 'Sevana dinam' (Service Day). The NSS unit have organized 'Mass cleaning drive' for all the students and also, they have initiated a project 'Construction of Model Road' at Palace Road in Chalakudy. The first phase of project was 'Cleaning and removal of plastic waste' and this work was done on October 1, 2022.

Gandhi Jayanthi day Celebration

Cleaning and removal of plastic waste

5. World Pharmacist Day was celebrated on 24th September 2022 at St.James' Hospital and internship students presented a tableau related to pharmacist day. It was celebrated on 27th September 2022 at College with a class on the topic"Overviewof Pharmacy Act 1948 and Pharmacy Practice Rules 2015" ,delivered by Dr.P.K.Sreekumar,Deputy Drugs Controller (Retd),Drugs Control Department,Govt of Kerala.

World Pharmacist Day Celebration at Hospital

World Pharmacist Day Celebration at College

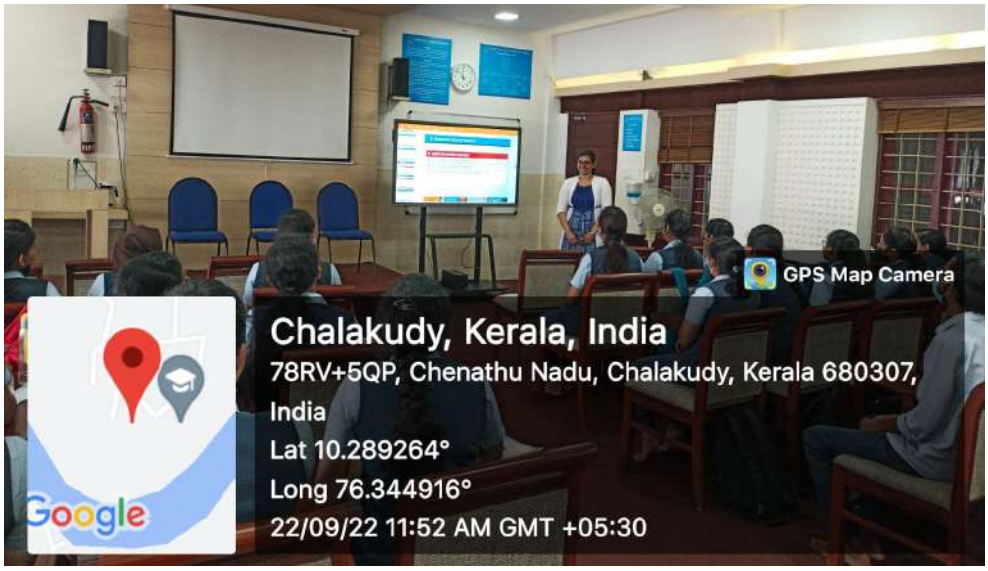
6. Internship Orientation Programme of 2017 Pharm D and 2020 Pharm D PB was conducted from 20th September 2022 to 24th September 2022.The program was welcomed by Prof.Dr.K.Krishnakumar and inaugurated by Rev.Dr.Antu Alappadan,Director,St.James' group of institutions.Felicitation was done by Rev.Fr.Manoj Mekkadath,Associate director and vote of thanks by Dr.Lincy George.On Day one, Rev.Dr.Antu Alappadan had a talk on "Team management",Prof.Sr.Rubeena gave an "Overview on Hospital".Mr.James Manjooran explained "Hospital Statutory procedures",

Prof.Dr.K.Krishnakumar gave an "Overview of Intership"and Dr.Kesavan discussed on "Pharmacology and its Clinical Applications". Second day was started by Rev.Fr.Naveen Ukken on "Creativity", Dr.Binoy PS took class on "Basic principles of fracture and its management", Dr.Lincy George discussed on "Guidelines and Rules and Regulations of Internship, Dr.Peter Alappatt took class on "Role of Clinical Pharmacist in Modern medicine" and an interaction with senior internship students. On day third, a class was taken by Rev.Fr.Joyal Cheruvathur on "Spiritual motivation",Prof.Sr.Symphoria gave an "Overview of Legal aspects of medicine administration",Dr.Rahul B explained "Emergency care"and Dr.Teenu Johny discussed on "Pharmacovigilance".Fourth day was lectured by Dr.Prakash V on "Management of musculoskeletal injuries",Dr.L.Panayappan took class on "Steps involved in Patient care",Mrs.Asa Jose discussed on "Hospital Infection Control Practices" ,Mr.Naijo V Anto gave an overview of 'Hospital Safety". Fifth day was started by Rev.Fr.Manoj Mekkadath on "Ethics in Healthcare", Rev.Fr.Joseph Gopuram took one class and an interaction session with respective preceptors.

Internship Orientation Programme

Internship Orientation Programme

Internship Orientation Programme



Internship Orientation Programme

7. National Pharmacovigilance Week was celebrated from 17thSeptember to 23rd September 2022 with the theme "Encouraging Adverse Drug Reaction Reporting by Patients". An essay writing competition was conducted on the topic "Pharmacovigilance in Patient Safety: Challenges and Perspective".

National Pharmacovigilance Week Celebration

8. St. James' hospital in collaboration with Conferenza Episcopale Italiana and St.James' College of Pharmaceutical Sciences started the "Kidney Disease Detection Camp" on 15th September 2022.This is one year project and Pharm D interns are taking classes on kidney diseases.

Kidney Disease Detection Camp

Kidney Disease Detection Camp

9. The Internal Quality Assurance Cell(IQAC) of St. James' College of Pharmaceutical Sciences organized a one day –Faculty Development Programme(FDP) Workshop on "Outcome Based Education:Bloom's Taxonomy and Mapping of Outcomes" by Dr.Sunil Job K.A on 15th September 2022.

Faculty Development Programme(FDP) Workshop

10. In accordance with 'Hindi Diwas -2022', a Hindi poem writing competition was conducted on 14th September 2022 at College Library.

11. A Basic Life Support class was conducted on 23rd July 2022 for Pharm D interns by Dr.Prakash V and he gave detailed demonstration of CPR &Choking

Basic Life Support Class

12. NSSOrientation Programme was conducted on 19th July 2022 for newly enrolled volunteers and Prof. Junise. V, NSS regional co-ordinator, KUHS, Thrissur was resource person.

