



PHARMILINE

The Official Publication of Kerala Pharmacy Graduates Association
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In this issue,

- **Scientific Session**
- **World Health Day Celebrations - 2022**
- **Honouring a Legend - Dr. Sr. Betty Carla**
- **KPGA Students Forum**

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Table of Contents

Contents	Page No.
From the Chief Editors Desk Dr. CS Satheesh Kumar	5
The President speaks Dr. PK Sreekumar	6
Scientific Session	
Slips and Lapses in intravenous drug preparation and administration Veena MV, Manju CS	7
Need of cosmetovigilance in India-A review Jeny Samuel, Arathi V , Sruthy V.S, Lekshmi B	12
Activities & News	
Honouring a Legend-Dr.Sr. Betty Carla	15
Gallery	16
World Health Day Celebrations 2022 Essay writing competition Report Dr Sandhya S	17
Impact of Pharmaceutical waste on global Health	
First Prize winning Essay - N. Parvathy	19
Second Prize winning Essay- Gayathri Vinodan	20
Third Prize winning Essays- Rohith Krishnan R, Sana Zainab	22-24
Students Forum Members	25



From The Chief Editor's Desk



Dr. CS Satheesh Kumar

With great privilege and pleasure, let me greet you with great gratefulness and appreciation for all the whole-hearted cooperation you are all extending to KPGA for all the activities to date. KPGA is incessantly working for the professional upliftment of the Pharmacy graduates of Kerala.

Pharma students are our torchbearers of the future Pharmacy profession. KPGA activities are more focused on the student community this time, knowing the strength of our future generation and guiding them in the right direction. We do encourage students to sharpen their writing skills and try to include more articles from their research outcomes in Pharmline.

It's a pleasure to acknowledge the recent activity on initiating the Students' Forum in St. Joseph's College of Pharmacy Cherthala with the active participation of the Pharmacy Students. We should congratulate Dr. Sr. Betty Carla and Dr. Boby Johns G for extending all support for the grand function. Dr. PK Sreekumar and Mr. Abdul Nazir also deserve accolades for initiating this Student Forum.

I am happy beyond measure to expatiate the news on KPGA engaging in Webinar Series on Overseas Career and Research Opportunities conducted by eminent panelists from different countries. There will be 9 webinar episodes from different developed countries, out of which 7 episodes have been successfully orchestrated. Nishith and many senior members have taken the lead for the same with the president and secretary. We had an overwhelming response from students and research scholars for the webinar on Resume writing and Interview tips.

It is pleasant news to appreciate the KPGA observing World Health Day with a unique essay competition from various Pharmacy colleges in the state. The topic was 'Impact of Pharmaceutical waste on global health'. There was a very good positive response from most of the Pharmacy colleges to this very relevant topic of the day. Prizes were distributed to the first 3 winners and these three essays will find their place in this edition of Pharmline.

Lot of professional activities are in the pipeline for the vibrant team of KPGA under the leadership of Dr. Sreekumar. Wishing the team KPGA all the very best for a fruitful year ahead.

Dr. CS Satheesh Kumar
Chief Editor, Pharmline



The President Speaks

Dear Members,
Seasonal Greetings from KPGA !

I am so glad that team KPGA is strengthening day by day by membership drive which is continuing by the current executive committee. The younger generation is much attracted to our association as we take constant steps to make them confident to build up their career and future. The association is conducting a series of webinars on overseas career opportunities, guiding the budding pharmacists for their dreams to come into reality. Many eminent professionals who are working outside the country in different fields like research, clinical sector, community and hospital pharmacy sector, Industries, govt sector etc. presented on the subject very effectively and many of the professionals and future pharmacists are being guided by our Association. Webinars related to the opportunities in our own country is also being planned and KPGA also have a job portal through which the students can access these professionals for further guidance. These students would be the future leaders of our Association.

We have quite a few issues in the pharma industries sector. On March 18th KPGA sow seeds for the much talked PHARMACITY by submitting the PROOF OF CONCEPT to the Honourable Mlinister for Industries. The technical resources of our association prepared the project report covering all the essentials and presented it before the govt very effectively. Hope our dream project which can be the backbone of economy of our state and country would be a reality in the near future. The warriors behind the proposal deserve the full credit. The survival and growth of our own KSDP is also another issue on which Association takes keen interest.

Another major step is the formation of **STUDENT'S FORUM** through the effort made by the inspiring academicians. The declaration on the formation of the forum was organized by St Joseph's college of Pharmacy, Cherthala in which, legend Dr. Sr. Betty Carla was honoured. She deserves more than that and the inspiring words from her and dignitaries especially the eminent academicians in the platform definitely boosted the youngsters gathered there.

Various competitions like quiz, essay writing etc. are organized for the students of various colleges with a mission to equip them to be the contributors in the healthcare sector. The winners are awarded with attractive cash prizes and certificates. The essay subject was a very relevant one-The Pharmaceutical waste management is the need of the hour. The essays of the winners are published in PHARMLINE. The initiatives by our leaders especially from Academic side are remarkable.

I am sure that 'PHARMLINE', the official publication would bring added effect on the outlook of the professionals by sharing their knowledge and experience for the betterment of our profession. I hope the publication will have a very attractive design owing to the brain work of our new team of Editorial committee.

Let us work together for our profession.

Warm regards and best wishes,
Dr. **PK Sreekumar**, President, KPGA



Dr. **PK Sreekumar**

SLIPS AND LAPSES IN INTRAVENOUS DRUG PREPARATION AND ADMINISTRATION

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ABSTRACT

Medicines are given by different routes. Intravenous route is most preferable one that gives immediate therapeutic effect of medication. Errors may occur even in a carefully monitored healthcare setup. Intravenous medication errors have a significantly higher rate of associated death than other medication errors. In India there are no such collective reports or studies available. Errors may occur in pre-preparation, preparation, labeling and administration phase. Reasons for errors may be work overload, communication or personal problems, lack of training, experience and knowledge and lack of permanent supervision. Wrong choice of drug is extreme possible error. Failure to maintain aseptic condition during preparation and administration is another cause of error. Proper storage of injections is also very important in maintaining potency and shelf life. Stability of a reconstituted drug depends on its concentration and diluent selected. Temperature and pH of diluent also affects the stability. The addition of drugs to intravenous infusion fluid also needs careful attention. Lack of appropriate labeling is a possible error. Fast rate of administrations is most common error. Another area of error is extravasation, especially important in case of anti cancer drugs and contrast media for imaging. Safety in i.v. therapy can be insured by detecting the errors and timely action on risk factors. A hand in hand activity of utilization of skill and efforts of clinical pharmacist with nurses can definitely circumvent medication errors in wards.

