

PHARMA TAB



Department of Pharmacy Practice

C.L. BAID METHA COLLEGE OF PHARMACY

Owned and Managed by Tamilnadu Chemists and Druggists Educational Trust

An ISO 9001:2015 Certified Institution

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INFLAMMATION & HEALTH A DOUBLE-EDGED SWORD

When we think of inflammation, we actually picture the swelling and redness that accompany an injury or infection, and in this way, it is beneficial. But there's another, more insidious kind of inflammation, that's harder to notice and harmful to the health.

We have almost certainly heard the phrase "chronic inflammation". But many of us have a hazy understanding of what it means. Chronic inflammation is an ongoing immunological reaction, that plays a major role in the disease process of many life-threatening conditions such as stroke, arthritis, cancer, diabetes, obesity, and respiratory diseases.

As the signs are subtle and difficult to spot, we cannot even realize an inflammatory condition, but it can increase gradually over a long period

of time. Early diagnosis and healthy lifestyle are the best way to prevent and reduce chronic inflammation. The current issue has articles focusing on various aspects of inflammation and has all our regular features. Hope you would find them interesting to read.

Pharmacists Day to be celebrated on 25th September with theme "Pharmacy strengthening health systems." COVID-19 has presented undeniable evidence of the capabilities of the pharmacy profession to support health systems. Beyond doubt, pharmacy is essential for access to health, a safe supply chain and the responsible use of medicines.

We take this opportunity to wish each of you a

Happy Pharmacists Day 2023
Let Pharmacies Do More...

Editor's Desk



IMPORTANT HEALTH AWARENESS DAYS

(Oct – Dec 2023)

| HEALTH DAYS | DATE |
|---------------------------------|------------|
| World Cerebral Palsy Day | 06 Oct |
| World Mental Health Day | 10 Oct |
| World Arthritis Day | 12 Oct |
| World Food Day | 16 Oct |
| World Osteoporosis Day | 20 Oct |
| National Lung Health Day | 25 Oct |
| World Pneumonia Day | 12 Nov |
| World Diabetic Day | 14 Nov |
| World COPD Day | 15 Nov |
| World Antibiotic Awareness Week | 13 -19 Nov |
| World AIDS Day | 01 Dec |

DRUGS APPROVED BY USFDA

Drugs Approved by US Food and Drug Administration during the period of July to September 2023

| Drug Name | Approved date | Indication | Status in India |
|-----------------------------------|---------------|---|---------------------------|
| Nirsevimab-alip | 17.07.2023 | Indicated for the treatment of Respiratory Syncytial Virus | Not yet approved by CDSCO |
| Quizartinib | 20.07.2023 | Indicated for treatment of Acute Myeloid Leukemia | |
| Cantharidin | 21.07.2023 | Indicated for the treatment of Molluscum Contagiosum acute | |
| Lotilaner | 25.07.2023 | Indicated for the treatment of Demodex Blepharitis. | |
| Zuranolone | 04.08.2023 | Indicated for treatment of Postpartum Depression for adults | |
| Talquetamab-tgvs | 09.08.2023 | Indicated for treatment of Multiple Myeloma. | |
| Abiraterone acetate and Niraparib | 11.08.2023 | Indicated for the treatment of Prostate Cancer | |
| Melphalan | 14.08.2023 | Indicated for the treatment of Uveal Melanoma | |
| Aflibercept | 18.08.2023 | Indicated for the treatment of Macular Degeneration, Diabetic Macular Edema, Diabetic Retinopathy | |
| Natalizumab-sztn | 24.08.2023 | Indicated for the treatment of Multiple Sclerosis, Crohn's Disease | |

Resource: <https://www.fda.gov/drugs/new-drugs-fda-cders-new-molecular-entities-and-new-therapeutic-biological-products/novel-drug-approvals-2023>

WORLD PHARMACIST DAY

Theme: **PHARMACY STRENGTHENING HEALTH SYSTEMS**

➤ Mrs. K. Shailaja, M Pharm., (Ph.D), Associate Professor

Happy Pharmacists Day to all

The International Pharmaceutical Federation (FIP) established World Pharmacists' Day on 25 September at the world congress of Pharmacy and Pharmaceutical Sciences in Istanbul, Turkey in 2009. FIP is a non-governmental organization that has its head office in the Netherlands and represents millions of pharmacists, pharmaceutical scientists, and pharmaceutical educators around the globe. The Pharmacy Council of India officially announced "Pharmacists Day" to be celebrated on 25th September every year and came to effect in 2013. Pharmacists represent the 3rd largest healthcare professional group in the world and in India, there are more than 16 lakhs registered

pharmacists working in various sectors. The celebration of "Pharmacists Day" will be a remarkable one and enlightens the importance of pharmacist responsibilities and

making aware of the public and other healthcare professionals that they are part of the healthcare team. It also remarks on the best services as the Eight-Star Pharmacist Model: Communicators, Educators, Caregivers, Decision-makers, Leaders, Managers, Researchers, and Lifelong Learners to improve the patient's health-related quality of life.

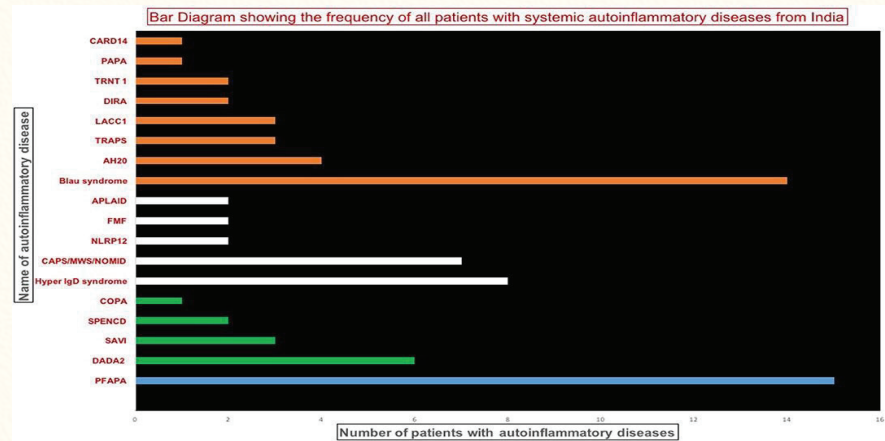


AUTOINFLAMMATORY DISEASE VARIANTS - A CLASSICAL TREATISE

► by Krithika Sri J B & Priyanka N, Pharm. D. Interns

Autoinflammatory disorders are a group of Mendelian disorders caused by genetic defects in the genes involved in the regulation of innate immune systems. There are more than 50 genes that are associated with the autoinflammatory disorders. Worldwide genetic epidemiological studies suggested high prevalence of distinct auto inflammatory disorders in different regions of the world. Familial Mediterranean Fever (FMF) is the most common auto inflammatory disease occurs with the incident rate of 1/1000. Other auto inflammatory disease with occurrences of fewer than 1/1,000,000 include Cryopyrin-

