ESSENCE

ALL INDIA INSTITUTE OF MEDICAL SCIENCES, MANGALAGIRI

PHARMACOLOGY BULLETIN

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AIIMS Mangalagiri has been established by the Government of India under the PMSSY and became operational from the academic year 2018-19. The department of Pharmacology has started training the first batch of students from Sep 2019. We present to you, the first edition of our newsletter '***ESSENCE***'. As the logo suggests, the purpose is to extract and bring out the core information and changing trends in therapeutics. The aim is this newsletter is to share the important developments in the field of Pharmacology that have a direct bearing on patient care.

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## DEPARTMENT OF PHARMACOLOGY

## AIIMS, MANGALAGIRI

# MISSION STATEMENT

**To impart the understanding of the pharmacological basis of therapeutics so as to enable the Indian Medical Graduate to prescribe rationally and make sound decisions supported by evidence based medicine.**

**To promote a learning and research environment that embraces inquiry and a spirit of innovation, to empower the health professionals to adopt a patient- centered and evidence-based approach to pharmacotherapy with the ultimate goal of improving human health.**

## Establishment of Adverse Drug Reaction Monitoring Centre in Dept of Pharmacology, AIIMS Mangalagiri

**Background:**

Before registration and marketing of a drug, its safety and efficacy are based primarily on the use of that drug in clinical trials. These trials mainly detect common adverse reactions. Some important reactions, such as those, which take a long time to develop, or those, which occur rarely, and many other reactions may not be detected at all in clinical trials.

Also besides, the controlled conditions under which medicines are used in clinical trials do not necessarily reflect the way they are used in real-world practice. For a medicine to be considered safe, its expected benefits should be greater than any associated risks of harmful reactions.

The World Health Organization (WHO) defines adverse drug reaction (ADR) as "A response to a drug, which is noxious and unintended, and which occurs at doses normally used in man for the prophylaxis, diagnosis, or therapy of disease, or the modifications of physiological function.

Adverse Drug Reactions (ADRs) continue to remain an important public health issue and among the leading causes of morbidity & mortality. Safety monitoring of medicines is the responsibility of all stakeholders of the healthcare system and is crucial for health policy development and delivery of the best health care.

The Pharmacovigilance Programme (PvPI) of India was initiated by the Government of India in July 2010 and the National Coordination Centre (NCC) of PvPI is based at the Indian Pharmacopoeia Commission at Ghaziabad. PvPI aims is to collate the data and use the inferences to recommend regulatory interventions, besides communicating risks to healthcare professionals and the public. This is done through a network of various ADR monitoring centers working in health care establishments across the country.

**ADR Monitoring Centre at Dept of Pharmacology, AIIMS Mangalagiri:**

It is proposed to establish an ADR Monitoring Centre in the Department of Pharmacology at AIIMS, Mangalagiri to analyze any suspected adverse drug reaction that is encountered. To this end, the health care professionals of the Institute are requested to report any ADR that is encountered by them of their clinical practice.

The ADR monitoring form (Version 1.3) along with the instructions for filling up the form is attached for the benefit of all. The filled up form may be sent to the Department of Pharmacology where the data will be analyzed and the causality assessment will be done. The Individual Case Safety Reports (ICSRs) will then be submitted to the NCC from where it is further sent to WHO-UMC which maintains the global drug safety database.

All healthcare professionals (Clinicians, Dentists, Pharmacists and Nurses, etc) can report adverse drug reactions due to medicines, vaccines, herbal products, etc whether they are known, unknown, serious, or non-serious, frequent, or rare regardless of an established causal relationship between a drug and the reaction. The database will play a vital role in analyzing and detecting new signals thereby helping in continuous assessment of the risk-benefit ratio of various medicines.

Version-1.3

# SUSPECTED ADVERSE DRUG REACTION REPORTING FORM

For VOLUNTARY reporting of Adverse Drug Reaction by Healthcare Professionals
**INDIAN PHARMACOPOEIA COMMISSION**(National Coordination Centre-Pharmacovigilance Programme of India)
Ministry of Health & Family Welfare, Government of India Sector-23, Raj Nagar, Ghaziabad-201002

## A. PATIENT INFORMATION

| 1. Patient Initials _____ | 2. Age at the time of Event or Date of Birth _____ | 3. M □ F □ Other □ |
|---|---|---|
| | | 4. Weight_____Kgs |

Reg. No. /IPD No. /OPD No. /CR No. :

AMC Report No. :

Worldwide Unique No. :

## B. SUSPECTED ADVERSE REACTION

5. Event/Reaction start date (dd/mm/yyyy)

6. Event/Reaction stop date (dd/mm/yyyy)

6 (A). Onset Lag Time

7. Describe Event/Reaction with treatment details, if any

12. Relevant tests/ laboratory data with dates

13. Relevant medical/medication history (e.g. allergies, race, pregnancy, smoking, alcohol use, hepatic/renal dysfunction, past surgery etc.)