Key Words – Medication error, Intravenous medication errors, Risk factors, Prevention of intravenous errors

Introduction

Medicines are a boon to mankind and are lifesaving materials but their unconcerned use causes life threatening problems. They are given by different routes, for an immediate effect given parenterally. The imperative advantage of i.v. route is immediate therapeutic effect of medication. It can sustain a high plasma drug level and may be used when a person has difficulty in swallowing. The drug when given intravenously will reach the target very quickly. So, we can provide an immediate effect in a critically ill patient. However, there are a lot of possible direct and negative effects such as pulmonary complications, thrombophlebitis, and infection with the possibility of sepsis.¹ Intravenous medication errors can cause serious consequences. WHO defines medication error is while the medication is in the control of health any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of health professional, patient or consumer.² Annually 7000 mortalities have been reported due to medication errors.³ As per valid reports and studies 80% of hospitalized patients receive intravenous therapy.⁴ In 2007 in UK, 62% of voluntarily reported incidents which led to death or other severe patient harm involved intravenous administrations.⁵

Studies from USA has also shown that i.v. medication errors have a significantly higher rate of associated deaths than other medication errors.⁵ In India there are no such collective reports or studies available. Intravenous medication error can be defined as any deviation in the preparation and administration of a drug from a doctor's legal prescription, reference books, or the manufacturer's instruction.⁶ These errors are classified into different groups based on error occurs in pre-preparation, preparation, labeling and administration phase. Most of the errors come about in drug preparation and administration. One common place of error is improper speed of drug administration in IV bolus injections. Reasons for errors may be work overload, communication or personal problems, lack of training, experience and knowledge and lack of permanent supervision. In Germany two patients died of meningitis caused by contamination of contrast media.⁸

Types of Medication Error in Intravenous Drug therapy

Errors in pre-preparation phase

Wrong choice of drug is extreme possible error. Look-alike sound-alike drugs contribute to this error. It is a cause of wrong drug selection because a manufacturer's packing being similar within the

Same company's line of products. Sound alike and spell-alike medicines are vulnerable to errors especially in generic prescribing. (Table 1)

Failure to maintain aseptic conditions during preparation and administration is another cause of error in pre-preparation. Following a practice of cleaning the preparation area, washing hands or using sterile gloves, disinfection of vials and additive ports will prevent the patients from contamination. As per "Clean your Hand" patient safety alert in UK, staff must clean their hands between patients.⁷ The intravenous medicines are prepared for immediate use so the risk of infection is small. In 2001, in Germany two patients died of meningitis caused by contamination of contrast media.⁸ Proper storage of injections is also very important in maintaining potency and shelf life. Refrigeration of Furosemide and Aminophylline injection can result in precipitation. Intact vials of Chloramphenicol sodium succinate can be stored at room temperature. Many injections should be protected from light during storage, example Carboplatin. Atropine sulphate injection is stable when stored at room temperature and protected from temperatures above 40°C and freezing.

Methyl prednisolone must reconstitute with bacteriostatic water for injection and benzyl alcohol. Some brands contain benzyl alcohol as a preservative, so there is no need for adding. It is better to follow manufacturer entrusted procedure for the reconstitution and administration. Anti-cancer drug Cytarabine should reconstitute with bacteriostatic water for injection containing benzyl alcohol. This diluent should not use for intrathecal use. In busy wards it is a usual practice to use normal saline from a common bottle as diluent for dry powders. Stability of the preparation, dose and volume should be checked before administration. Many drugs are available as sterile powder form. They are having enough shelf life in the powder form but after reconstitution they lose their potency within a short time. Reconstituted Amphotericin B is stable for 24 hours at room temperature and one week under refrigeration.¹⁵ Reconstituted Hydrocortisone sodium succinate is stable at room temperature or below if protected from light, unused solution should be discarded after 3 days and the drug is heat labile and should not be autoclaved. drug also depends on its concentration and diluent selected. For example, at room temperature.

Examples of errors-Table 1

Drug name	Drug name	Reason for error
Methylprednisolone	Medroxy progesterone	Look alike drugs due to similarity in name
Cefotaxime	Cefuroxime	Sound alike/ spell alike drugs
Tramadol	Trazodone	Sound alike drugs
Cefotaxime sulbactam	Cefaperazone sulbactam	Look alike drugs
Vecuronium	Vancomycin	Look alike drugs
Potassium chloride	Potassium acetate	Similar package

Errors in preparation phase

Errors during the preparation phase include preparation with a wrong drug, preparation of an unauthorized drug, use of wrong solvent or wrong volume, preparation of wrong dose, omission of prescribed drug and wrong storage of reconstituted drug. The use of wrong diluent may cause incomplete dissolving of drug or precipitation of drug that may bring down the therapeutic effect. The use of wrong diluent may cause incomplete dissolving of drug or precipitation of drug that may bring down the therapeutic effect. Usually water for injection and normal saline are available in hospitals but they are not suitable for all i.v. drugs. For example,

Ampicillin 30mg/ml stable up to 8 hrs in sterile water for injection; however, Ampicillin 20mg/ml stable up to 1hr in 5% dextrose in water. P^H also affects the stability of drug; Furosemide may precipitate in solutions having a P^H below 5.5 (Table 2).¹¹

Certain powdered injectable drugs tend to interact with some diluent hence they are not mixed together. Ceftriaxone interacts with ringer lactate solution and form precipitate which will affect kidney and lungs so they are not recommended to be used together.¹¹

Errors in labeling

Lack of appropriate labeling is common error.