13. The awareness programme was conducted on 22th June 2022 with International day of Drug abuse and illicit trafficking. The programme was organized by NSS unit in association with the Excise department of Kerala and Kerala Drug Control Department. Mr. Santosh T K, Civil Excise Officer, Excise circle office, Irinjalakuda has taken an awareness talk on the 'Jeevitham thane Lahari'. Mr. Saju R Senior drug inspector, Intelligence wing, Thrissur has taken a class on 'Role of Pharmacist in Medical Shop'. Mrs. Dhanya R, Drug Inspector, Thrissur, Drug control department co-ordinated the programme.

14. International Yoga Day was celebrated on 21st June 2022 at the college auditorium with mass demonstration of Yoga.

International Yoga Day celebration

15. A one day workshop was conducted on the topic "Linking Pathophysiology, Pharmacology and pharmacotherapy for better understanding and care" by Dr.Karthik Rakam, Co-founder&CEO Avenida Innovations.All Pharm D and M.pharm students actively participated and it was held on 17th June 2022.

One day workshopby Dr.KarthikRakam

16. World Environment Day was observed from4thJune to 7thJune 2022. Various activities done in the occasion include planting of sapling both inside the campus and outside the campus, e-poster making and invited talk on the topic -"Greenhouse gas emission and Carbon sequestration" by Mr. Salumon. S.S, Assistant Director of Agriculture, Kerala Agriculture department, Govt. of Kerala.

World Environment Day -Awareness talk

Planting of sapling in Chapel, Chenathunadu

Pepper planting in campus

17. World No-tobacco day was celebrated on May 31st 2022 at St.James' hospital.5thPharm D and 2nd Pharm D PB Students distributed leaflets and it was initiated by Rev.Fr.Manoj Mekkadath, Associate Director, St. James' Group of Institutions.

World No-tobacco day Celebration

World No-tobacco day Celebration

18. Members of Research Ethics Committee had reviewed research protocols of 5th Pharm D and 2nd Pharm D PB students on 23rd May 2022 and they gave approval for the same.

Ethical committee presentation

SEMINARS ATTENDED

DEPARTMENT OF PHARMACY PRACTICE

- All the faculties of the department, M Pharm, 6th & 5th Pharm D students actively participated as a delegate in the one day workshop on the topic "Linking Pathophysiology, Pharmacology, And Pharmacotherapy For Better Understanding And Care" by Karthik Rakam Co -Founder & CEO :Avenida Innovations –Hydrabad on 17th June 2022 at St James College Of PharmaceuticalSciences.Chalakudy.
- Mrs.Maria George&Mrs Jisna Jose has participated as a delegate in the online CPE programme on effective presentation skills (poster,written and oral) between 20th -24th June 2022, organized by PSG College Of Pharmacy ,Coimbatore.
- Mrs.Maria George has participated in international webinar entitled "Systematic Review And Meta Analysis" on 28th May 2022 organized by Ramaiah University Of Applied Sciences Banglore
- Dr Krishnaprabha C &Mrs.Maria George has participated as a delegate in the national conference MedSafeCon'22 on "Medication Safety" on 21st May 2022 at Adlux International Convention Center Kochi.
- M pharm Students MsAgrimaSidharthanT,Mrs Fathima Shereef, MsJancy Jacob, MsNileena Anna Varghese attended a " International Scientific Seminar on Vaccine Development: Role of Pharmacist Organized by State Pharmacy Council on 27th October 2022.
- M pharm Students MsAgrimaSidharthanT,Mrs Fathima Shereef, MsJancy Jacob,MsNileena AnnaVarghese attended a "Workshop on Enforcement of Medicines Regulation" conducted by IPA at Kochi on 19th September 2022.
- M pharm Students MsAgrimaSidharthanT,Mrs Fathima Shereef, MsJancy Jacob attended a national webinar on "Setting standards and ethics of Publications" organized by Education forum of IPA, Kerala state branch on 30th July 2022.

DEPARTMENT OF PHARMACEUTICS

- Ms. Sminu Jos and Mrs. PreethaPuthezhath staff of department of pharmaceutics &Mpharm students Ms.Haritha Unnikrishnan, Ms.Shelma K.K and Mr.Sooraj P has attended one day national seminar on "Upgrading Horizons and Modern Insights in Pharmacy" organized by Prime College of Pharmacy on 20th August 2022.
- Dr. Smitha K Nair and Mrs. Rinku Jayaprakash staff of department of pharmaceutics &Mpharm students Ms.Haritha Unnikrishnan, Ms.Shelma K.K and Mr.Sooraj P has participated in international conference-Pharma Innovations 2022, "Challenges in Pharmaceutical Sciences; Cancer Biotechnology, 3D Nano Printing and Process Development"organized by Chemist College of Pharmaceutical Sciences and Research on 12th August 2022.
- Ms.Haritha Unnikrishnan, Ms.Shelma K.K and Mr.Sooraj P attended a "Workshop on Enforcement of Medicines Regulation" conducted by IPA at Kochi on 19th September 2022.
- Ms.Haritha Unnikrishnan, Ms.Shelma K.K and Mr.Sooraj P attended a "International Scientific Seminar on Vaccine Development: Role of Pharmacist" Organized by State Pharmacy Council on 27th October 2022.

DEPARTMENT OF PHARMACEUTICAL ANALYSIS

- Dr David Paul had Completed the Journal Citation Reports (JCR) Certification Series 2022 Course on 10th August 2022 by Clarivate Analytics.
- Dr David Paul had Completed the CPE-programme on effective presentation skills by

PSG College of Pharmacy, 20-24th June 2022.

- Dr.Kavitha M.P and Dr David Paul has attended the 'Refresher Course On Updates in Research and Innovations in Pharmaceutical Chemistry ' on the topics "Teaching-research nexus & team-based learning in medicinal chemistry" and "Design & optimize chemical structures using computational chemistry approaches" conducted under Academic Staff College, Kerala University of Health Sciences on 13th and 14th of July 2022.