Associated Periodic Syndrome (CAPS), TNF Receptor-Associated Periodic Syndrome (TRAPS), Mevlonate Kinase Deficiency Syndrome (MKD), and Hyper-IgD Syndrome (HIDS).⁽¹⁾⁽²⁾



Source: Suri D et al. Spectrum of systemic auto-inflammatory diseases in India: A multi-centric experience. 2021

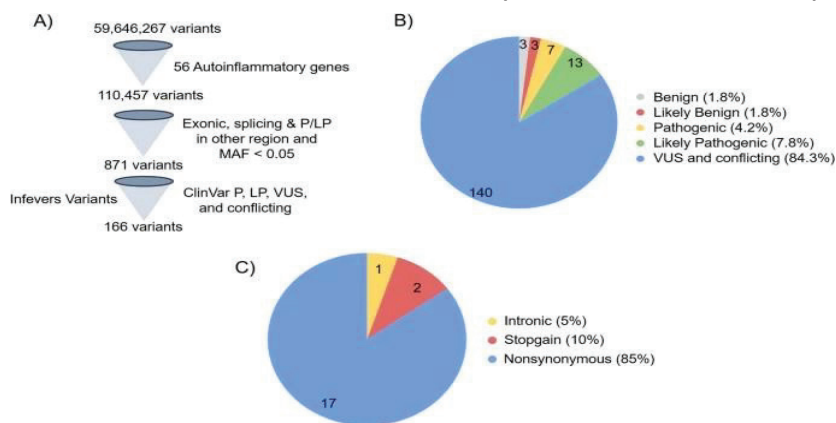
Autoinflammatory Syndromes (4)

| Disease | Inheritance pattern and most common age at presentation | Type of fever | Skin lesions | Systemic features | Treatment |
|--------------------|---|--|---|---|---|
| TRAPS | Autosomal dominant, TNF R1 gene, infants, adults | Usually 1–3 weeks | Erythematous rash or dermal plaques on extremities | Myalgia, arthralgia | Etanercept Anakinra |
| FMF | Autosomal recessive, MEFV gene, <20 year in 80% of patients | ≥ 39°C 1–3 days | Erysipelas like | Recurrent monoarthritis, tenosynovitis, arthralgias, myalgia | Colchine Anakinra |
| HIDS | Autosomal recessive, MVK gene, < 2 years | 3 – 7 days | Maculopapular rash, aphthous ulcers | Arthralgia, arthritis | Anakinra |
| FCAS | Autosomal dominant, NLRP3, <1 year | < 24 h | Urticaria | Arthralgia | Anakinra |
| MWS | Autosomal dominant, NLRP3 variable; infants, teens, young adults | Low grade fever 1–3 days | Erythematous rash, urticaria (sometimes cold induced) | Myalgias, arthralgias, arthritis | Anakinra |
| NOMID | Sporadic, NLRP3, <1 year | Mild fever | Chronic urticarial like skin rash | Arthralgia, arthritis, bony overgrowth of epiphysis, bony hypertrophy/ deformity, frontal bossing | Anakinra |
| AOSD/ SOJIA | Acquired; no known genetic link 3–35 years | ≥39°C, daily quotidian fevers | Evanescient pink rash, 30–40% pruritic or urticarial | Polyarthritis Poly arthralgia Myalgia | Steroids Methotrexate Anakinra (IL 1, inhibitors) |
| PFAPA | Unknown 5–35 years | Lasting 4–5 days | Aphthous ulcerations | None | Tonsilectomy Single steroid dose Cimitidine Anakinra |
| PAPA | Autosomal dominant, PSTPIPI gene, Children adolescents, adults | None | Acne Pyoderma gangrenosum Pathergy | Inflammatory arthritis mostly large joints (some erosive or deforming) | TNF inhibitors Anakinra |
| Cyclic neutropenia | Autosomal dominant, neutrophil elastase gene (ELA2 or ELANE) Child to adult | 10–14 day of low grade fever; recurs q 4–6 weeks | Oral ulcers gingivitis periodontitis recurrent cellulitis or furunculosis | None | GCSF Steroids |

TRAPS: TNF Receptor-Associated Periodic Syndrome, FMF: Familial Mediterranean Fever, HIDS: Hyperimmunoglobulinemia D with periodic Fever Syndrome, FCAS: Familial Cold Autoinflammatory Syndrome, MWS: Muckle-Wells Syndrome, NOMID: Neonatal-Onset Multisystem Inflammatory Disease, AOSD/SOJIA: Adult-Onset Still Disease, PFAPA: Periodic Fever, Aphthous Stomatitis, Pharyngitis, and Adenopathy, PAPA: Pyogenic Arthritis, Pyoderma gangrenosum, Acne.

Genetic Variations in the Auto inflammatory Genes from Several Datasets

A total of 50,517,048 single-nucleotide variations and 5,381,074 in Dels were present in the IndiGen dataset, of which 110,457 variants were extracted from 56 genes linked to the 47 autoinflammatory diseases. These variations were also mapped on the combined ClinVar pathogenic, likely pathogenic and contradictory variants as well as on the 166 variants that were obtained by Infevers for further study.⁽³⁾



Variant classification and filtering using ACMG-AMP guidelines. A) Prioritisation of variants for ACMG categorization. B) classification of variants according to ACMG-AMP standards. C) Based on the kind of mutation, classification of pathogenic and potentially pathogenic variants.

Source: Jain A et al., J.Genet Engg Biotechnology, 2021

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LICENSING GUIDELINES FOR PHARMACIST TO WORK IN UAE

UNIFIED HEALTHCARE PROFESSIONAL QUALIFICATION REQUIREMENTS

Website: <https://www.doh.gov.ae/>

| Title | Qualification | Experience |
|------------------------|--|---|
| Specialized Pharmacist | BSc in Pharmacy/PharmD/Doctor of Pharmacy And One (1) year post-graduate qualification in one of the specialties listed in table 18.25.1 | Two (2) years of experience post qualification in related field |
| | BSc in Pharmacy/PharmD/Doctor of Pharmacy And American Board in one of the specialties listed in table 18.25.1 | No experience required* |
| Clinical Pharmacist | BSc in Pharmacy And Clinical Pharmacy Residency program (Minimum two (2) years duration) | No experience required* |
| | PharmD or Doctor of Pharmacy (minimum six (6) years course duration) And Two (2) years post-graduate qualification leading to a PharmD or Doctor of Pharmacy or master's in clinical pharmacy | Two (2) years experience post qualification in related field with a minimum of six (6) months in hospital setting |
| Pharmacist | BSc in Pharmacy | Two (2) years of experience post qualification in related field |
| | Doctor of Pharmacy | Two (2) years of experience post qualification in related field |
| Pharmacy Technician | Diploma in Pharmacy program (minimum two (2) years course duration) | Two (2) years of experience post qualification in related field |

Specialty Titles

| | |
|-----------------------------------|------------------------------------|
| Pharmacist - Pharmacy Compounding | Pharmacist - Pediatric |
| Pharmacist - Oncology | Pharmacist - Pharmacotherapist |
| Pharmacist - Cardiology | Pharmacist - Psychiatry |
| Pharmacist - Critical care | Pharmacist - Medication Safety |
| Pharmacist - Geriatric | Pharmacist - Drug information |
| Pharmacist - Infectious diseases | Pharmacist - Ambulance care |
| Pharmacist - Nuclear | Pharmacist - Clinical pharmacology |
| Pharmacist - Nutrition support | Pharmacist - Clinical toxicology |

Issued by: Ministry of health and prevention; Department of Health- Abu Dhabi; Dubai Health Authority Sharjah Health Authority

ALERT!