Table 2

Drug name	Stability after reconstitution	Storage (° c)	Diluent
Ampicillin	8H	<25	Normal Saline Water for injection
Cloxacillin	24H -48H	2-8	Normal Saline Water for injection 5% dextrose in water
Benzyl penicillin	24H -7days	2-8	Normal Saline Water for injection 5% dextrose in water
Ceftriaxone	3days -10days	2-8	Water for injection 5% dextrose 10% dextrose
Cefotaxime	12H -7days	2-8	Water for injection
Meropenem	1H	<25	Water for injection 5% dextrose 10% dextrose
Hydrocortisone	48H	<25	Water for injection 5% dextrose Normal Saline
Chloramphenicol	24H	<25	Water for injection
Benzathine Penicillin	24 H -7 days	2-8	Normal Saline Water for injection 5% dextrose

So, the prepared drug should be correctly labeled if it is reserved for further use. This is very much applicable in reconstituted products of multiple doses for the same patient.

Errors in administration

The prepared drug should be given to right patient at right time through right route. Incorrect administration time is defined as the deviation of more than 30 minutes from the planned time.⁴ The rate of administration should be adjusted correctly. Fast rates of administration are associated with pain, phlebitis and loss of cannula patency.¹⁶ The quinolone antibiotic Ciprofloxacin for iv use diluted to final concentration of 1 or 2 mg/ml with a compatible diluent, administer by intermittent i.v.

infusion slowly into a large vein over 60 minutes.

The recommended duration of administration of 80 mg of Furosemide through IV line is 20 minutes i.e. 4 mg/ml. Fast administration over 45 seconds through a peripheral vein can result in tinnitus and deafness. More rapid administration may damage the blood vessels. Amikacin injection is given by i.v. infusion in adults and older children in 30 to 60 minutes. But infants should receive a one – to two – hour i.v. infusion. In a recent case report 750 mg of Vancomycin is given as i.v. bolus instead of i.v. infusion. Rapid administration of Vancomycin carries the risk reactions such as severe hypotension including shock and cardiac arrest and flushing of the upper body. Another area of

error is extravasation especially important in case of anti cancer drugs like Doxorubicin, Docetaxel, Paclitaxel, contrast media in imaging studies can cause pain, swelling, erythema, blistering, necrosis in the subcutaneous or subdermal tissues surrounding the intravenous or intra-arterial administration site.

There are chances of shifting patients to another ward at lunch time due to various reasons; at that time patient's lunch time dose may be skipped. These become a problem in anti-infective therapy. Usually, wrong administration time errors do not result in an adverse event. Hence, they are eliminated from studies.

Prevention of IV medication error

Safety in i.v. therapy can be ensured by detecting the errors and timely action on risk factors. Possible risk factors include work over load in wards, lack of training, experience and knowledge, lack of permanent supervision and communication or personal problem. These problems can be reduced by,

- Proper training to staff regarding guidelines of injections, reconstitution procedure, storage and standard administration procedure.
- Continuous supervision and correction of errors. Involvement of the clinical pharmacists as the key health professionals in ward practice.
- Double checking system for injections with particular care on dangerous and orthographically and phonetically similar drugs.
- Usually manufacture's leaflets are used as guidelines for reconstitution and administration of i.v. drugs. A guideline must be prepared and that can be distributed to the wards that help to minimize the doubts and confusions regarding i.v. drug preparation and administration.
- Establishment of central preparation of intravenous medication and i.v. admixture preparation area can reduce errors in i.v. admixture.

Pharmacist's role in administration

The quintessential aim of the pharmacy profession is to ameliorate public health through ensuring safe, effective, and appropriate use of medications.

Clinical Pharmacist being an expert in medications can play a significant role in nurse training, implementing error reporting protocol system. Clinical pharmacist can provide advice on compatibility and stability for the use of multiple drugs in i.v. administration.

Conclusion

A high prevalence of errors occur in the preparation and administration of intravenous drugs. Although most of the errors do not cause significant harmful effects to the patients, we should avoid them for standardized patient care. Upon receiving about 10 doses there is a chance for one error because in most wards have no separate room or a dedicated area for drug preparation. The i.v. medications are prepared in the middle of a busy ward and nurses are frequently interrupted and distracted during the process. Presently the pharmacists had a very limited role in ensuring the accuracy of i.v. medication preparation and administration process. Nurses are fully responsible for the transcription, preparation and administration of i.v. medications along with their busy schedule of the patient care activity. A hand in hand activity of utilization of skill and efforts of clinical pharmacist with nurses can definitely circumvent medication errors in wards.

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Review Article**NEED OF COSMETOVIGILANCE IN INDIA- A REVIEW**

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ABSTRACT

Cosmetic industry in India is mature and growing in terms of product developments and marketing because user's preferences are changing from only cosmetic, to more functional, advanced and specialized products. India is the fourth largest cosmetic market in Asia pacific region. But the unwanted or adverse reaction due to cosmetic products goes unnoticed due to lack of proper organized reporting system. In India, the pharmacovigilance system monitors the adverse drug reactions and recently consideration is also being given to medical devices, blood products (in 2012), biologics, and special nutritional and natural products, however adverse reactions related to cosmetic products have still remained unmarked. It is time that India should also initiate a formal cosmetovigilance system. This could contribute to increasing the safe use of cosmetics which is important for the safeguard of public health. In the year 2014, Martine Vigan and Florence Castelain recommended in their study that proper use of cosmetovigilance system can help to regulate or eliminate harmful ingredients present in cosmetics and subsequently boost our confidence on safe use of these products².

Key words: Pharmacovigilance, Cosmetics, Cosmetic act

Introduction

People today consider cosmetics to be a "must-have" item in their daily life. Cosmetics in India are governed by the D&C and cosmetics rules 2020.

The usage and import of arsenic and lead-containing substances are prohibited under rules 135 and 145 respectively. The laws 135A and 145 D make it illegal to use cosmetics that contain mercury. Import of hexachlorophene-containing cosmetics is prohibited under Rule 134A. Cosmetic items must contain colour, dye, or pigment as described by schedule Q and the Bureau of Indian Standards.¹

The concept of pharmacovigilance in cosmetics is very new, and it differs from industry surveillance, the primary aim of which is the use of safety information for commercial purposes. The phrase "Pharmacovigilance" refers to the tasks of collecting detecting, assessing, monitoring and preventing medication-related adverse events.