DEPARTMENT OF PHARMACOLOGY

- Mrs. Asa Samuel, Mrs. Ann Shine Paul and Mrs. Salu Martin are participated in Refresher Course On Updates in Research and Innovative Formulation Technologies for Faculties of Pharmacology organized by Academic staff college,KUHS on 8th and 9th of June 2022.
- Mrs. Salu Martin attended an International webinar on systematic review and Meta analysis hosted by Faculty of Pharmacy, Ramaiah University of Applied Sciences, Bengaluru, on 22nd May 2022.

DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

- Mrs. Mariya Davis attended an international webinar "Systematic Review and Meta-Analysis" organized by Ramaiah University of Applied Sciences, Bangalore on May 28, 2022.
- Mrs. Meena Chandran and M Pharm III semester students- Ashly George, Dolphy Anto and Jismy Francis attended a national webinar on CPE program on effective presentation skills (poster, written and oral) conducted by PSG college of Pharmacy, Coimbatore on 20-24th June 2022.
- Mrs. Meena Chandran successfully completed the refresher course on updates in research and innovations in Pharmaceutical Chemistry on the topic "Teaching-research nexus & team-based learning in medicinal chemistry and design &optimise chemical structures using computational chemistry approaches" conducted by Academic Staff College, Kerala University of Helath Science on 13th& 14th July 2022.
- MrsSilvipriya K S attended a national webinar on "Setting standards and ethics of Publications" organized by Education forum of IPA, Kerala state branch on 30/07/2022.
- Mrs. Meena Chandran, Mrs. Silvipriya K S and M Pharm III semester students- Ashly George, Dolphy Anto and Jismy Francis attended an international conference-Pharma innovation 2022 on "Challenges in Pharmaceutical Sciences: Cancer Biotechnology, 3D Nano printing and Process Development" organized by Chemist College of Pharmaceutical Sciences and Research on 12/08/2022.
- Dr. K Krishnakumar, Mrs. Meena Chandran, Mr. Muhammed Shafi M H and M Pharm III semester students- Ashly George, Dolphy Anto and Jismy Francis attended a national Seminar on Upgrading Horizons and Modern Insights in Pharmacy at Prime College of Pharmacy on 20-08-2022.
- Mr. Muhammed Shafi M H and M Pharm III semester students- Ashly George, Dolphy Anto and Jismy Francis attended a national workshop on "Enforcement of Medicine Regulation" conducted by IPA at Kochi on 19-09-2022.
- Mrs. Meena Chandran, Mr. Muhammed Shafi M H, M Pharm III semester students- Ashly George, Dolphy Anto and Jismy Francis and B Pharm 7th semester student Krishnan K P attended PharmaNEST' 3E an international Conference on "Professional Development and Advanced Training in Artificial Intelligence Driven Drug Design, Discovery and Development" at JSS College of Pharmacy, Ooty on 14-10-2022-15-10-2022.
- Mr. Muhammed Shafi M H, Mrs. Varalakhsmi K Chandran, Ms. AnattTreesa Mathew and M Pharm III semester students- Ashly George, Dolphy Anto and Jismy Francis attended seminar on "Changing Face of SARS-Cov 2 and Keeping Pace with Vaccines Development" conducted by Kerala State Pharmacy Council at A.K.G Centre Trivandrum on 27-10-2022.

- Mrs. Meena Chandran and Mrs. Silvipriya K S Webinar on "Application of Computer Aided Drug Design & Discovery" organized by Learntoupgraderecognised by DBT & NSDC on 05/11/2022

ACHIEVEMENTS

DEPARTMENT OF PHARMACEUTICAL ANALYSIS

- Dr David Paul Honoured as Distinguished Evaluator for YIP-2021 by Government of Kerala & K-DISC.
- Dr David Paul Honoured as Evaluator for Young Innovators Programme (YIP)-2021, KDISC-Government of Kerala, April May 2022.
- Dr David Paul participated as Resource Person For the IPA-PPF-TTT-3 Programme, on the topic: Drug Interactions, July 2022

DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

1. Jismy Francis, III semester M Pharm, Dept. of Pharmaceutical Chemistry presented an e-poster on the topic "In-silico comparison study of 4,5-disubstituted and 2,4-disubstituted imidazole derivatives as anti-cancer agents: their synthesis, characterization and in-vitro biological screening" in international seminar on Pharma innovations 2022 Challenges in Pharmaceutical Sciences: Cancer biotechnology 3D-nanoprinting and process development at Chemist College of Pharmaceutical Sciences and Research, Ernakulam on 12th August 2022.
2. Ashly George, III semester M Pharm, Dept. of Pharmaceutical Chemistry, presented e-poster on the topic "The novel perspective on Indazole derivatives: Their synthesis, characterization, in-silico and in-vitro biological evaluation" in a national seminar on Upgrading horizons and modern insights in pharmacy at Prime College of Pharmacy, Palakkad on 20th August 2022.
3. Dolphy Anto, III semester M Pharm, Dept. of Pharmaceutical Chemistry, presented e-poster on the topic "An in-silico study of Pyrazoline derivatives: Their synthesis, characterization and in-vitro screening for biological activities", National seminar on Upgrading horizons and modern insights in pharmacy at Prime College of Pharmacy, Palakkad on 20th August 2022.
4. Jismy Francis III semester M Pharm, Dept. of Pharmaceutical Chemistry, presented e-poster on the topic "Novel 2,4-Thiazolidinediones: Synthesis, characterization, in-vitro screening of biological actions and an in-silico approach on their biological aspects", National seminar on Upgrading horizons and modern insights in pharmacy at Prime College of Pharmacy, Palakkad on 20th August 2022.
5. Mr. Muhammed Shafi M H has presented oral paper entitled "HIV to Covid-19! 1,3,4-Oxadiazole and 1,3,4- Thiadiazole substituted pyrimidine derivatives: a computational approach on Drug designing" Co-Authored by Mrs. Meena Chandran, Dr K Krishnakumar during PharmaNEST' 3E an international Conference on "Professional Development and Advanced Training in Artificial Intelligence Driven Drug Design, Discovery and Development" at JSS College of Pharmacy, Ooty on 14-10-2022-15-10-2022.
6. Mrs. Meena Chandran and Dr K Krishnakumar were co-authored for the oral presentation by Grace Shaji Chittilappilly on the topic "Synthesis, Characterization, in-silico and in-vitro antioxidant and anticancer activity of various six membered N-containing heterocyclic compounds during PharmaNEST' 3E an international Conference on "Professional Development and Advanced Training in Artificial Intelligence Driven Drug Design, Discovery and Development" at JSS College of Pharmacy, Ooty on 14-10-2022 to15-10-2022.