HEALTH MINISTRY PROHIBITS SALE OF KETOPROFEN AND ACECLOFENAC TO PROTECT VULTURES IN THE COUNTRY

On July 31, 2023, under section 26A of the Drugs and Cosmetics Act, 1940 (23 of 40), Union Ministry of Health and Family Welfare has imposed a ban on the manufacturing, sale, and distribution of "ketoprofen and aceclofenac" along with their formulations for animal use.

The recommendation of this ban was made by the Drugs Technical Advisory Board (DTAB).

This is an important step towards conservation of vultures in India, as vultures feeding on cattle carcasses treated with these drugs suffer mortality due to visceral gout and kidney failure."

Source: <https://www.deccanherald.com/science/to-protect-vultures-govt-bans-ketoprofen-and-aceclofenac-1228756.html>

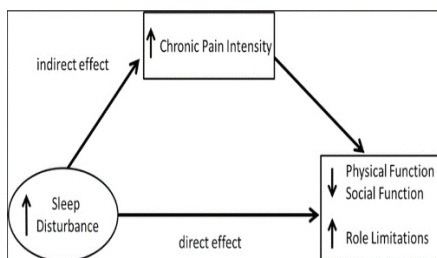
SLEEP DEPRIVATION AND INFLAMMATION

by Backkiyashree D, Vincy Santhana Sophia B & Prathiba N, IV Pharm. D.

Inflammation is natural immune response that occurs in the body to protect against harmful stimuli. Sleep deprivation, which refers to the overall lack of sufficient sleep, can lead to increased inflammation in body. Studies have shown that short term sleep deprivation can trigger an acute inflammatory response, characterized by elevated levels of pre-inflammatory cytokines, such as IL-16 and TNF-alpha. ⁽¹⁾

1. Sleep and chronic pain

Sleep disturbance, sleep duration and chronic pain all are interconnected and have a significant impact on each other. There is a bi-directional association between pain and sleep disturbance. Chronic pain can disrupt sleep, making it difficult to fall asleep. Whereas, insufficient or poor-quality sleep can intensify pain perception and make it difficult to cope up with pain during the day hours.



Source: Burgess H J et al., Clin J Pain. 2019

Sleep disturbance contributes chronic pain via two mechanism direct and indirect pathways. The direct pathway refers to the direct impact of pain on sleep and the indirect pathway involves various factors that is associated with chronic pain like psychological distress, lack of physical activity and hyperarousal state, this can interrupt the normal sleep process and increase pain sensitivity. ⁽²⁾

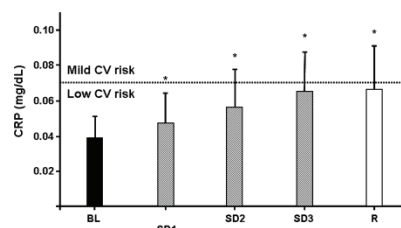
2. Obstructive sleep apnea syndrome (OSAS) influence on inflammation

Various clinical studies prove that in patients with obstructive

sleep apnea syndrome (OSAS) the plasma concentrations of C-reactive protein (CRP) were found to be significantly elevated when compared to healthy subjects. Pro-inflammatory cytokines are observed to be significantly higher in OSAS, specifically elevations in serum levels of interleukin 1 β (IL-1 β), interleukin 6 (IL-6) and tumour necrosis factor- α (TNF- α), have been seen in patients with obstructive sleep apnea. These findings conclude that there is a relation between inflammatory diseases and OSA.

3. Sleep and cardiovascular disease

Elevated levels of inflammation are commonly associated with sleep disturbances that can result in cardiovascular disease. C-Reactive protein (CRP), a significant inflammatory marker, found to be elevated in individuals who are at risk of developing vascular disease and other cardio-metabolic diseases due to poor sleep patterns. CRP levels increase seamlessly in both partial and total sleep-deprived patients. The relationship between serum CRP concentration and cardiovascular risk is well established in the study conducted by Norah Simpson et al., (2007). In this study, healthy volunteers with three days of total sleep deprivation (88 hours) were studied (Norah Simpson et al., 2007). The study result (chart given below) showed an elevated CRP concentrations in a dose-dependent manner. ⁽³⁾



Mean changes in plasma protein (CRP) concentrations across 3 days of total sleep deprivation. BL=baseline, SD=sleep deprivation, R=recovery. Source: Norah Simpson et al., (2007)

4. Nightshift, circadian rhythm and inflammation

Shift workers represent 15% to 25% of the modern-day workforce. Nightshift workers often experience frequent disturbance in their waking and sleeping hours, thereby disturbing the circadian rhythm. Shorter sleep duration and decreased sleep quality affects the circadian clock, this results in increased levels of inflammatory markers such as the WBC, neutrophils, lymphocytes, platelets, IL-6 and CRP and increased risk of developing CVD, diabetes, arthritis, inflammatory bowel disease and certain cancers. ⁽⁴⁾

Conclusion

Sleep deprivation and inadequate sleep duration have been associated with increased inflammation in the body, also it can disrupt the balance of pro-inflammatory and anti-inflammatory cytokines and can lead to the dysregulation of the body's stress response system, which will increase inflammation and oxidative stress, both of which are linked to the development of CVD. Overall, getting good quality sleep is important to lead a healthy lifestyle.

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Inflammation and Diet: What's the Connection?

► by S. Abinaya, Pharm. D. IV year

Inflammation is an essential physiological response for maintaining health and recovering from injury, however it becomes harmful when it is prolonged and begins to damage healthy cells. Looking at the markers of inflammation such as C-reactive protein (CRP), interleukin-6 (IL-6), and tumor necrosis factor alpha (TNF- α), many research studies have found that diet can have impact on inflammation and increase the risk of chronic disease, including heart disease and diabetes. ⁽¹⁾

The Dietary Inflammation Index (DII) was developed to analyze the pattern of a whole diet on inflammation markers circulating in blood plasma. According to the DII, diets that have impact on inflammation can be classified as pro-inflammatory or anti-inflammatory.