Recently, the spectrum of "vigilance" has broadened to include safety of herbal products and cosmetic products as well. Cosmetovigilance"

was introduced as a new term used for defining surveillance carried out by industry to address the safety of cosmetic products with a public health objective. Martine Vigan (1997) was the first to use the term in the literature to refer to the monitoring of cosmetic product safety². Cosmetovigilance was initiated by the French health products safety agency as a part of pharmacovigilance system for cosmetics. Today, it is recognized globally as a concept of public health. Cosmetic is defined under the Drugs and Cosmetics Act, 1940 as, any article intended to be rubbed, poured, sprinkled or sprayed on, or introduced into, or otherwise applied to, the human body or any part thereof for cleansing, beautifying, promoting attractiveness or altering the appearance, and includes any article intended for use as a component of cosmetic¹.

Classification of Cosmetics

Cosmetics are divided into four gross categories with the following sub classification.

1.Skin products: Products for skin care, cleansing, removal of body hair, body hair bleach, body odor corrective products, products for shaving (pre or after shave) , products for makeup, perfume,

products for sun, and self-tanning and others. 2. Hair and Scalp products: Cleansing and care products, products for hair coloring, hair styling products, and other products for hair and scalp care.

3. Nail and cuticle products: Nail varnish and remover, products for nail care and nail hardening, product for nail glue removing and other products for nail and cuticle care.

4. Products for oral hygiene: Tooth care, tooth whiteners, mouthwash and breath spray and other products for oral hygiene

Reviewing of relevant literatures showed that most of the cosmetic users focus on the short-term result of their appearance instead of the long-term side effects to the whole body. Usually, they assume that cosmetic products are safe and pose no risk to the human health. It has been found that one of the most common evil effects of cosmetics is allergic contact dermatitis (ACD). This may occur due to the presence of allergens in the cosmetic products. The most common of which are fragrances and preservatives. Heavy metals are also commonly present as impurities in trace amount in cosmetics and personal care products. Since these are product impurities, their presence is not required to be mentioned on the label but these metals are known to be cumulative poison due to their long half-life. These elements example- lead and cadmium are not only dangerous to humans but also to animals. Some of them may damage external or internal organ even at low concentration. These reactions can occur immediately after application of the cosmetic product or on their long-term usage³

Lack of awareness about proper use of cosmetics and lack of proper adverse effect reporting systems are still into existence in India and other developing countries. Over recent years, the global cosmetic market is increasing at an alarming rate, driven by needs of the consumers who are increasingly concerned about their appearance, but simultaneously, a large number of cosmetic users are threatened with cosmetic related adverse events irrespective of gender. Some cosmetic manufacturers are not complying to standards when it comes to the safety of their cosmetic products as they are still using prohibited substances and chemicals as ingredients in their products due to their cheap price and effectiveness, despite being aware of the possible

adverse reactions that might occur. These irresponsible manufacturers also disguise their fake cosmetic products with similar names and packaging as the original products and sell them at lower prices so as to earn high profits from the low-income consumers.

Even though most cosmetic products are usually well-tolerated, as seen with medicine, undesirable effects can be seen with cosmetics and toiletries. However, the knowledge and identification of these effects are challenging because of the lack of standardized reporting forms and validation of the reports in this field. In addition, the absence of well-established cosmetovigilance systems is another limitation. It has been reported that adverse effects of cosmetics and toiletries are underestimated, even when the consumers (patients) pursue medical consultation⁴.

The hazards of cosmetic ingredients

Globally, on an average, nine cosmetic products are being used by an adult daily. Nearly 25% of women are using 15 or more products in a day. Multiple ingredients are used in cosmetics, they are one of the commonest causes of toxicity. During the manufacturing of cosmetic products various chemicals like preservatives and fragrances are added which may be harmful to the human body as some of them are known to have carcinogenic/mutagenic potential leading to reproductive toxicity and endocrine disruption. Presence of these chemicals in the cosmetic products can produce adverse effects or reactions in the body. These effects may be seen either immediately after use or after chronic use. The commonly seen adverse reactions are- dermatitis, tissue damage, infection, discoloration, bleeding, nervousness, respiratory system reactions, vomiting, diarrhea, urogenital reactions, and flammability induced death⁵.

Due to the absence of any formal and reliable monitoring systems (i.e. Cosmetovigilance) such adverse reactions often remain unnoticed or unreported. In an attempt to overcome this problem, the FDA established a network system for the sake of gathering consumer complaints. Likewise, European countries have also designed a project intending to collect information on cosmetics utilization pattern which can be used as an input for adverse reaction assessment.

Cosmetovigilance status at a global level

France: It constituted a cosmetology commission. Later on, in the year 2002 the working group on the safety of use of cosmetic products (GTSPC) was established with a goal to formulate the basis of a national cosmetovigilance system and to provide the organization with data on adverse effects related to cosmetic products.

Europe: Various researches were conducted by the European consultations, consequently all the member states of European council were advised to develop a system for recording and collection of the undesirable effects of cosmetic products in order to protect human health.

This led to creation of cosmetovigilance system in **Belgium, Norway, Sweden, Denmark, Germany, and Italy.**

Netherlands: The Netherlands Food and Consumer Product Safety Authority and Ministry of Health agreed to monitor harmful effects of cosmetics and express their willingness to work toward establishing a cosmetovigilance network.

United States: Under the US Food Drug and Cosmetic Act 1938, an agency was established which is responsible for the safety of Personal Care Products (PCP)/Cosmetics. The US Food and Drug administration has made labelling and purity of cosmetics mandatory for marketing of cosmetics in the United States. Thus, it is the responsibility of the manufacturer in United States to provide good quality cosmetic products. If a cosmetic has not been measured for safety by the manufacturer. Then they must put a warning label. In 2008, the Personal Care Products Council (PCPC) initiated a programme called the Consumer Commitment Code (CCC) on a voluntary basis for all the companies in the industry.

Japan and East Asia: Amongst all industrialized countries, Japan has the most stringent regulations for the safe use of cosmetics and cosmetic ingredients. Categorization of cosmetics is similar to US regulation but some additional categories are also added in Japanese regulations called- quasi drugs. Japanese regulations mandate a registration process for cosmetic products which should include the evidence for efficacy and safety of them. Following Japanese model, other Asian countries like *China, South Korea, Taiwan*, and others have

introduced a cosmetovigilance system⁵.