AWARD

1. Dolphy Anto, III semester M Pharm, Dept. of Pharmaceutical Chemistry, secured 2nd prize in e-poster presentation in a National seminar on Upgrading horizons and modern insights in pharmacy at Prime College of Pharmacy, Palakkad on 20th August 2022 on the topic "An in-silico study of Pyrazoline derivatives: Their synthesis, characterization and in-vitro screening for biological activities".

PUBLICATIONS

DEPARTMENT OF PHARMACY PRACTICE

- L. Panayappan, Jes James, Joe Mariya Thankachan, Sneha Sony, Dr K Krishnakumar. Adverse effects following immunization related to covid 19 vaccine. Journal of Bioinnovation. July 2022.J.BioInnov 11 (4), PP: 1048-1057,2022 ISSN: 2277-8330
- Bincy T Abraham, Angel N Varghese, Delma C D, GittyThimothy, Irene Jaison K. A Brief Review about the Pathogenesis and Treatment of Covid-19 Hypercytokinemia. International Journal of Current Science, July 2022; 12(3): 161-165 (ISSN: 2250-1770).
- Lincy George, Maria George, C S Riya Parveen, Maria K Eldho. Impact of diabetic peripheral neuropathy, hypoglycaemic attack, diabetic foot and associated fall risks in diabetes mellitus: A review of literature. International Journal of Research Publication and Reviews. June 2022, Volume 3, PP;1628-1632
- Lincy George, Erin Xavier, Iren M George, Jesteena Jacob, Benzodiazepines use and its risk of falls in the elderly, American Journal of PharmtechResearch. June 2022. Am. J. Pharmtech Res, 2022;12(04), Page no:1-10, ISSN: 2249-3387
- Rosmin Jacob, Amala Joseph, Aiswarys Thomas, Jilbi Josey. Type 2 diabetes mellitus: A review of complications, common pathways and role of pharmacist in patient counselling. International Journal of Current Research, June 2022,Volume 1, Issue 06,PP: 21616-21620
- Bincy T Abraham, Rekha Paily, Grace Mariya, Dency Davis, Glen Loui Raphy. Oseltamivir Prescribing Patterns in Paediatrics for Lower Respiratory Tract Infection. International Journal of Current Science, 2022; 12(2): 703-713 (ISSN: 2250-1770)
- Krishnaprabha C, Ancy K F, Angel Paul, Dilna Christopher, Jeswin Jose. Depression in post myocardial infarction patients: A review. International Journal of Current Research, June 2022, Volume 14,Issue 06, PP: 21591-21595
- Happy Thomas, Sneha Jacob, Pavana Mathai, Priyanka P V. Barriers involved in intravenous to oral antimicrobial conversion therapy and thus rectifiable methods: A review. American Journal of PharmtechResearch, June 2022, Am. J.Pharmtech Res.2022;12(04),Page no;66-71, ISSN:2249-3387.
- Jisna Jose, Karmal Vincent, Deepa Mathew, Lulu Nazar. Periprosthetic joint infections: risk factors, diagnosis and its management, International Journal of Current Research. June 2022, Volume 14, Issue 06. PP: 21711-21714
- Aji Varghese, NavyaCherukadJosy, Hiba Ashraf, Rosemary George, Shreya George. Sleep deprivation in the intensive care patients. American Journal of PharmatechResearch. May 2022, Am. J. Pharmtech Res.2022;12(03), page no:1-9, ISSN:2249-3387,

DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

- Meena Chandran, Kunnambath Krishnakumar,Grace Shaji Chittilappilly. Multiple and One-Pot Synthetic Strategies for Pyrimido-Thiazine and their Derivatives. Current Organic Chemistry 2022; 26(14): 1321-1332.

DEPARTMENT OF PHARMACEUTICS

- B. Dineshkumar, Jalaja S Menon, Berin Pathrose, AC Asna, Rukam Singh Tomer, Morphological, biochemical, molecular marker, gas chromatography-tandem mass spectrometer analysis of garlic (Allium sativum L.) landraces in the rain shadow high hills of Kerala, India. Pharmacognosy Magazine 2022: 18 (77): 121-127.

DEPARTMENT OF PHARMACEUTICAL ANALYSIS

- David Paul, NagavendraKommineni,,Raju Saka, Wahid Khan, SatheeshkumarNanjappan, Stealth Liposomal Chemotherapeutic Agent for Triple Negative Breast Cancer with Improved Pharmacokinetics,Nanotheranostics2022, Vol. 6, 424-435 [I.F 5.4]
- Paul D,Nanjappan SK, Ramani R, Arumugam S, Chellappan DK. Profiling of Trace Elements and Regulatory Landscape of Dietary Herbal Supplements. In Environmental Challenges and Medicinal Plants 2022 (pp. 303-317). Springer, Cham.