Pro-inflammatory diet

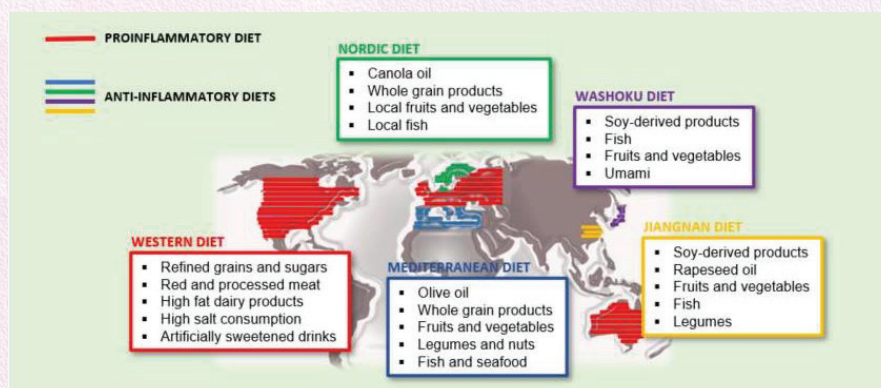
A pro-inflammatory diet is one that, over the long-term, may lead to increased inflammation in the body. Such a diet often includes high amounts of commercially baked goods, fried foods and fatty meats, and sweetened beverages including colas and sports drinks.

Research study on pro-inflammatory diets showed that those consuming the most pro-inflammatory diets had a 38% higher risk of developing CVD compared to those consuming the most anti-inflammatory diets. The associations were consistent in men and women, and remained significant even when other lifestyle factors and other potential contributors to inflammation such as obesity, diabetes, high blood pressure, and high cholesterol were taken into consideration.

The western diet is an example of pro-inflammatory dietary pattern which contribute to weight gain and proliferation of visceral adipose tissue. Adipose tissue is an endocrine organ which significantly contributes to inflammatory processes though releasing pro-inflammatory factors including the adipokine leptin, as well as TNF- α and IL-6. ⁽²⁾

Anti-inflammatory diet

An anti-inflammatory diet refers to a dietary strategy that limits oxidative



Proinflammatory and anti-inflammatory diets and its main distribution in the world. Source: Stromsnes K et al., J. Bioedicines. 2021

stress and inflammation by using the nutrients in food to alter gene expression. It does not refer to a specific diet regimen but rather an overall style of eating that strongly emphasizes reducing levels of processed foods and saturated fats while increasing amounts of whole foods and monounsaturated fats.

Role of anti-inflammatory diet in minimizing inflammation

The anti-inflammatory diet limits inflammation by reducing the activation of NF- κ B, thereby inhibiting its inflammatory byproducts. Certain compounds in foods, such as omega-3 fatty acids, may contribute to the resolution of inflammatory response by producing hormones known as resolvins, and maresins. These hormones shorten neutrophil lifespan and promote macrophage phagocytosis of apoptotic cells, thereby resolving inflammation. Consumption of whole grains and high fiber diet potentially lowers inflammation by modifying both the pH and the permeability of the gut and also, they are associated with lower inflammatory markers, such as C-reactive protein (CRP). Polyphenols, that give color to fruits and vegetables, have been shown to reduce oxidative stress, and at higher levels, they have anti-inflammatory effects by activating the gene transcription factor PPAR- α molecule that inhibits the activation of NF- κ B. ⁽³⁾

Types of Anti-inflammatory diet

Mediterranean diet - it emphasizes fresh fruits, vegetables, whole grains, beans and healthy fats like olive oil or coconut oil. The benefits of the diet include improves heart

health, helps to fight cancer, helps to treat type 2 diabetes, supports gut health.

2. Ornish diet or Vegetarian diet

- It is a type of low fat and high carbohydrate diet and mainly composed plant-based food items does not include any kind of meat. They reverse the certain conditions like reverse of heart disease, reverse of prostate cancer and lower inflammation

3. Flexitarian diet

- the plan encourages huge consumption of plant-based food with moderate to low consumption of meat or other animal products. The flexitarian diet reduces cholesterol, blood glucose levels, blood pressure, cancer and weight management. The foods including: fruits and vegetables Whole grains, Peanut butter Herbs and spices basil, mint, thyme, cumin, turmeric, cinnamon and ginger Nuts and seeds. ⁽⁴⁾⁽⁵⁾

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NSAIDs – RISK AND SIDE EFFECTS

► by Evangeline Brighta. V and Sivaranjani. A, Pharm. D. Interns

Owing to the efficacy in reducing pain and inflammation, Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) are amongst the most popularly used medicines confirming their position in the WHO's Model List of Essential Medicines. Apart from analgesic, anti-inflammatory and antipyretic efficacies, NSAIDs are further documented to offer protection against critical disorders including cancer and heart attacks. ⁽¹⁾

Pharmacodynamics and Pharmacokinetics of NSAIDs

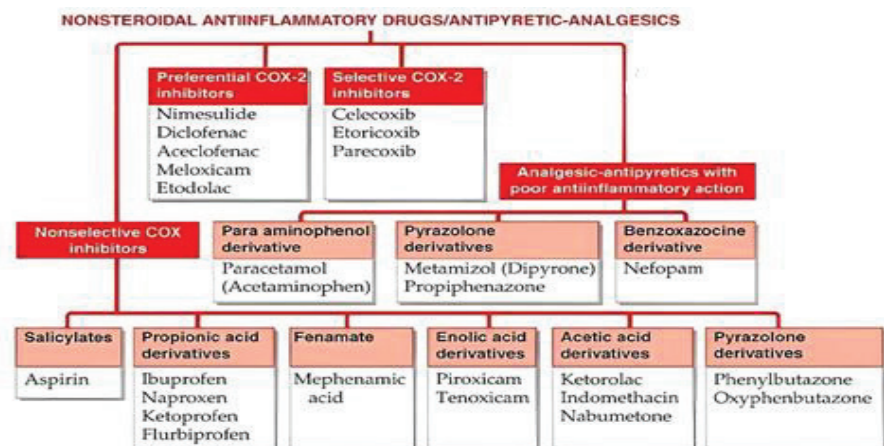
NSAIDs elicit their therapeutic action by primarily blocking certain prostaglandins (PGs) synthesis through the cyclooxygenase enzymes (COX-1 and COX-2) inhibition. COX-1 produces prostaglandins and thromboxane A₂ which control mucosal barrier in GI-tract, renal homeostasis, platelet aggregation and other physiological functions. COX-2 produces PGs that related to inflammation, pain and fever. COX-1 is expressed in normal cells, while COX-2 is induced in inflammatory cells. COX-2 inhibition most likely represents the desired effect of NSAIDs' antiinflammatory, antipyretic and analgesic response; while COX-1 inhibition plays a major role in the undesired side effects such as GI and renal toxicities.

