



KARNATAKA REGISTERED PHARMACISTS ASSOCIATION

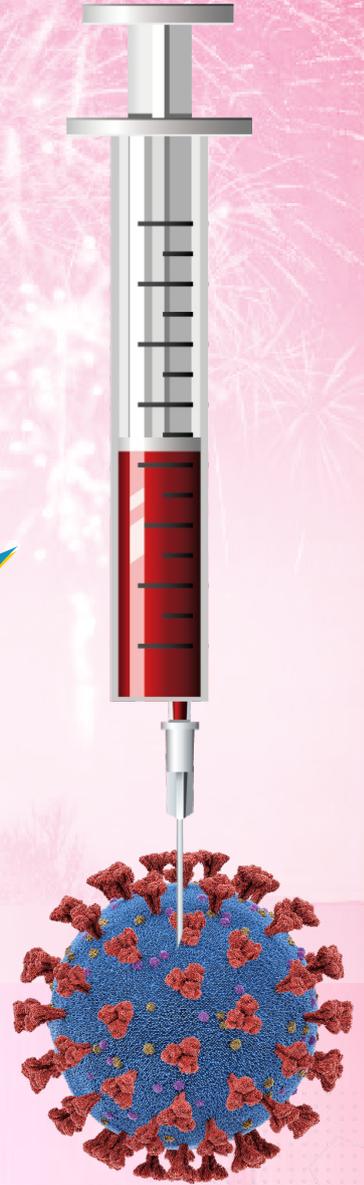
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2022

HAPPY NEW YEAR



Hope the learning and experiences of the previous year help us move forward with responsibility, diligence and compassion not only for our loved ones but for society as a whole. Wish you a prosperous new year. Happy 2021!

-Dr. Chandni Saha

Let the old year end and the New Year begin with the warmest of aspirations.
Happy New Year!

- Santhosh Raj R K

Setting aside previous year affliction, let's welcome this new year adoring a smile & enduring hope, Patience & Gratitude

- Shifa Taj

As glasses are raised and fireworks explode into the sky, it's important to recognize the special symbolism that the New Year brings. It should speak to new beginnings and fresh starts, as well as a time of reflection.

Dr. Kaushik Devaraju



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Prescribing Cascade & the Elderly

Medication-related problems place a burden on both the healthcare system and patients in terms of health outcomes and cost. Early detection of the adverse events and addressing them is of a high priority not only to improve the health and economic outcomes but also do justice to the Hippocratic Oath: "FIRST, DO NO HARM". Failure to do so has the potential to further compound poor health, particularly when the adverse reaction is misdiagnosed as a new ailment. This new ailment is treated with a new drug, which again puts the patient at risk for adverse reactions and increases the cost.

WHAT IS A PRESCRIBING CASCADE?

Prescribing cascade arises when a drug-induced side effect is misdiagnosed as a new ailment and treated with another drug which can further cause complications and may result in other drug-induced side effects or drug interactions, compromising health outcomes.

For example, Bronskill JD, et al. conducted a study to evaluate the prescribing cascade of calcium channel blockers (CCBs) and diuretics in the elderly for hypertension and concluded that the elderly hypertensive patients who received CCBs subsequently received loop diuretics to treat the peripheral edema caused by the former drug. The loop diuretics can cause dehydration, kidney problems, light-headedness, and falls. Therefore, it is essential to create an awareness regarding the prescribing cascade to reduce the prescribing of potentially unnecessary medications that may cause harm.

An angiotensin converting enzyme (ACE) inhibitor prescribed may lead to postural hypotension, which may be misdiagnosed as dizziness, a new medical condition, resulting in a second medication prescription generation, for example, prochlorperazine prescribed to 'treat' the adverse drug reaction caused by ACE inhibitor. This new medication has the potential to exacerbate the postural hypotension, leading to falls and subsequent hip fracture may occur, which is not acceptable in the elderly.