FDA APPROVED DRUGS

LIST FROM APRIL 2022 - OCTOBER 2022

No	Drug Name	Active Ingredient	Approval Date	Indication
1	Vivjoa	Oteseconazole	26/04/2022	To reduce the incidence of recurrent vulvovaginal candidiasis (RVVC) in females with a history of RVVC who are not of reproductive potential
2	Camzyos	Mavacamten	28/04/2022	To treat certain classes of obstructive hypertrophic cardiomyopathy
3	Voquenza	Vonoprazan, amoxicillin and clarithromycin	03/05/2022	To treat Helicobacter pylori infection
4	Mounjaro	Tirzepatide	13/05/2022	To improve blood sugar control in diabetes, in addition to diet and exercise
5	Vtama	Tapinarof	23/05/2022	To treat plaque psoriasis
6	Amvuttra	Vutrisiran	13/16/2022	To treat polyneuropathy of hereditary transthyretin-mediated amyloidosis
7	Xenpozyme	Olipudase alfa	31/08/2022	To treat Acid Sphingomyelinase Deficiency
8	Spevigo	Spesolimab-sbzo	01/09/2022	To treat generalized pustular psoriasis flares
9	Daxxify	Daxibotilinumtoxin A-lanm	07/09/2022	To treat moderate-to-severe glabellar lines associated with corrugator and/or procerus muscle activity

10	Sotyktu	Deucravacitinib	09/09/2022	To treat moderate-to-severe plaque psoriasis
11	Rolvedon	Eflapegrastim	09/09/2022	To decrease the incidence of infection in patients with non-myeloid malignancies receiving myelosuppressive anti-cancer drugs associated with clinically significant incidence of febrile neutropenia.
12	Terlivaz	Terlipressin	14/09/2022	To improve kidney function in adults with hepatorenal syndrome with rapid reduction in kidney function
13	Elucirem	Gadopiclenol	21/09/2022	To detect and visualize lesions, together with MRI, with abnormal vascularity in the central nervous system and the body.
14	Omlonti	Oomidenepag isopropyl ophthalmic solution	22/09/2022	To reduce elevated Intraocular pressure in patients with open-angle glaucoma or ocular hypertension.
15	Vegzelma	Bevacizumab	27/09/22	Treatment for multiple types of cancer including Colorectal cancer, renal cell carcinoma, cervical cancer, fallopian tube or primary peritoneal cancer.
16	Relyvrio	Sodium phenylbutyrate/ taurursodiol	29/09/2022	To treat amyotrophic lateral sclerosis (ALS).
17	Lytgobi	Futibatinib	30/09/2022	To treat Intrahepatic cholangiocarcinoma harboring fibroblast growth factor receptor 2 (FGFR2) gene fusions or other rearrangements.
18	Furoscix	Furosemide	07/10/22	To treat congestion due to fluid overload in adults with NYHA Class II/III Chronic heart failure.
19	Imjudo	Tremelimumab	21/10/2022	To treat unresectable hepatocellular carcinoma.
20	Tecvayli	Teclistamab-cqyv	25/10/2022	To treat Relapsed or refractory multiple myeloma among adults who have received at least four specific lines of therapy.

FDA BANNED DRUGS

Date	Brand Name	Product Description	Recall Reason Description	Company Name
2/5/2022	Fagron	Syrspend SF 500mL and 4L	Potential contamination with Burkholderia gladioli	Fagron Inc.
23/5/2022	Teva	Anagrelide Capsules	Dissolution Test Failure	Teva Pharmaceuticals USA
28/5/2022	Artri Ajo King	Joint supplements	Contains Diclofenac	Walmart inc.
7/6/2022	Allergy Bee Gone for Kids	Nasal Swab Remedy	Product contains elevated levels of Bacillus cereus	Buzzagogo Inc.
8/6/2022	Major	Milk of magnesia, Magnisium Hydroxide/Aluminium Hydroxide/Simethicone Oral Suspension	Due to microbial contamination	Plastikon Healthcare, LLC
9/6/2022	SnoreStop	Nasal spray	Due to microbial contamination identified as Providencia rettgeri	Green pharmaceuticals Inc.
14/6/2022	Arti King	Artri King Reforzado con ortiga y Omega 3	Undeclared Diclofenac and Dexamethasone	Latin Foods Market
22/6/2022	CVS Health	Magnesium Citrate Saline Laxative Oral Solution, Lemon Flavor	Microbial contamination with Gluconacetobacter liquefaciens	Vi-Jon, LLC
29/6/2022	Bryant Ranch Prepack Inc.	Morphine Sulfate 30 mg extended-release tablets	Incorrect labelling	Bryant Ranch Prepack Inc.
6/7/2022	Mylan Pharmaceuticals Inc.	Insulin Glargine Injection Pens	Potential for the label to be missing on some pens	Mylan Pharmaceuticals Inc.
13/7/2022	Hospira	Propofol Injection Emulsion, USP	Potential presence of visible particulate	Hospira Inc,A Pfizer Company
15/7/2022	Multiple brand	Magnesium Citrate Saline Laxative Oral Suspension, Lemon Lavor	Microbial contamination with Guconacetobacter liquefaciens	Vi-Jon, LLC
19/7/2022	Dose vital	Honey	Undeclared active pharmaceutical ingredient	MKS Enterprise LLC

25/7/2022	Sustango	Dietary Supplement for Male Enhancement	Undeclared Tadalafil	Ultra Supplement LLC
26/7/2022	Multiple Brands	Magnesium Citrate Saline Laxative Oral Suspension	Potential Gluconacetobacter liquefaciens contamination	Vi-Jon, LLC
29/7/2022	Banana Boat	Hair & scalp sunscreen spray	Due to presence of Benzene	Edgewell Personal Care Company
2/8/2022	SANGTER	SANGTEr Energy Supplement,3000mg	Undeclared Sildenafil	Distributor RFR, LLC
3/8/2022	Launch Sequence	Launch Sequence Aphrodisia & Euphoria Capsules	Contain Tadalafil	Loud Muscle Science, LLC
4/8/2022	Major	Milk of Magnesia, Magnisium Hydroxide/Aluminium Hydroxide/Simethicone Oral Suspension	Microbial contamination	Plastikon Healthcare, LLC
22/8/2022	Hospira	Propofol Injection Emulsion, USP	Potential presence of visible particulate	HOSPIRA, Inc., a Pfizer Company
16/9/2022	Colgate	Toothpaste	Product was stored outside of labelled temperature requirements	Family Dollar
19/9/2022	Antica Farmacista	Ocean Citron Hand Sanitizer	Product contains benzene	Salon Technologies International Inc,
27/9/2022	Auromedics	Acyclovir Intravenous Product	Presence of a dark red, brown and black particulate inside the vial	Eugia US LLC
28/9/2022	My Stellar Lifestyle	Wonder Pill Capsules	Product contains undeclared Tadalafil	Proper trade LLC/My Stellar Lifestyle
29/9/2022	Golden State Medical Supply, Incorporated	Clopidogrel 75 mg Tablets, Atenolol 25 mg Tablets	Due to label mix-up	Golden State Medical Supply, Incorporated
13/10/2022	Exela & Civica	Sodium Bicarbonate Injection, USP,8.4%, 50mEq/50mL vial	Vial breakage	Exela Pharma Sciences, LLC
25/10/2022	Mylan Institutional LLC	Octreotide Acetate Injection, 500mcg/mL	Due to glass particulates	Mylan Institutional LLC, a Viatris company