Risks and Side effects of NSAIDs

Despite their vast therapeutic utility, NSAIDs are notorious and associated with 30% hospital admissions for preventable adverse drug reactions.

- NSAIDs can cause serious side effects, some of which may be life-threatening.
- NSAIDs may interact with other medicines and cause unwanted effects.
- NSAIDs should always be used cautiously, for the shortest time possible and at the lowest effective dose

Various professional societies including WHO, American College



Source: Al-kaf, Ali. (2017). Non-steroidal anti-inflammatory drugs

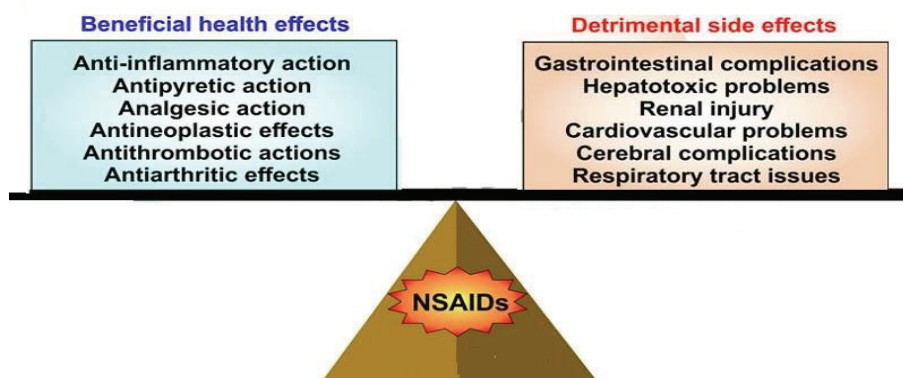
of Rheumatology recommends NSAIDs to the lowered effective dose and for shorter duration. American geriatric society (AGS) recommends that all NSAIDs should be avoided in patients with stage IV and V CKD. ⁽²⁾ Clinical study reports on aspirin users in Alzheimer patients stated that, elderly persons are developing cognitive impairment and dementia, this increases the questions about NSAID safety and possible neurotoxic effects in Alzheimer disease patients. ⁽³⁾

Prescribing Notes

- NSAIDs should be prescribed only after an assessment of each patient's individual risk factors, including any history of cardiovascular and gastrointestinal illness
- NSAIDs should be prescribed at the lowest effective dose for the shortest duration possible. Periodically re-evaluate the

patient's need for symptomatic relief and response to treatment.

- The co-administration of low dose aspirin with NSAIDs should be avoided if possible due to increased GI risk.
- Avoid combinations of NSAIDs (including topical NSAIDs due to the risk of systemic exposure).
- When used for gastro-protection, PPIs should only be used for the duration of NSAID use.
- COX 2 inhibitors (e.g. celecoxib, etodolac) should not be prescribed to patients on concomitant aspirin
- COX-2 inhibitors (e.g. celecoxib, etodolac) or ibuprofen 2.4 g/day should not be prescribed in patients who have: Ischaemic heart disease, Inflammatory bowel disease, Peripheral arterial disease, Cerebrovascular disease and Congestive heart failure. ⁽⁵⁾



Source: Davis A et al, The dangers of NSAIDs2 Br J Gen Pract (2016)

Common adverse effects of NSAIDs ⁽⁴⁾

| Adverse effects | Mechanism of action | Clinical manifestation |
|--------------------------------|--|---|
| Cardiovascular adverse effects | Inhibition of cyclooxygenase (COX)-2, which is associated with reduced prostaglandin I ₂ (PGI ₂ or prostacyclin) production by vascular endothelium with little or no inhibition of potentially prothrombotic platelet thromboxane A ₂ production | Edema Hypertension Congestive heart failure Myocardial infarction Stroke and other Thrombotic events |
| Nephrotoxicity | Inhibition of prostaglandin and thromboxane synthesis leading to renal vasoconstriction and consequently reduced renal perfusion and aberrant renal function. | Electrolyte imbalance Sodium retention & edema Reduce GFR Nephrotic syndrome Acute interstitial nephritis Renal papillary necrosis Chronic kidney disease |
| Gastrointestinal toxicity | Inhibition of prostaglandin synthesis, causing weakening of the protective GI mucosal barrier, predisposing to bleeding. | Dyspepsia Gastroduodenal ulcers GI bleeding and perforation |

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- <https://clinicalguidelines.nhs.uk/>

ADD TO CALENDAR

UPCOMING CONFERENCES

1st International Clinical Pharmacy Summit,
organised by Indian Pharmaceutical Association,
Students' forum on 25 - 26 Nov, 2023.at Pune,
Maharashtra. Abstract submission before 30/09/2023.
Website: <https://fcpi.us17.list-manage.com/>

ISPOR 2024,
May 5 - 8, 2024, Atlanta, GA, USA, Abstract submission
closes: December 14, 2023.
Website: <https://www.ispor.org/conferences>

9th International Conference on Clinical Pharmacy (CPCON) 2024,
organized by Centre for Pharmaceutical Care, in
association with Department of Pharmacy practice,
Manipal College of Pharmacy practice, Manipal,
Karnataka. Abstract Submission:
August 15 - October 31, 2023.
Website: <https://cpcon.manipal.edu>

WEBSITE
OF INTEREST

**Indian Society for
Study of Pain:**
<https://www.issp-pain.org/>

Indian Society for Study of Pain (ISSP) is a professional body representing, medical professionals working in the field of Pain Medicine. The society was formed in 1984; it is committed for patient care, education, training and research in Pain Medicine, and also committed for education and creating awareness about pain and its management throughout India.



PROBIOTICS - THE REGULATORS OF INFLAMMATION

➤ by P. Praveen Kumar, IV Pharm. D.

THE HEALTH FRIENDLY MICROBES

Defined as "live microorganisms which when administered in adequate amounts confer a health benefit on the host" (WHO). The popularity of probiotics has gone exponentially high due to the large number of clinical trials, supporting their beneficial effects in many inflammatory conditions. Modulation of the immune system and anti-inflammatory effects are among the beneficial effects of Probiotics.

In 1953 Werner Georg Kollath a German bacteriologist, hygienist and food scientist introduced the term probiotics and defined 'Probiotika' as being "active substances that are essential for a healthy development of life". In order to be labeled a probiotic, scientific evidence for the health benefit would have to be documented. ⁽¹⁾



Source: Peivesh R et al. (2019)

Criteria for designating a strain as a probiotic.