Conclusion

Cosmetic industry in India is mature and growing in terms of product developments and marketing because preferences of users are changing from only cosmetic, to more functional, advanced and specialized products. India is the fourth largest cosmetic market in Asia pacific region. But the unwanted or adverse reaction due to cosmetic products goes unnoticed due to lack of proper organized reporting system.

In India, the pharmacovigilance system monitors the adverse drug reactions and recently consideration is also being given to medical devices, blood products (2012), biologics, and special nutritional and natural products, however adverse reactions related to cosmetic products have still remained unmarked. It is time that India should also initiate a formal cosmetovigilance system. This could contribute to increasing the safe use of cosmetics which is important for the safeguard of public health. In the year 2014, Martine Vigan and Florence Castelain recommended in their study that proper use of cosmetovigilance system can help to regulate or eliminate harmful ingredients present in cosmetics and subsequently boost our confidence on safe use of these products².

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News & Activities

World Health Day Celebration & Honouring Dr.Sr. Betty Carla



Honouring Dr.Sr. Betty Carla, Director, St. Joseph's College of Pharmacy, Cherthala during World Health Day Celebrations 2022 Jointly with Kerala Pharmacy Graduates Association

World Health Day Celebrations-2022 were conducted at St. Joseph's College of Pharmacy, Cherthala jointly with the Kerala Pharmacy Graduates Association on 6th and 7th April at the College Auditorium. This year's theme was "Our Planet, Our Health." The programme also witnessed the honouring of a legend in Pharmacy education, Dr.Sr. Betty Carla, Director of St. Joseph's College of Pharmacy, on Wednesday, April 6th. The welcome address was delivered by Prof. Dr. Boby Johns G, followed by the inaugural address by Dr. PK Sreekumar, KPGA President. A brief overview of KPGA was presented by Mr. Abdul Nazeer PU, Gen. Secretary, KPGA of KPGA. Dr.Sr. Daisy PA, Principal, St. Joseph's College of Pharmacy, gave a briefing about the college, its vision and mission. The dignitaries who felicitated Dr.Sr. Betty Carla included Sr. Miriam MSJ, Provincial Superior, senior academician, Prof. AC Vyasam, Retd.HOD, COPS, Govt Medical College Kozhikode, Prof. Dr. John Joseph, Principal, Lisie College of Pharmacy, Kochi, Dr. Subhash Philip Vice Principal, DJMIPS, Kattanam, Mr. Praveen Raj, KUHS Senate member, St Joseph's College of Pharmacy, and Mr. Suresh MR, Librarian, St Joseph's College of Pharmacy. A memento and Ponnada were presented to Dr.Sr. Betty Carla in the function by KPGA Officials and other dignitaries. In her reply speech, Dr.Sr. Betty Carla thanked all the KPGA office bearers for arranging the function and also shared her life experiences. The gathering also honoured students of St Joseph's College of Pharmacy, Ms. Ancy Thomas, M. Pharm, first rank holder in Pharm. Chemistry, Mr. Gowtham Raj, third rank holder in Pharmacology under KUHS and Ms. Sonu Benny, PhD research scholar at Amrita School of Pharmacy, Kochi. The declaration of the students wing of KPGA was done by KPGA President along with secretary and certificates were presented to the newly joined student members. This was followed by different scientific sessions.



Gallery

St. Joseph's College of Pharmacy, Cherthala



KVM College of Pharmacy, Cherthala



News & Activities

Visit to KVM College of Pharmacy, Cherthala

The honourable president, Dr. PK. Sreekumar, and general secretary, Mr. Abdul Nazeer PU, visited KVM College of Pharmacy, Cherthala on April 6th after attending the World Health Day Celebrations organized jointly by KPGA and St. Joseph's College of Pharmacy. Principal of KVM College of Pharmacy, Dr. Anitha Mary Mathews welcomed and introduced the guests to the students at a specially convened meeting. President Dr.PK. Sreekumar spoke to the students about KPGA and its activities at length in his own witty and humorous way. Mr. Abdul Nazeer also captivated the audience by emphasizing the importance of staying connected with one another for their own good and the good of the pharmacy profession as a whole. Both of them encouraged the students to attend the webinar series and other activities organized periodically by KPGA. Ms. Sonu Benny addressed the gathering, representing the KPGA student wing. The KVM family is grateful to the KPGA team and wishes them all the best in their endeavours.

World Health Day Celebrations 2022-Essay Writing Competition Report



Dr. Sandhya S
Exec.member, KPGA

Kerala Pharmacy Graduates Association (KPGA), jointly with Indian Pharmacy Graduates Association (IPGA), organised an essay writing competition on the topic “**Impact of Pharmaceutical Waste on Global Health**” for Pharmacy students as part of observance of **World Health Day 2022** with the theme ‘**Our Planet, Our Health**’. World Health Day is celebrated on April 7th to raise awareness about the ongoing health issues that concern people across the world.

The competition was aimed to encourage the young talented students to update themselves and to frame their own stands for being better professionals who love mother earth and nature. The above mentioned essay topic was selected to inspire our young budding pharmacists who are

tomorrow's eminent healthcare professionals to take care of the community who are not much aware of hazards interconnected with improper disposal of pharmaceutical waste. An invitation mail was sent to principals of all the Pharmacy colleges to conduct the competition for all the B. Pharm, Pharm.D and M. Pharm students on 30th March 2022, at 1.00 pm at their respective colleges.