25/10/2022	Aurobindo Pharma USA, Inc.	Quinapril & Hydrochlorthiazide Tablets USP, 20mg/12.5mg,90's HDPE bottle	Due to presence of Nitrosamine Drug Substance Related Impurity, N-Nitroso-Quinapril	Aurobindo Pharma USA, Inc.
7/11/2022	Adam's Polishes	Hand sanitizer	Presence of methanol	Adam's Polishes, LLC

DRUG PROFILE (Inj. FUROSEMIDE – On Body Infusor)
DATE OF APPROVAL: 07-10-2022
BRAND NAME:FUROSCIX

INDICATION:

FUROSCIX is a subcutaneous injection, Single-Use-On Body Infusor and 80mg /10Ml (8mg/mL) prefilled Catridge, indicated for the treatment of congestion due to fluid overload in adult patients with New York Heart Association (NYHA) Class II and Class III chronic heart failure.

MECHANISM OF ACTION:

Furosemide primarily inhibits the reabsorption of sodium and chloride in the proximal and distal tubules and in the loop of Henle. The high degree of diuresis is largely due to the unique site of action. The action on the distal tubule is independent of any inhibitory effect on carbonic anhydrase and aldosterone.

DOSE:

80 mg per 10 mL is administered subcutaneously using a single-dose prefilled cartridge co-packaged with a single-use on-body infusor .

DOSAGE FORMS AND STRENGTHS:

Injection: 80 mg per 10 mL as a clear to slightly yellow solution in a single-dose prefilled cartridge for use only with co-packaged single-use, on-body infusor.

DOSAGE AND ADMINISTRATION:

The single-use, on-body Infusor with prefilled cartridge is pre-programed to deliver 30 mg of FUROSCIX over the first hour followed by 12.5 mg per hour for the subsequent 4 hours

ADMINISTRATION INSTRUCTIONS:

- Inspect FUROSCIX prefilled cartridge prior to administration. FUROSCIX is a clear to slightly yellow solution. Do not use FUROSCIX if solution is discolored or cloudy.
- Load the prefilled cartridge of FUROSCIX into the on-body infusor and close the cartridge holder. Peel away the adhesive liner on the on-body infusor and apply onto a clean, dry area of the abdomen between the top of the beltline and the bottom of the ribcage that is not tender, bruised, red or indurated. The distance from the top of the beltline to the bottom of the ribcage should be at least 2 ½ inches. Start the injection by firmly pressing and releasing the blue start button. Do not remove until the injection is complete (signaled by the solid green status light, beeping sound, and the white plunger rod filling the cartridge window). Rotate the site of each subcutaneous administration.

CONTRAINDICATIONS:

- FUROSCIX is contraindicated in patients with anuria,
- FUROSCIX is contraindicated in patients with a history of hypersensitivity to furosemide
- FUROSCIX is contraindicated in patients with hepatic cirrhosis or ascites.

WARNINGS AND PRECAUTIONS:

- Fluid,Electrolyte and Metabolic Abnormalities:

Furosemide may cause fluid, electrolyte, and metabolic abnormalities such as hypovolemia,

hypokalemia, azotemia, hyponatremia, hypochloremic alkalosis, hypomagnesemia, hypocalcemia, hyperglycemia, or hyperuricemia, particularly in patients receiving higher doses, patients with inadequate oral electrolyte intake, and in elderly patients. Excessive diuresis may cause dehydration and blood volume reduction with circulatory collapse and possibly vascular thrombosis and embolism, particularly in elderly patients. Serum electrolytes, CO2, BUN, creatinine, glucose, and uric acid should be monitored frequently during furosemide therapy.

In patients with hepatic cirrhosis and ascites, sudden alterations of fluid and electrolyte balance may precipitate hepatic encephalopathy and coma. Treatment in such patients is best initiated in the hospital with small doses and careful monitoring of the patient's clinical status and electrolyte balance.

- Worsening Renal Function:

  Furosemide can cause dehydration and azotemia. If increasing azotemia and oliguria occur during treatment of severe progressive renal disease, furosemide should be discontinued.

- Ototoxicity:

  Cases of tinnitus and reversible or irreversible hearing impairment and deafness have been reported with furosemide. Reports usually indicate that furosemide ototoxicity is associated with rapid injection, severe renal impairment, the use of higher than recommended doses, hypoproteinemia or concomitant therapy with aminoglycoside antibiotics, ethacrynic acid, or other ototoxic drugs. If the physician elects to use high-dose parenteral therapy, controlled intravenous infusion is advisable (for adults, an infusion rate not exceeding 4 mg furosemide per minute has been used).

- Acute Urinary Retention:

  In patients with severe symptoms of urinary retention (because of bladder emptying disorders, prostatic hyperplasia, urethral narrowing), the administration of furosemide can cause acute urinary retention related to increased production and retention of urine. These patients require careful monitoring, especially during the initial stages of treatment.