- Total safety for the host
- Human origin
- Acid and bile resistance
- Survival in the gastrointestinal transit
- Production of antimicrobial substances
- Immune modulator activity
- Adhesion to epithelial cells
- Inhibition of pathogenic bacteria
- Resistance to antibiotics
- Tolerance to food additives and
- Stability in the food matrix. ⁽²⁾

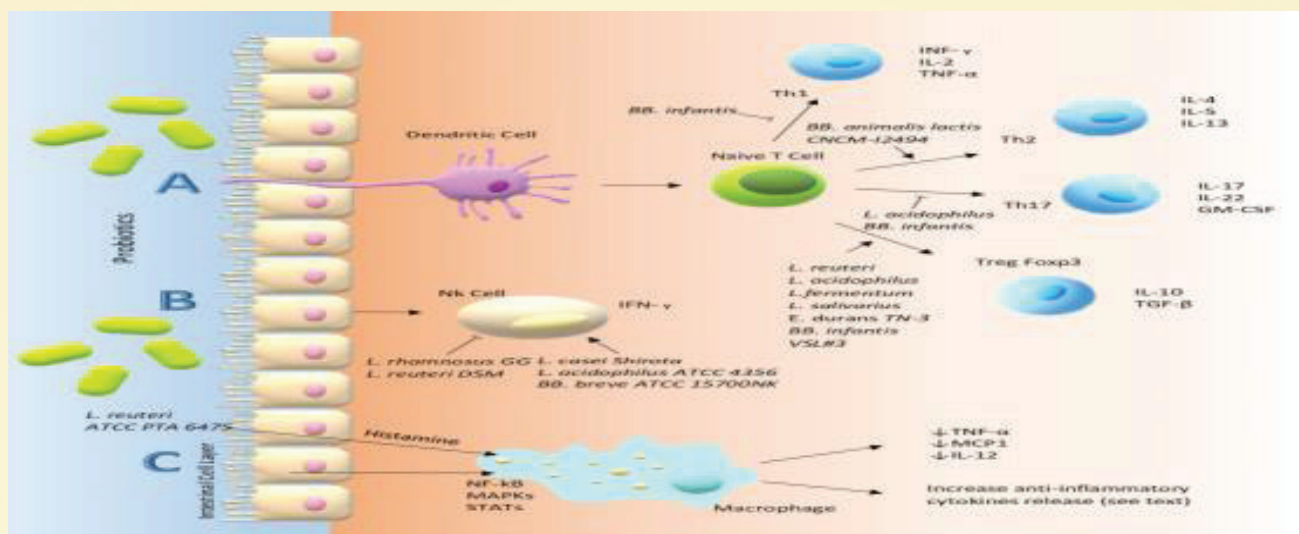
COMMONLY USED PROBIOTIC STRAINS

Lactobacillus and bifidobacterium species are the most common microbes that satisfies above mentioned criteria. Some of the example probiotics are Lactobacillus acidophilus, Lactobacillus rhamnosus GG, Saccharomyces boulardii, Bifidobacterium bifidum and Bacillus coagulans.

HOW DOES PROBIOTICS REDUCE INFLAMMATION

The anti-inflammatory effects of probiotics can be mediated by their metabolites, such as short-chain fatty acid (SCFA) in particular propionate, acetate, and butyrate. SCFA are produced by bifidobacilli, lactobacilli, and several commensal bacteria by the fermentation of nondigestible carbohydrates. The SCFA mitigate inflammation by binding to specific receptors on intestinal epithelial cells and regulates the production of cytokines released by immune cells such as neutrophils, macrophages, dendritic cells (DCs) and T-cells (Yao et al., 2022).

The creation of short-chain fatty acids (SCFA) done by probiotics appears to be connected with large reductions in serum levels of proinflammatory cytokines TNF- α , IL-5, and IL-6, as well as endotoxins and higher levels of anti-inflammatory cytokine IL-10 are the beneficial effects of probiotics in various inflammatory conditions.



Probiotics exert their functions by altering intracellular pathways of immune cells through kinases

Source: Cristofori F et al, Front Immunol. 2021

Further, probiotics enhances antioxidant factors (glutathione, and nitric oxide), improves intestinal barrier integrity, reduce leakage of harmful metabolites (e.g., lipopolysaccharides), inhibit pro-inflammatory signaling pathways, and possibly suppress the formation of trimethylamine/trimethylamine oxide. Probiotics have also been found to enhance endothelial function and halts thrombosis, and thus inflammation state is prevented, and an anti-inflammatory effect is produced. ⁽³⁾

Though probiotics are not classified as drugs, strains like Lactobacillus and Bifidobacterium play valuable roles in serious pathological conditions such as IBD, hepatic encephalopathy, etc. "Designer probiotics" is a term that has been given to probiotics with genetic engineering to facilitate delivery to the small intestine, efficacy and competitiveness within the gastrointestinal tract, and improve outcomes in inflammatory disease conditions. It is highly recommended that, the scientific community may begin to refer to probiotics as evidence-based, rather than "alternative" medicine. ⁽⁵⁾

List of probiotic strains and their potential effects in reducing inflammation. ⁽⁴⁾

| Probiotic Strains | Potential Effects |
|----------------------------|---|
| Bifidobacterium bifidum | Greater cytokine (IL-6) production and active phagocytic property |
| Bifidobacterium breve | Anti-infectious activity |
| Bifidobacterium infantis | Therapeutic effect against irritable bowel syndrome and inhibits the secretion of allergen-induced IgE |
| Bifidobacterium lactis | Plasminogen binding activity and regulates the co-stimulatory molecules (CD80, CD86, CD40), required for an effective activation of T-cells |
| Lactobacillus bulgaricus | Anti-microbial peptide production |
| Lactobacillus helveticus | Inhibits the proliferation of lymphocytes through a suppression of JNK signaling pathway |
| Streptococcus thermophiles | Suppresses the Th17 response in inflamed intestines, useful in inflammatory bowel disease |
| Enterococcus faecium | Modulate the Th2-mediated pathologic response |

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- Cheng Y, Liu J, Ling Z. Short-chain fatty acids-producing probiotics: A novel source of psychobiotics. *Crit Rev Food Sci Nutr.* 2022;62(28):7929–7959.
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- Kumar R, Sood U, Gupta V, Singh M, Scaria J Recent Advancements in the Development of Modern Probiotics for Restoring Human Gut Microbiome Dysbiosis. *Indian J Microbiol.* 2020 Mar;60(1):12–25.
- Liu Y, Alookaran J, Rhoads J. Probiotics in Autoimmune and Inflammatory Disorders. *Nutrients.* 2018 Oct 18;10(10):1537.

Know about a disease.....