For ease of communication and smooth conduct of the program, the association informed the colleges to appoint a coordinator and one or two evaluators for the preliminary round of evaluation. After the competition, the coordinators were instructed to email the scanned copy of the best two essays on or before 3rd of April 2022. We received an overwhelming response from 18 pharmacy colleges namely,

1. Dr. Joseph Marthoma institute of pharmaceutical sciences and research, Kattanam
2. K.T.N. College of Pharmacy Palakkad
3. Prime College of Pharmacy, Palakkad
4. Sanjo College of Pharmaceutical Studies, Palakkad
5. Dale View College, Thiruvananthapuram

6. Grace College of Pharmacy, Palakkad
7. Chemist college of Pharmacy, Ernakulam
8. Nirmala College of Pharmacy, Ernakulam
9. Ezhuthachan College of Pharmaceutical Sciences, Thiruvananthapuram
10. Crescent College of Pharmaceutical Sciences, Kannur
11. Amrita School of Pharmacy, Kochi
12. Karuna College of Pharmacy, Palakkad
13. Moulana College of Pharmacy, Perinthalmanna
14. National College of Pharmacy, Kozhikode
15. St. James College of Pharmaceutical Sciences, Chalakkudy
16. K.V.M. College of Pharmacy Cherthala
17. St. Joseph's College of Pharmacy, Cherthala
18. College of Pharmaceutical Sciences, Govt. T D Medical College, Alappuzha

These Colleges conducted the program by strictly adhering to the rules and regulations set by the association. Several Colleges send us the photographs as proof, and the association feel extremely proud of our Pharmacy colleges.

For the final round of evaluation, the association appointed three evaluators Mrs Sangeetha, Executive member KPGA, Dr Jeny Samuel, Professor, St Joseph College of Pharmacy, Cherthala, Dr Sandhya S, Executive member KPGA and a blind review was conducted. From the essays the identity of students was removed and a code was incorporated on the pdf, so that a sincere and justifiable evaluation could be performed. The average of all the three marks of each student was calculated and the first, second and third prize winners were selected. N Parvathy, Third Year Pharm.D, Amrita School of Pharmacy, Kochi, secured first prize followed by second prize by Gayathri Vinodan, Sixth Semester B. Pharm, Amrita School of Pharmacy, Kochi. The third prize was shared by Sana Zainab, Third Semester B. Pharm, Karuna College of Pharmacy, Palakkad

along with Rohith Krishnan, First Semester B.Pharm, Prime College of Pharmacy, Palakkad.

The first prize winner received a cash prize of Rs 3000/-, Second prize winner Rs.2000/- and third prize winners Rs.1000/- each and a certificate of merit and a letter of appreciation. The cash prize in the form of cheque, certificate and the letter of appreciation were handed over to the students after proper communication with their Institutions.

The prize winners' essays are published in this edition of Pharmline.



World Health Day 2022 Essay Competition Winners

First Prize: Ms. N. Parvathy,

Third year Pharm.D,
Amritha School of Pharmacy, Kochi

Second Prize: Ms. Gayathri

Vinodan,
Sixth Semester B. Pharm,
Amritha School of Pharmacy, Kochi

Third Prize: Ms. Sana Zainab,

Third Semester B. Pharm,
Karuna College of Pharmacy,
Palakkad

&

Mr. Rohith Krishnan R,
First Semester B. Pharm,
Prime College of Pharmacy, Palakkad

World Health Day Celebrations 2022 -Essay Writing Competition

First Prize

Impact of Pharmaceutical Waste on Global Health

N Parvathy, Third Year Pharm.D, Amrita School of Pharmacy, Kochi, Kerala, India

Large wingspan, dull brown coloured feathers and a bald head, are the distinctive characteristics of a vulture, the bird which seems frightening in its appearance but it's pretty harmless. These animals are scavengers feeding on dead and decaying animals for their nutrients. Vultures are vital in the ecosystem to prevent the transmission of diseases by disposing of rotting meat. But in 1996, India saw a significant decline in these birds; why? Diclofenac, the vultures scavenging on human remains left by the Parsi community, ended up with toxic levels of pharmaceuticals in them. This led to the decline of pharmaceutical waste which has an enormous impact on global health.

The pharmaceutical waste consists of the effluents, reagents, products, or chemicals left after using drugs, during their production, or after their formulation. The main constituent of pharmaceutical waste is the Active Pharmaceutical ingredient, API. These could be hormones and anti-depressants. The world has witnessed many instances where the indiscriminate use of pharmaceutical products puts others in danger. The Potomac River in the United States of America is populated with male fish that have characteristics of female fish due to the run-off of contraceptive hormones into the water. The effluent in Hyderabad was found to be filled with ciprofloxacin. Hyderabad in South India is famous for manufacturing antibiotics for worldwide use, and one factory repeatedly releases up to 44 kg of antibiotics a day.

The significant reasons for mismanagement of pharmaceutical waste are lack of facilities for proper disposal and insufficient knowledge regarding the consequences. The significant impacts of this practice are

- Increase in the antibiotic resistance
- Decreased efficiency of medicines
- The increased cost of the Pharma Industry

- Damage to the ecological balance
- A rise in diseases such as cancer
- Antibiotic resistance

This is the resistance of microorganisms to previously susceptible antibiotics. It occurs due to the exposure of the microbe to that antibiotic in concentrations that are not strong enough to kill it or for a duration longer than prescribed. One major cause of antibiotic resistance is the unnecessary use of excessive amounts of antibiotics in farm animals—this runs off into the groundwater and the freshwater supplies of that area. Exposure of people to the toxic chemicals produced during the production or decomposition of API may have carcinogenic changes in their tissue. Many anticancer drugs themselves are known as carcinogenic. Exposure to these materials may lead to the future development of cancer. Getting exposed to pharmaceutical waste may be detrimental to the pharmaceutical industry itself. With the increase in the resistance of microbes to antibiotics and other drugs, there is less demand for those drugs. Thus, the market for these medicines is reduced. This leads to the rising pressure to find newer and more effective antibiotics and most effective antibiotics. This can cost pharmaceutical companies billions of dollars worth of time and effort.

As Paracelsus said in the 16th century, "the dose makes the poison" the amount of medicinal residues in the atmosphere and water is sufficient to confer them toxic status. It is of utmost importance that we recognize the impact of pharmaceutical waste on Global Health and take appropriate measures to relieve its adverse effects. Thus, we must ensure that the wrongdoers are punished accordingly, ensure disposal guidelines are met and that facilities for the proper and timely disposal of pharmaceutical waste are present in an area.