ADVERSE REACTIONS:

- Fluid, Electrolyte, and Metabolic Abnormalities.
- Ototoxicity

  Adverse reactions are categorized below by organ system and listed by decreasing severity.
- Gastrointestinal System Reactions: pancreatitis, jaundice (intrahepatic cholestatic jaundice), increased liver enzymes, anorexia, oral and gastric irritation, cramping, diarrhea, constipation, nausea, vomiting.
- Systemic Hypersensitivity Reactions: severe anaphylactic or anaphylactoid reactions (e.g., with shock), systemic vasculitis, interstitial nephritis, necrotizing angiitis.
- Central Nervous System Reactions: tinnitus and hearing loss, paresthesias, vertigo, dizziness, headache, blurred vision, xanthopsia.
- Hematologic Reactions: aplastic anemia, thrombocytopenia, agranulocytosis, hemolytic anemia, leukopenia, anemia, eosinophilia.
- Dermatologic Hypersensitivity Reactions: toxic epidermal necrolysis, Stevens-Johnson Syndrome, erythema multiforme, drug rash with eosinophilia and systemic symptoms, acute generalized exanthematous pustulosis, exfoliative dermatitis, bullous pemphigoid, purpura, photosensitivity, rash.
- Cardiovascular Reactions: orthostatic hypotension, increase in cholesterol and triglyceride serum levels.
- Administration Site and Skin Reactions: erythema, bruising, edema, infusion site pain.
- Other Reactions: glycosuria, muscle spasm, weakness, restlessness, urinary bladder spasm, thrombophlebitis, transient injection site pain following intramuscular injection, fever

DRUG INTERACTIONS:
EFFECTS OF FUROSEMIDE ON OTHER DRUGS

Drug/Substance Class or Name	Drug Interaction Effect	Recommendations
Aminoglycoside antibiotics	Furosemide may increase the ototoxic potential of aminoglycoside antibiotics, especially in the presence of impaired renal function.	Avoid combination except in lifethreatening situation
Ethacrynic acid	Possibility of ototoxicity .	Avoid concomitant use with ethacrynic acid.
Salicylates	May experience salicylate toxicity at lower doses because of competitive renal excretory sites	Monitor for symptoms of salicylate toxicity.
Cisplatin Cisplatin and nephrotoxic drugs	There is a risk of ototoxic effects if cisplatin and furosemide are given concomitantly. Nephrotoxicity	Administer furosemide at lower doses and with positive fluid balance when used to achieve forced diuresis during cisplatin treatment. Monitor renal function.
Paralytic agents	Furosemide has a tendency to antagonize the skeletal muscle relaxing effect of tubocurarine and may potentiate the action of succinylcholine.	Monitor for skeletal muscle effect.
Lithium	Furosemide reduces lithium's renal clearance and add a high-risk of lithium toxicity.	Avoid concomitant use with lithium.
Angiotensin converting enzyme inhibitors or angiotensin II receptor blockers	May lead to severe hypotension and deterioration in renal function, including renal failure	Monitor for changes in blood pressure and renal function and interrupt or reduce the dosage of furosemide, angiotensin converting enzyme inhibitors, or angiotensin receptor blockers if needed

Antihypertensive drugs	Furosemide may add to or potentiate the therapeutic effect of other antihypertensive drugs.	Monitor for changes in blood pressure and adjust the dose of other antihypertensive drugs if needed.
Adrenergic blocking drugs or peripheral adrenergic blocking drugs	Potentiation occurs.	Monitor for changes in blood pressure and adjust the dose of adrenergic blocking drugs if needed
Norepinephrine	Furosemide may decrease arterial responsiveness (vasoconstricting effect) to norepinephrine.	Monitor blood pressure (or mean arterial pressure).
Chloral hydrate	In isolated cases, intravenous administration of furosemide within 24 hours of taking chloral hydrate may lead to flushing, sweating attacks, restlessness, nausea, increase in blood pressure, and tachycardia.	Concomitant use with chloral hydrate is not recommended.

Methotrexate and other drugs undergoing renal tubular secretion	Furosemide may decrease renal elimination of other drugs that undergo tubular secretion. High-dose treatment of furosemide may result in elevated serum levels of these drugs and may potentiate their toxicity.	Monitor serum levels of drugs undergoing renal tubular secretion and adjust the dose if needed.
Cephalosporin	Furosemide can increase the risk of cephalosporin-induced nephrotoxicity even in the setting of minor or transient renal impairment	Monitor for changes in renal function.
Cyclosporine	Increased risk of gouty arthritis secondary to furosemide-induced hyperuricemia and cyclosporine impairment of renal urate excretion	Monitor serum urate levels.
Thyroid hormones	High-doses (> 80 mg) of furosemide may inhibit the binding of thyroid hormones to carrier proteins and result in transient increase in free thyroid hormones, followed by an overall decrease in total thyroid hormone levels	Monitor the total thyroid hormone levels

Effect of other drugs on Furosemide

Drug/Substance Class or Name	Drug Interaction Effect	Recommendations
Phenytoin	Phenytoin interferes directly with renal action of furosemide.	Monitor diuretic effects of furosemide and adjust the dose of furosemide if needed.
Methotrexate and other drugs undergoing renal tubular secretion	May reduce the effect of furosemide. High-dose treatment of methotrexate and these other drugs may result in elevated serum levels of furosemide and may potentiate the toxicity of furosemide.	Monitor for enhanced toxicity of furosemide.
Indomethacin	Coadministration of indomethacin may reduce the natriuretic and antihypertensive effects of furosemide in some patients by inhibiting prostaglandin synthesis. Indomethacin	Patients receiving both indomethacin and furosemide should be observed closely to determine if the desired diuretic and/or antihypertensive effect of
	may also affect plasma renin levels, aldosterone excretion, and renin profile evaluation	furosemide is achieved

USE IN SPECIFIC POPULATIONS:

Pregnancy

Available data from published observational studies, case reports, and post marketing reports, from decades of use, have not demonstrated a drug-associated risk of major birth defects, miscarriage, or other adverse maternal or fetal outcomes with furosemide use during pregnancy. Untreated congestive heart failure and cirrhosis of the liver can lead to adverse outcomes for the mother and the fetus.

The estimated background risk for major birth defects and miscarriage for the indicated populations is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in the clinically recognized pregnancies is 2 to 4% and 15 to 20%, respectively.

Lactation Risk

The presence of furosemide has been reported in human breast milk. There are no data on the effects on the breastfed infant or the effects on milk production. Doses of furosemide associated with clinically significant diuresis may impair milk production. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for furosemide and any potential adverse effects on the breastfed infant from furosemide or from the underlying maternal condition.