BEHCET'S DISEASE

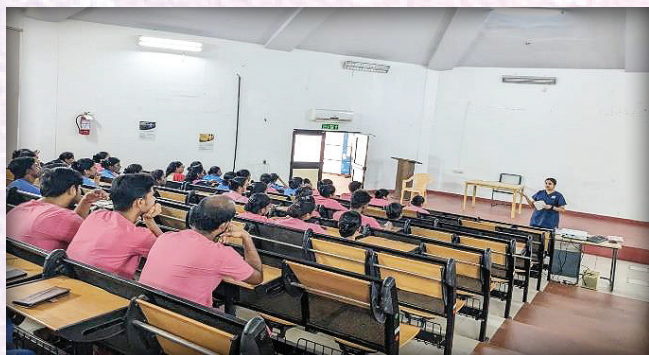
Behcet's disease, or Behcet's syndrome, is a rare and poorly understood inflammatory multisystem disorder that is genetically linked and still under research to identify a suitable cure.

Triple-symptom complex of recurrent oral aphthous ulcers, genital ulcers, and uveitis are the characteristic features of this condition. Ocular disease has the greatest morbidity, followed by vascular disease generally from active vasculitis

There is no cure for Behcet's disease, but it is often possible to control the symptoms with medicine that reduce inflammation such as steroids, immunosuppressants and biological therapies.



Continuous Nursing Education (CNE)



Deepika Ganesh Pharm. D Intern delivered a lecture on Immunosuppressants for nursing staff at Gleneagles Global Health City, Perumbakkam, Chennai on 10th August

ADR REPORT 1:

ADR REPORTING

Tab. Regorafenib Induced Hand Foot Skin Syndrome

Reported by Priyadharshini, V, Pharm. D. Intern

Reported to the Pharmacovigilance Programme of India (PvPI)

Type of Report: DSUR (Spontaneous)

Worldwide Unique ID: IN-IPC-300758625

Report: Regorafenib is a multiple kinase inhibitor that inhibits multiple membrane-bound and intracellular kinases involved in normal cellular functions and pathologic processes, such as tumour angiogenesis, metastasis, oncogenesis, and tumor immunity. A 43 years old female patient diagnosed with Carcinoma Rectum. Earlier she had treatment with 6 cycle of FOLFOX regimen, PET CT showed no improvement and suggestive of metastatic colorectal cancer and treated with monotherapy of REGORAFENIB, a multiple kinase inhibitor. 21 days regimen of 3 weeks on and 1 week off. The patient developed GRADE 2 hand-foot skin reaction (HFSR) with the symptoms of skin changes like peeling, blisters, and hyperkeratosis with pain. The dosing frequency is adjusted to 1 week on and 1 week off, still the cutaneous toxicity is not improved, so regimen changed to FOLFOXIRI with Bevacizumab.

Type of ADR: Continuous.

Causality Assessment: WHO causality assessment shows DEFINITE ADR to the drug administered

ADR REPORT 2:

Tab. Metronidazole Induced Thrombocytopenia

Reported by Sarath E, Pharm. D. Intern

Reported to the Pharmacovigilance Programme of India (PvPI)

Type of Report: DSUR (Spontaneous)

Worldwide Unique ID: IN-IPC-300758938

Report: Metronidazole is nitro imidazole antimicrobials used for the treatment of anaerobic bacterial infections, protozoal infections, and microaerophilic bacterial infections. A 27-year-old male patient with the c/o fever on and off 5 days, cough, cold vomiting 3 days, constipation, headache. He is already on T. FLAGYL-400 MG TID - for s/p pigtail drainage. When an offending drug is introduced into the circulation, hydrophobic interactions form between drug and platelet glycoproteins. The high affinity of the Fc region of the circulating antibodies stimulates B cells to undergo proliferation, producing more antibodies and greater platelet destruction.

Type of ADR: Delayed

Causality Assessment: WHO causality assessment shows POSSIBLE ADR to the drug administered

CLERKSHIP ACTIVITIES

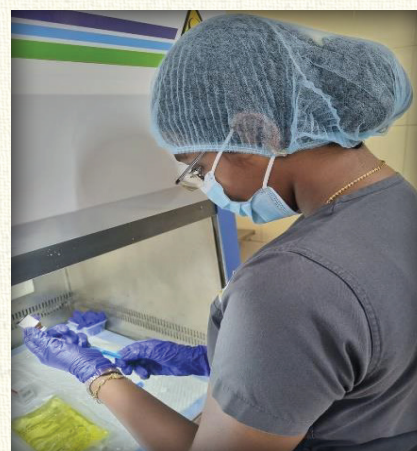
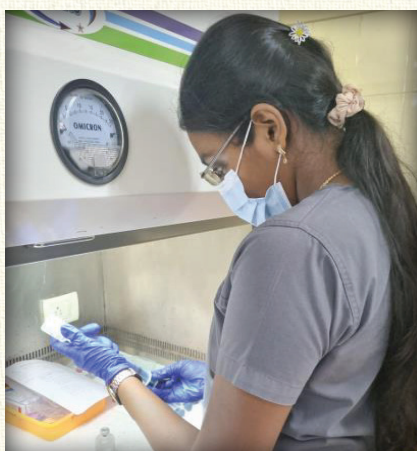
CONTINUING PHARMACIST EDUCATION (CPE)



Pharm. D clerkship students conducted a Continuing Pharmacist education (CPE) session on topic "Medication counselling" for In-patient (IP) Pharmacist at Fortis malar Hospital, Adyar on 25th July.



Pharm D clerkship students conducted Quiz activity for Nursing staffs on topic "Drug Therapy" at Fortis Malar Hospital, Adyar on 26th July.



Pharm. D clerkship students S.G. Santhosh Kumar, & M. Sneha Mavis actively involving in the dilution of admixture drugs in Medical Oncology department. VHS Hospital, Tharamani.



Clerkship Students attended the group discussion with Dr. Rajeshwari, Medical officer and REACH Co-ordinator on clinical case studies about the importance of Vitamin E supplements conducted by P&G Health at VHS hospital Adyar on 11 August 2023.

World Hepatitis Day

Department of Pharmacy Practice conducted World Hepatitis Day awareness program on 28th of July 2023 at Throrapakkam Government Higher Secondary School. The aim of the program was to educate the school children on the different types of hepatitis, the spread and transmission of virus, way to prevent the transmission and availability of vaccines. Consumption of alcohol and its burden on the liver. Hepatitis awareness slogan competition winners were awarded with cash prize and certificate.



Dr. Grace Rathnam, Principal, Ms. S. Rajalakshmi, Admin Manager, Dr. Guru Prasad Mohanta, Professor & Head, Dept. of pharmacy Practic., faculty and Pharm. D students with awareness posters on "World Hepatitis Day" celebration



Pharm. D Interns conducting slogan competition for school students on theme "One Life One Liver"



Mrs. K. Barath Priya & Mrs. Leena Muppa faculty Pharmacy Practice Department delivered speech to the students of "Throrapakkam Government Higher Secondary School" on "hepatitis prevalence, and ways to prevent it".



Dr. Guru Prasad Mohanta, Professor & Head of the Department, Pharmacy Practice and School Head Mistress, **Mrs. Prem Kumari**, giving cash prize & certificate to the winners of slogan competition.