14. Seriousness of the reaction: No ☐ if Yes ☐(please tick anyone)

☐ Death (dd/mm/yyyy) ☐ Congenital-anomaly
☐ Life threatening ☐ Disability
☐Hospitalization/Prolonged ☐ Other Medically important

15. Outcomes

☐ Recovered ☐ Recovering ☐ Not recovered
☐ Fatal ☐ Recovered with sequelae ☐ Unknown

## C. SUSPECTED MEDICATION(S)

| S.No | 8. Name (Brand/Generic) | Manufacturer (if known) | Batch No. / Lot No. | Exp. Date (if known) | Dose used | Route used | Frequency (OD, BD etc.) | Therapy dates | | Indication | Causality Assessment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Date started | Date stopped | | |
| i | | | | | | | | | | | |
| ii | | | | | | | | | | | |
| iii | | | | | | | | | | | |
| iv* | | | | | | | | | | | |

| S.No as per C | 9. Action Taken (please tick) | | | | | | 10. Reaction reappeared after reintroduction (please tick) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Drug withdrawn | Dose increased | Dose reduced | Dose not changed | Not applicable | Unknown | Yes | No | Effect unknown | Dose (if reintroduced) |
| i | | | | | | | | | | |
| ii | | | | | | | | | | |
| iii | | | | | | | | | | |
| iv | | | | | | | | | | |

11. Concomitant medical product including self-medication and herbal remedies with therapy dates (Exclude those used to treat reaction)

| S.No | Name (Brand/Generic) | Dose used | Route used | Frequency (OD, BD, etc.) | Therapy dates | | Indication |
|---|---|---|---|---|---|---|---|
| | | | | | Date started | Date stopped | |
| i | | | | | | | |
| ii | | | | | | | |
| iii* | | | | | | | |

Additional Information:

## D. REPORTER DETAILS

16. Name and Professional Address:_____

_____

Pin:_____E-mail_____

Tel. No. (with STD code)_____

Occupation:_____ Signature:_____

17. Date of this report (dd/mm/yyyy):

**Sig. and Name of Receiver-**

Confidentiality: The patient's identity is held in strict confidence and protected to the fullest extent. Submission of a report does not constitute an admission that medical personnel or manufacturer or the product caused or contributed to the reaction. Submission of an ADR report does not have any legal implication on the reporter.

*use separate page for more information

In recent news, USFDA had raised a global alarm over the possible presence of the carcinogen **N-nitrosodimethylamine (NDMA)** in many brands of **Ranitidine.** Many pharmaceutical giants like GSK, Sandoz, etc even recalled their brands after this regulatory alert. This has led to apprehensive patients even discontinuing this medicine. To ensure patient safety, the Drug Controller General of India (DCGI) directed state drug regulators to assess the levels of NDMA in the various marketed preparations of Ranitidine and take appropriate action as deemed necessary. So far there has been no report of significant levels of NDMA in any brand and Ranitidine is not banned in India.

In yet another concerning insight into India's growing **drug resistance epidemic**, the **All India Institute of Medical Sciences (AIIMS)** in Delhi has sounded alarms over **colistin resistance** among patients. The Trauma Centre at the facility has reported that of 846 people studied who were infected with the ***Klebsiella pneumoniae*** bacterium, 22 did not respond to colistin, which is used as a last-resort therapy in the treatment of multiple **multi-drug resistant** bacteria. Of the 22 colistin-resistant patients, ten died within a fortnight of admission.

Tuberculosis is still a deadly disease and was responsible for 1.5 million deaths in 2018. A new Anti-TB drug combination has been launched for extensively drug-resistant strains of Tuberculosis. This consists of **Pretomanid, Linezolid, and Bedaquiline (BPaL).** BPaL is an oral treatment that promises a shorter, more convenient option to existing TB treatment options, which use a cocktail of antibiotic drugs over up to two years. The drug will be available in bottles of 26 tablets, with a six-month treatment requiring seven bottles. The combination is priced at $1040 (approx Rs 74000/-) for a complete regimen.