Metformin used in the management of type 2 diabetes mellitus (T2DM) is known to cause diarrhoea, which may be treated with loperamide, this, in turn, can cause dizziness and confusion. Patients treated with a cholinesterase inhibitor to treat early dementia may develop urinary incontinence, which is then treated with an anticholinergic drug that can further cause anxiety and depression. The frequent use of nonsteroidal anti-inflammatory drugs can cause an elevation in blood pressure.





YOUNG OR OLD, ANYONE CAN BE THE VICTIM OF PRESCRIBING CASCADE, WHY THE ELDERLY NEED SPECIAL ATTENTION?

With advancing age, the elderly are faced with the burden of physical disabilities and multiple chronic diseases such as hypertension, diabetes, arthritis, cardiovascular diseases, renal and hepatic disorders, resulting in the prescription of multiple medications. Studies have shown that the elderly on average receive 2-9 medications per day. The prevalence of inappropriate medication used by the elderly was found to be from 11.5 - 62.5%.

The elderly are at a greater risk of adverse drug reactions because of the alteration of the drug pharmacokinetics and pharmacodynamic due to age-related metabolic alterations, this risk is further increased by the use of multiple drugs. As the number of drugs taken increases the risk of adverse drug reactions increases exponentially. Polypharmacy may lead to decreased medication compliance, poor quality of life, increased cost, and sometimes may as well lead to a prescribing cascade.

The symptoms caused by polypharmacy are often misinterpreted as the normal aging signs and symptoms, such as tiredness, sleepiness or decreased alertness, constipation, diarrhoea, loss of appetite, confusion, falls, depression, or lack of interest in daily activities, weakness, tremors, dizziness.

The elderly prescribed with multiple drugs, and using 'high-risk medicines', including cardiovascular drugs, NSAIDs, anticoagulants, and antibiotics, are at higher risk of adverse drug reactions. The specific drug classes used in the elderly such as anticholinergics, antipsychotics, benzodiazepines, hypnotics, and sedatives increase the risk of adverse drug reactions. The elderly may be at higher risk of prescribing cascades than younger people. For example, a movement disorder induced by metoclopramide may be misinterpreted as Parkinson's disease, but this misinterpretation would be less likely in a younger person since Parkinson's disease is less prevalent in younger people.

PREVENTING A PRESCRIBING CASCADE

- Prescribe initially lower doses and tailor the dose for every medicine as per requirement.
- Suspect any new symptom that the patient experienced to be caused by the drug if the drug was recently started or had any dose alterations.
- Counsel the patient to inform immediately their doctor or pharmacist if they experience any symptoms after starting a new drug or change in the dose.
- Educate the patient regarding the potential or possible adverse effects of the medications.
- The decision to prescribe a second medicine to counteract an adverse drug reaction from a first medicine should only occur after careful consideration and considering the benefit-harm aspects of the medication.
- Systematic deprescribing may be done after a thorough assessment for the absolute necessity for the medication causing the ADR.

In our next newsletter, we will discuss the aspects of deprescribing in the elderly.



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SALIVA

THE SAVIOUR FLUID

The truth test!

In medieval times, saliva secretion has provided important pointers on whether a person is saying the truth or not! When a person says lies, his or her conscience pricks him/her - causing anxiety and consequent dry mouth. This test was used to gauge whether a person is saying a lie

or speaking the truth! On the other hand, tasty food causes excess salivation! So it is not an exaggeration to say, saliva has been a much-noticed fluid from time immemorial!

Saliva for immunity and other functions

Definition: Saliva is an extracellular fluid produced by salivary glands and secreted in the mouth through openings called salivary ducts.

The three pairs of salivary glands are parotid, submaxillary, and sublingual salivary glands. Serous and mucosal acinar cells located in these glands produce saliva and it reaches the oral cavity through a network of salivary ducts.