World Health Day Celebrations 2022 -Essay writing Competition

Second Prize Impact of Pharmaceutical Waste on Global Health

Gayathri Vinodan, Sixth Semester B. Pharm, Amrita School of Pharmacy, Kochi, Kerala, India

Pharmaceuticals have been developed to improve the quality of human life. But have we ever taken a pause and talked about whether it can do just the opposite? Pharmaceutical waste can refer to expired and used unwanted drugs. They can come either from bulk manufacturing units or from the consumers. Proper methods of disposal of pharmaceutical waste are essential. Disposing of them must be handled as carefully as their production is. Most manufacturing units dispose of them off into nearby water bodies directly or after partial treatment. This waste cannot be considered to be the same as domestic waste. The procedures generally carried out for wastewater management do little good to these pharmaceutical wastes. They require a lot more processing and careful segregation before they can be disposed of someplace else.

Improper pharmaceutical waste management methods have primarily been observed in bulk manufacturing units, which has impacted households in their vicinity. Analysing water bodies near such units has come up with results providing information about dangerously high levels of drugs and Active Pharmaceutical Ingredients (API), including analgesics such as Ibuprofen, antibiotics, contraceptives, hormones much more. Concentrations of these drugs are low (mg/L) and aquatic flora and fauna, thus, affecting their populations as well. This kind of accumulation has a far more devastating effect on human life than that which can occur directly from water sources, an effect known as biomagnification. These drugs tend to get accumulated in the Organisms such as human beings, which are higher up in the food chain, get far more affected by this than those present at the lowest levels of the food chain. Some of the toxic effects resulting from these improper methods of infertility and many other disorders. A case study was also conducted that found many new borns

died because of multidrug resistance.

Another complication that arose from this was increased tolerance and resistance of various microorganisms to antibiotics. It has been found that 95% of antibiotics can be released or unaltered into water bodies. This has led to a rise in the ineffectiveness of the existing antibiotics, as *Gram* microorganisms have gradually adapted to them. There have also been observations of changes in microbial structure, enabling them to develop resistance to these antibiotics.

Studies have shown a particular species of male fish that have now become 'inter sex'. i.e., it also has male characteristics. The root cause of this has been found due to exposure to ethinyloestradiol. Similarly, exposure to such hormones has caused a decline in the aquatic population levels.

Proper careful, and calculated measures are taken to manage and dispose of generated pharmaceutical waste can help prevent these. Methods to manage these wastes have to be developed and/or optimised. Direct discharge of garbage without a touch of treatment was not done. A revision of good manufacturing practices must be done; keep these factors in mind. Approvals must be granted as well an inspection is conducted with these conditions followed. Solid waste must be segregated adequately into bins, each with its purpose.

At a clinical/hospital level, sharp bins are to be used for disposing of objects that must be hard to retrieve, such as needles, lancets etc. Similarly, hazardous materials are disposed of in yellow bags. We must take care while disposing of expired, unused drugs at a domestic level. There has been a rise in the organisations that stand for proper management and disposal of pharmaceutical wastes. Era Pharm and HCWH are some of them. These organisations focus on

waste management and disposal at the industrial level, based on the data from various studies conducted. It is absolutely imperative to come up with reliable methods to manage pharmaceutical wastes, especially from the viewpoint of our country, which is the 5th on a global level as a generic drug producer. One can only imagine the wastes generated due to this and the deleterious effects it would have already produced. To prevent this from going any further. We need to act now, or else these effects will 'snowball' into our future generations and their future !

World Health Day Celebrations 2022 Essay Writing Competition

Impact of Pharmaceutical Waste on Global Health

Third Prize

Rohith Krishnan R, First Semester B. Pharm, Prime College of Pharmacy, Palakkad, Kerala, India

Introduction

Pharmaceuticals are an important part of human life. The health of an individual depends on the certain factors like resources food water medicine and mainly pharmacy has many advantages but even though it helps life to sustain on earth they create some problems too. Pharmaceutical products create some adverse effect on environment. They produce certain non degradable waste that cannot be decomposed and cause harmful effect on environment not only its products but its producing industries too creates problems.

Adverse effects of Pharmaceutical Waste

Some of active ingredients that are used as drugs are very harmful to environment. Even some products like syringes, gloves, are not disposed properly causes land pollution. Since they are non-biodegradable products syringes can also cause many miseries too. If a syringe is used in a patient and not disposed properly will spread a lot of diseases some diseases caused are HIV etc. Reuse of the syringe also cause the spreading of diseases like malaria, TB etc.

Effect in industries

Many industries that are used in pharmaceutical products will cause certain environmental issues. water resources near these are set polluted and people living near the industries will be affected with certain issues like lack of water, lack of good environment. The waste products from industries are drained in to rivers and oceans. Which will affect the aquatic life that will cause effect on human and many people living near industries and these water bodies.

Adverse effect on climate-

Acid rain

Even smoke that arise from the chimneys of industries contain oxides and sulphides that

reacts with atmospheric oxygen and causes acid rain. Acid rain causes certain skin problems which can lead to skin cancer and cataract on humans. That also cause harmful effect on another organism. Thus, even causing death of organisms

Ozone layer depletion

Increased production of chlorofluorocarbon by industries will cause depletion of ozone layer which will result in ultraviolet rays are directly falling to the earth which causes skin cancer and even death.

Global warming

Increase in level of atmospheric gases like carbon dioxide (greenhouse gases) causes the rise in temperature. As a result, some studies say that polar glaciers of Antarctica are melted and water level is increased.

Effect of acid rain on building

Acid rain causes harmful effect in certain buildings especially to Taj Mahal as the white marble turns yellow and the beauty of the monument is affected

How to reduce the harmful effect

People should be aware of the importance of health. WHO celebrates World Health Day on April 7th as a part of anniversary of WHO. People should be provided with the awareness classes about importance of health.

Measures taken by government

Government should take certain measures to reduce the harmful effect. They should implement certain laws for industries in order to reduce waste.

Waste treatment plants

Many industries should start with and improve waste water treatment plants to reduce harmful effect of waste. It would help to reuse the waste

produced and even convert them to useful products which would also help to treat biological systems.

Conclusion

- It is very important to reduce waste in environment.
- It is the responsibility of every individual to protect our planet.
- Pharmacy is very important, but also creates adverse effects.
- Government should undertake certain schemes to reduce waste.
- Waste should be treated properly and should be in correct manner

“Think safely; Act locally”

We should respect our earth and should retain its resources for future environment

“If wealth is lost nothing is lost but If health I lost something is lost”

Good healthy body would help to provide good life and to live happily with family.