Pediatric Use

Safety and efficacy for pediatric use have not been established.

Geriatric Use

Controlled clinical studies did not include sufficient numbers of subjects to determine whether subjects aged 65 and over respond differently from

younger subjects. Other reported clinical experience has not identified differences in responses between the elderly and younger patients. In general, dose selection for the elderly patients should be cautious, reflecting the greater frequency of decreased hepatic, renal or cardiac function, and of concomitant disease or other drug therapy. FUROSCIX is known to be substantially excreted by the kidney, and the risk of toxic reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection, and it may be useful to monitor renal function .

OVERDOSAGE:

The principal signs and symptoms of overdose with FUROSCIX are dehydration, blood volume reduction, hypotension, electrolyte imbalance, hypokalemia and hypochloremic alkalosis, and are extensions of its diuretic action. The concentration of furosemide in biological fluids associated with toxicity or death is not known. Treatment of overdosage is supportive and consists of replacement of excessive fluid and electrolyte losses. Serum electrolytes, carbon dioxide level and blood pressure should be determined frequently. Adequate drainage must be assured in patients with urinary bladder outlet obstruction (such as prostatic hypertrophy). Hemodialysis does not accelerate furosemide elimination.

PHARMACODYNAMICS :

In patients with NYHA Class II and Class III heart failure, subcutaneous administration of FUROSCIX (30 mg furosemide over the first hour followed by 12.5 mg per hour for the subsequent 4 hours, total 80 mg furosemide) produced similar diuresis and natriuresis to intravenous administration (two 40 mg bolus doses separated by 120 minutes) at 8 and 24 hour post-dose. The duration of diuretic effect with FUROSCIX is up to 8 hours or more after initiation of dosing.

PHARMACOKINETICS :

Absorption

In patients with NYHA Class II-III congestive heart failure, subcutaneous infusion of FUROSCIX (30 mg furosemide over the first hour followed by 12.5 mg per hour for the subsequent 4 hours, 80 mg furosemide total), the bioavailability was 99.6% (90% CI: 94.8, 104.8) with a median Tmax of 4 hours relative to 80 mg intravenous furosemide (two 40-mg bolus doses separated by 120 minutes).

Distribution

Furosemide is extensively bound to plasma proteins, mainly to albumin. Plasma concentrations ranging from 1 mcg per mL to 400 mcg per mL are 91% to 99% bound in healthy individuals. The unbound fraction averages 2.3% to 4.1% at therapeutic concentrations. Furosemide binding to albumin may be reduced in elderly patients.

Elimination

Significantly more furosemide is excreted in urine following the intravenous injection than after the tablet or oral solution. Furosemide is predominantly excreted unchanged in the urine.

Metabolism

Furosemide glucuronide is the only or at least the major biotransformation product of furosemide in man.

STORAGE AND HANDLING:

Store between 20°C and 25°C (68°F and 77°F); excursions permitted between 15°C and 30°C (59°F and 86°F). Do not refrigerate or freeze. Protect FUROSCIX from light. Do not remove the cartridge from carton until it is ready for use. Do not use if the solution is discolored or cloudy. Protect the On-body Infusor from water.

PATIENT COUNSELING INFORMATION

Fluid, Electrolyte, and Metabolic Abnormalities:

- Advise patients that they may experience symptoms from excessive fluid and/or electrolyte losses. The postural hypotension that sometimes occurs can usually be managed by getting up slowly.
- Potassium supplements and/or dietary measures may be needed to control or avoid hypokalemia.
- Advise patients that furosemide may increase blood glucose levels and thereby affect urine

glucose tests.

Photosensitivity:

- The skin of some patients may be more sensitive to the effects of sunlight while taking furosemide.
- Advise hypertensive patients to avoid medications that may increase blood pressure, including over-the counter products for appetite suppression and cold symptoms.

ADVERSE DRUG REACTIONS

The following are the Adverse Drug Reactions either reported to or detected by the Department of Pharmacy Practice during the period May 2022-November 2022

SL NO	DRUGS	CATEGORY	ROUTE	NATURE OF ADR
1	Sodium picosulfate,Milk of magenesia,Liquid paraffin	Laxative	Oral	Bloating and nausea
2	Lignocaine	Anesthetics	Oral	Sudden onset of dyspnea,Tachycardia
3	Tranexamic acid	Antifibrinolytic	IV	Allergic reaction
4	Linezolid	Antibiotic	Oral	Loose stool
5	Diclofenac	NSAID	IV	Itching over palms,Swelling all over body
6	Terlipressin	Vasopressin analogue	IV	Loose stool
7	Baclofen	Muscle relaxant	oral	Drowsiness, Dizziness,confusion
8	Vancomycin	Antibiotic	Oral	Loose stool
9	Levofloxacin	Antibiotic	IV	Itching palms and legs
10	Cefuroxime	Antibiotc	IV	Itching over back and neck
11	Nifedipine	Antihypertensives	Oral	Headache
12	Gabapentin,Nortryptalline	Anticonvulsants,TCA	Oral	Blurry double vision, Drowsiness
13	Quetiapine	Antipsychotics	Oral	Delirium
14	Heparin	Anticoagulant	IV	Hematuria
15	Oseltamivir	Antiviral	Oral	Loose stools
16	Monteleukast,Levocetrizine	Immunosuppressant,Antihistamine	Oral	Memory impairment
17	Oxcarbamazepine	Benzodiazepines	Oral	Hyponatremia
18	Clonazepam	Benzodiazepines	Oral	Disorientation and confusion

19	Ondansetron	Antiemetic	IV	Allergy, rashes ,swelling of hands
20	Iron Isomaltoside	Iron supplement	IV	Hypersensitivity reaction on hands and face
21	Aceclofenac and thiocolchicoside	NSAIDS	Oral	Rashes and itching on hands
22	Lithium	Antipsychotics	Oral	Disorientation,Tremor,Ataxia,Loose stools
23	Methotrexate	Immunosuppressant	Oral	Cirrohsis

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