The well-known role of saliva is for lubrication of ingested food; saliva also helps form a bolus for easy swallowing and initiates the digestion of carbohydrates through salivary amylase - an enzyme of the saliva. However, there is more to saliva - it is not only for digestion.

Experience of taste requires that saliva mixes with the tastants of ingested material, and spreads them to all corners of the mouth - this provides for interaction with all types of taste buds. Saliva solubilizes food factors and helps in better interaction of taste receptors and food substances.

From isotonic to hypotonic! The primary saliva released by acinar cells of the mouth contains more sodium chloride and is isotonic. It also contains amylase and other substances. The primary saliva gets modified to secondary saliva that is hypotonic- the sodium is reabsorbed and potassium is then secreted in its place. There is also bicarbonate secretion into the secondary saliva which is ultimately making saliva hypotonic.

Salivary glands that secrete saliva have interesting self-defense functions: the glands host B lymphocytes and they produce immunoglobulin A antibody that helps destroy specific antigens.

Saliva protects tooth surfaces by remineralization and strengthening the tooth enamel. Moreover, saliva creates a salivary pellicle that localizes and provides for the exclusion of pathogens to protect the oral cavity.

Saliva has a direct anti-microbial function to protect the mucosa of the mouth and upper GIT. Further, saliva plays an important role in the healing of several mucosal lesions, wounds and ulcers as well.

Saliva has several self-defense proteins like immunoglobulins, salivary chaperone, cationic peptides, lysozyme, cystatins etc that are immune-boosting and/or immunomodulatory substances.

The five primary self-defense functions of saliva are -

- Microbial exclusion activity (salivary pellicle) (surface exclusion and microbial agglutination)
- Secretion of antibacterial peptides and substances that cause lysis of microbial membranes (through lysozymes and cationic peptides - histatins, defensins, cathelicidins, etc)
- Secretion of antifungal peptides
- Secretion of antiviral peptides
- Secretion of immunomodulatory proteins

Endnote: Saliva is more than a pro-digestive; there is a strong immunity function in saliva. With increase of air pollution, increased consumption of sugary substances and fast food that promote bacterial growth and acid production on tooth enamel, and other chemical challenges to oral cavity - there is a dire need to strengthen saliva's mucoprotective, mucohealer and immunity role. This is through correct oral hygiene practices using dentifrices twice daily: good toothpaste and mouthwash.

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RULES

Quiz

1. Correct answers for Crossword game section will be rewarded 1 point each (10 marks)
 2. Each correct answer in pharma entrepreneur and their company carry 1 point (2 marks)
 3. Caption me (Show case your Humour) (3 marks)
 4. Answer of the quiz will be evaluated by panel of judges and their decision is final. (Max mark:15)
 5. Those who get the highest marks, their photo will be published in our next bulletin and also a cash prize of Rs.500/- will be rewarded to them
 6. The answer must be sent within 20th January 2021 to this E Mail ID- krpaindia@gmail.com
- A confirmation mail will be sent to you on receiving your e-mail.

I. Match the drug discovery stages: Match 1-5 with a-e

1.	Pre-clinical studies	a)	Post marketing testing
2.	Phase I clinical studies	b)	On around 300 patient volunteers
3.	Phase II clinical studies	c)	On around 3000 patient volunteers
4.	Phase III clinical studies	d)	On animals
5.	Phase IV clinical studies	e)	On healthy volunteers

I. Guess the Organization and founder

A gold medallist at university, He worked as a research faculty at the Medical University of South Carolina, Charleston after earning his Ph.D. from the University of Wisconsin-Madison. A research scientist in Molecular Biology strongly believes that innovative technology in vaccine development is essential to solve public healthcare problems caused by infectious diseases. He and his wife returned from the US to set up a company dedicated to creating innovative vaccines and bio-therapeutics. They returning from a research and teaching stint in the US wanted the new company to be an intellectual capital powerhouse.

III. Caption me



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