## New Drugs in the market…..

| S. No. | Drug | Pharmacological Class | Indication | Dosage |
|---|---|---|---|---|
| 1. | Asenapine Transdermal Patch | Dopamine $D_2$ and serotonin type 2 ($5\text{-}HT_2$) receptors blocker | Schizophrenia | 3.8 -7.6 mg/day |
| 2. | Esketamine Nasal Spray | NMDA Blocker | Treatment-resistant depression | 56 mg/day |
| 3. | Oral dapagliflozin | Sodium-glucose co-transporter 2 inhibitor | Adjunct to insulin in adults with type 1 diabetes and a body mass index (BMI) of ≥ 27 $kg/m^2$, when insulin alone does not provide adequate glycaemic control despite optimal insulin therapy | 5 mg/day. |
| 4. | Upadacitinib | Inhibit JAK1 subtype and decrease release of cytokine | Rheumatoid Arthritis | 15 mg/day. |
| 5. | Brexanolone | Positive allosteric modulator of the $GABA_A$ receptor | Postpartum Depression (PPD) | 30 - 90 mcg/kg/hr |
| 6. | Fedratinib | Inhibit JAK2 subtype | Primary or secondary (post-polycythemia vera or post-essential thrombocythemia) myelofibrosis | 400 mg/day. |
| 7. | Oral Semaglutide | GLP-I Agonist | Type 2 Diabetes | 7 mg/day and 14 mg/day. |
| 8. | Lefamulin | Pleuromutilin antibiotic. Inhibition of protein synthesis by binding to the peptidyl transferase center of the 50S bacterial ribosome, thus preventing the binding of transfer RNA for peptide transfer | Community Acquired Bacterial Pneumonia | 600 mg twice a day. |
| 9. | Lasmiditan | Serotonin receptor agonist ($5\text{-}HT_{1F}$) | Migraine with or without aura in adults | 50-200 mg/day. |
| 10. | Tenapanor | Sodium/Hydrogen exchanger 3 (NHE3) Inhibitor | IBS with constipation | 50mg twice a day |

## Be Cautious…..Drug Safety Alerts

| S. No. | Drug | Safety Alerts |
|---|---|---|
| 1. | Levetiracetam | Anencephaly |
| 2. | Cetirizine | Tachycardia |
| 3. | Dabigatran | Alopecia |
| 4. | Sertraline | Maculopathy |
| 5. | Tofacitinib | Thromboembolism |

**Mind Games…**

*If you want to stay healthy, keep away from these drugs of abuse. Can you identify all Seven in the jumbled table?*

| V | H | I | N | H | A | L | A | N | T | V | C | H | A | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| O | Z | D | M | A | R | I | J | U | A | N | A | N | D | O |
| L | C | L | E | D | R | U | G | S | G | L | M | E | D | B |
| X | E | A | N | P | H | C | U | P | L | N | P | A | I | A |
| D | V | W | I | I | R | F | O | U | A | S | H | I | C | C |
| I | P | A | A | N | B | E | C | T | Y | E | E | E | T | C |
| O | A | R | C | Z | S | I | S | C | I | N | T | N | I | O |
| N | L | D | O | O | N | Q | H | S | I | C | A | I | O | A |
| I | C | H | C | A | X | E | G | E | I | L | M | T | N | K |
| B | O | T | T | Z | D | K | F | E | U | O | I | O | I | H |
| A | H | I | Q | E | H | F | E | M | J | I | N | C | Y | X |
| N | O | W | L | Q | A | R | I | P | S | C | E | I | S | K |
| N | L | I | Y | C | E | T | N | Z | C | S | E | N | J | Q |
| A | C | Z | N | O | S | W | J | I | Q | N | I | B | J | Z |
| C | V | N | E | L | X | R | S | B | I | B | W | I | C | Q |

**Answers:**

Alcohol, Amphetamine, Caffeine, Cocaine, Marijuana, Nicotine, Tobacco

**Pharmacology Trivia…..**

1. Heroin was first marketed in 1898 by Bayer as a non-addictive cough suppressant in 1898. This was the time in history when pneumonia and TB claimed were widely prevalent and the world desperately needed a remedy that would suppress coughing and heroin perfectly fit the bill with its additional sedative and analgesic properties. Naturally, patients were very happy; however, when it became apparent that heroin was not the non-addictive remedy it was purported to be, the drug rapidly fell out of favour and was eventually banned.

2. Cocaine was first used as a local anesthetic in 1884 by Dr. William Halsted who first tested it upon himself before using it for nerve blocks on his patients. Dr. Halsted later became addicted to cocaine followed by addiction to Morphine which was initially used to wean him off cocaine.

3. The American Civil War produced over 400,000 morphine addicts. Soldiers disease' is a term still used for morphine addiction.

4. The chemical N-acetyl-cysteine (also found in raw eggs) is known to help hangovers. However, it has only a preventive effect and has to be taken before the episode of drinking.

Feedback and Suggestions may be sent to Department of Pharmacology, All India Institute of Medical Sciences, Mangalagiri (Andhra Pradesh) at email id: pharmacology@aiimsmangalagiri.edu.in