World Health Day Celebrations 2022 Essay Writing Competition

Third Prize

Impact of Pharmaceutical waste on Global Health

Sana Zainab, First Semester B. Pharm, Prime College of Pharmacy, Palakkad, Kerala, India

Everyone is the author of the one's own or his own disease or health" as said by Gautama Buddha. We are the most prominent identities which are responsible for global health so that it is therefore it is one's responsibility towards global health by maintaining pharmaceutical waste.

Pharmaceutical waste is one of the hazardous and most prominent waste products depending the varying concentration of chemicals or poisonous drug present in it is much potent towards global health.

Various vitamin and other drug supplements can be nonhazardous only when the amount of chromium selenium ions is up to the limit beyond there it can give harmful effects on global health.

With flourishing pharmaceutical industries throughout the world, it is therefore necessary bring the global attention towards global health.

Various pharmaceutical industries do not have a fixed rigid plan to decide how to dispose the pharmaceutical waste.

Lots and lots of pharmaceutical waste products are released every day, during the production and manufacturing of medicines it may include poisonous drugs, antibiotics, radioactive elements etc.

When the Pharmaceutical waste is dumped in to landfills, it can cause death of several receiving species and those when discharged in to the underground it can become a sewage problem.

It is necessary to have a progressed and efficient waste management. It is better to begin now itself rather than waiting it to be more pollutant. It is said that "slow progress is far better than no progress" Now a days it is often seen that those expired drugs use medicines which are present in pharmacy are sent back to pharmaceutical company. This is one of the factors which is important as it is present in the exploitation of drug and people dumping it in to

Various places like soil, water etc. which could be harmful.

All the pharmaceutical companies or industries must collect the pharmaceuticals and medicines and they could then process them and can be used to make any other useful products or it can be recycled.

Government should introduce or bring various other agency that promote the pharmaceutical waste management treatment by forming organizations like Environment Waste Management Agency and there is even drug enforcement agency (DEA) which should introduce idea towards the waste disposal and their treatment program.

These pharmaceutical wastes are the most hazardous as they can Impair the air, water and the organism sustain in the world. "Well function of the ecosystem is essential for the good health and global health "as they only give us goods and services that are needed for the health of organisms sustaining.

"Each and every individual is responsible for global health as health is the greatest gift "as said by Buddha. Only clean air, fresh drinking water and pollution free environment can lead to a good health. Being in a polluted area and being unhealthy can cause us nothing other than "cost of medical bills"

Pharmaceutical waste products can damage the soil and can cause pollution and their disposal to the sewage can also degrade and cause the death of large number of organisms in sea water.

Health is the greatest wealth a person can achieve so, I conclude my words by saying "Stay healthy and positive mind, introduce ideas for the waste management treatment "as our globe is not only for ourselves but also for coming generations to live.

KPGA Students Forum Members (St. Joseph's College of Pharmacy, Cherthala)

Third Semester M. Pharm Pharmaceutics



**Albin T
Thottankara**



Amina R



**Anu Treesa
Thomas**



Devika Rajan



Vrasha M

Fourth Year Pharm.D



Harikrishnan R



Shinto Sen



Pooja MS



Anju Susan Babu



Savya Kurien



Agna Maria Rejy



Jani Sandra Thomas P



Aparna Gregorious



Betsy C Biju

The students Forum of Kerala Pharmacy Graduates Association was officially declared by the President Dr. PK Sreekumar on 06th March, 2022 at St. Joseph's College of Pharmacy, Cherthala.



KERALA PHARMACY GRADUATES' ASSOCIATION

VALEDICTORY FUNCTION

WEBINAR SERIES ON OVERSEAS CAREER/RESEARCH OPPORTUNITIES FOR PHARMACY STUDENTS

Sunday 10 July 2022

7:00 pm to

Meeting ID : 815 2108 8393

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[Click here to join
the meeting](#)



Welcome Speech



Mr. P U Abdul Nazeer
General Secretary, KPGA

Presidential Address



Dr. P.K. Sreekumar
President, KPGA

Inauguration



Prof. (Dr.) MILIND J. UMEKAR

Central President Association of
Pharmaceutical Teachers of India & Principal,
Smt. Kishorital Bhojar College of Pharmacy,
Nagpur Maharashtra

Report



Dr. Nishith M.C
Joint Secretary, KPGA

Honouring the Speakers



Prof. A K Chandrasekharan
Patron, KPGA

Felicitation



Dr. Satheeshkumar C.S.
President, IPGA
Kerala State Branch

Felicitation



Dr. Jayasekhar P
President, IPA
Kerala State Branch

Felicitation



Dr. Sabitha. M.
Principal, Amilla School of
Pharmacy, Cochin

Felicitation



Mr. Mathew Kokkad
Former President,
Kerala Drug
Manufacturers
Association

Vote Of Thanks



Dr. Bobby Johns G
Edt. Board Member,
Pharmline & Professor, St.
Joseph's College of
Pharmacy
Cherthala

Motivational Speech



Prof. Dr. V. Gopal

Registrar - Academic,
Principal - College of Pharmacy,
Mother Theresa P.G & R Institute of
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Puduchery.

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Inpatient and Sterile
Compounding Pharmacist, Danat
Al Emarat Women and Children
Speciality Hospital
Abu-Dhabi, UAE

STUDENTS FEEDBACK

Kerala Pharmacy Graduates Association



PHARMLINE-The Official Publication Of Kerala Pharmacy Graduates Association

PHARMLINE is the official publication of KPGA and is published since 1981. Pharmline is a tri annual publication.

The main aim of the publication is to keep pharmacists informed on current issues and best practices, as well as serving as a platform for the exchange of ideas, knowledge and opinion among pharmacists and related disciplines.

The publishers welcome contributions of pharmaceutical relevance.

Original articles are considered for publication on the condition that they have not been published, accepted or submitted for publication elsewhere.

The editor reserves the right to edit manuscripts to fit articles with in space available and to ensure conciseness, clarity and stylistic consistency.

All scientific articles submitted for publication are subject to a double blind review procedure. Please send your articles to kpgapharmline@gmail.com

Contact us

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