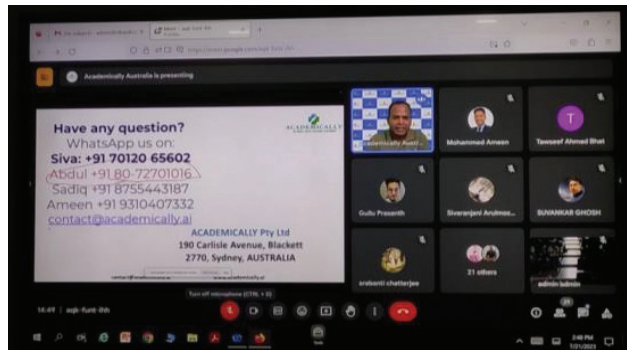
Mrs. K. Shailaja Associate Professor distributing refreshments to the students at the end of the session

Webinar/Seminar

Department of pharmacy practice along with the placement cell of C.L. Baid Metha college of Pharmacy organised a seminar/Webinar on 21st of July 2023 for final year Pharm. D, B. Pharm and M. Pharm students on the topic "Overseas opportunities for Pharmacist and Career Guidance." Dr. Akram Ahmad CEO founder and career coach academically.ai, Australia, has shared his expertise ideas on overseas opportunities. During the session, Dr. Abdul Razzack, Senior academic relation officer, academically.ai Australia, clarified the students doubts on visa processing and guided them in achieving it.



Dr. Abdul Razzack academic relation officer, academically.ai, Australia, interacting with students



Webinar with Dr. Akram Ahmad CEO founder and career coach academically.ai, Australia



Dr. Grace Rathnam, Dr. Guru Prasad Mohanta, Faculty and Students of Pharmacy Practice Department and Students with Dr. Abdul Razzack at the seminar / Webinar on topic "Overseas Opportunities for Pharmacist & Career Guidance" on 21 July 2023

BASIC LIFE SUPPORT - HANDS ON TRAINING

Pharmacy Practice department in collaboration with Gleneagles Global Health City provided Basic Life Support (BLS) training on 23rd August 2023 in the college campus for Pharm. D and Diploma in pharmacy students with the aim of empowering the students with essential life-saving skills. Mr. Nithyanandan International Life Support Instructor for BLS, provided Hands-on Training to Pharm D Interns. Mr. Manikandan Training Co-ordinator, Tevye Healthcare, and Mr. Imthiyas Marketing Executive, Gleneagles Global Health City were also attended the program.



Mr. Nithyanandan International Life Support Instructor for BLS provided Hands-on Training to students. on 23 August 2023

Staff Achievement



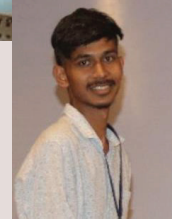
Mrs. K Bharathi Priya, Asso. Professor, **Mrs. Leena Muppa**, Asst. Professor, **Mr. Daniel Sundar Singh**, Asst. Professor, Department of Pharmacy Practice, were honoured as "Best Teacher 2023" on the occasion of Teacher's Day by Gleneagels Global Health City, Perumbakkam, Chennai, on 09 September 2023.

STUDENT ACHIEVEMENT



Congratulation

to **Mr. R. Barath Raj** Pharm. D 4th year for being a key speaker in the International Conference on Practice Advancements in Clinical Pharmacy (CLINIPHARMACON-2023) held at The Dale View College of Pharmacy and Research Centre on 04 August 2023.



Monthly Drug Safety Alert

File No. P.17019/01/2018-PvPI

Dated: July 28, 2023

The preliminary analysis of Adverse Drug Reaction (ADRs) from the PvPI database revealed the following

| Suspected Drug | Indication | Adverse Drug Reaction |
|-----------------------|--|------------------------|
| Colistimethate Sodium | For the treatment of some serious infections caused by Gram-negative bacteria, including those of lower respiratory tract and urinary tract, when more commonly used systemic antibacterial agents may be contraindicated or may be ineffective because of bacterial resistance. | Barter's like syndrome |

Source : <http://www.itc.gov.in>

ETYMOLOGY OF PAIN

From Middle English & Anglo-French

Peyne, payne & peine - feeling of suffering

From Latin : poena - penalty, punishment.

From Greek : poinē - payment, penalty, recompense.

World No Tobacco Day

World No Tobacco Day was conducted on 4th July 2023 in the college campus to create an awareness on effects of tobacco use. Dr. Guru Prasad Mohanta Professor & Head, Dept. of pharmacy Practice outlined the hazards of E-cigarettes and Principal Dr. Grace Rathnam unveiled the pamphlets prepared by the department and distributed to all pharmacy students. Mrs. K Shailaja & Dr. Keren Ann George briefed about the harmful effects of tobacco and preventive measures.



Dr. Grace Rathnam, Principal, Dr. Guru Prasad Mohanta Professor & Head Pharmacy Practice Department Faculty and Student's representatives with awareness pamphlets on tobacco use



Pharm D 3rd year & 4th year students performed awareness skit on "No Tobacco day"



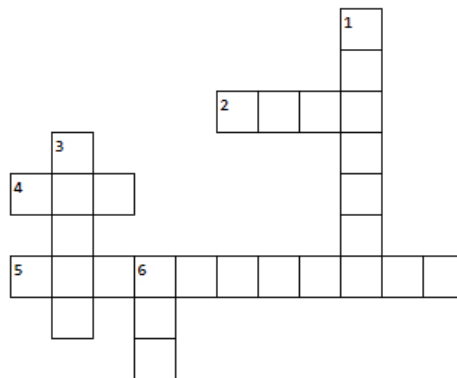
CROSS WORD

ACROSS

2. This receptor mediates the activity of enkephalin
4. This pathway regulates various cellular programs
5. A new anti-inflammatory drug approved by FDA

DOWN

1. The type of limb pain often occurs with residual limb pain
3. It has no pain receptors
6. A proplematic pattern of opioid use



Answer for the Word Puzzle Previous Issue (June-2023, Vol 4 Issue 2)

Across

3. DASH
4. Garlic
6. Semaglutide / Dulaglutide / Liraglutide

Down

1. Bempedoicacid
2. Chromium
5. Flax

STUDENTS CORNER

CONGRATS TO THE WINNERS OF WORD PUZZLE

Previous Issue,
(June 2023, Volume 4, Issue 2)

1. Pratibha. N Pharm. D 4th Year
2. Vaishnavi V Pharm. D 4th Year
3. Sriram. R Pharm. D 4th Year
4. P. Vinoth Kumar Pharm. D 1st Year
5. M. N. Kalyan Pharm. D 1st Year

Send your answers to
pharmatabclbaid@gmail.com

First five winners name will be displayed in the next issue

For details and feedback contact:
Department of Pharmacy Practice

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