VOLUME 7 ISSUE 1

PSG NEWS DIGEST

A news letter from Drug Information Centre, Department of Pharmacy Practice

Physician Desk

CURRENT TREND IN THE MANAGEMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

Dr. R. Karthikeyan MD
Associate Professor

Chronic obstructive pulmonary disease is a preventable and treatable disease characterized by chronic airway inflammation in response to noxious stimuli resulting in airflow obstruction that is not fully reversible (1).COPD affects over 5% of the adult population and is the only major cause of death whose morbidity and mortality are increasing. World health organization predicts that by 2020, COPD will become third leading cause of death (currently fourth) and fifth leading cause of disability (currently twelfth) worldwide. Such a relentless increase in the burden of COPD is attributed to aging of the population globally and worsening environmental factors like air pollution and tobacco smoke. In this context, human efforts to overcome this burden have resulted in significant changes in the management of COPD during last 10 years. However, main goals of treatment have not changed till date which includes reduction in symptoms and frequency of exacerbations, improvement in quality of life and prevention of mortality. Bronchodilators are traditionally accepted as the main stay intervention in COPD to achieve the above mentioned goals. Tiotropium bromide, a long acting muscuranic agent, is the most widely used drug in inhaled form for treating COPD patients. Use of tiotropium bromide for COPD was further substantiated by the findings of a randomized controlled trial (UPLIFT trial) involving 5993 subjects who were followed up for four years. This trial concluded that therapy with tiotropium was associated with improvements in lung function, quality of life, and exacerbation, however did not significantly reduce the rate of decline in FEV1. Unlike in Asthma management, inhaled corticosteroids are reserved only severe forms of COPD especially with frequency of exacerbations. Several randomized controlled trials and meta-analyses including the Cochrane review have found that inhaled steroids are associated with reduced rate of COPD exacerbations and thus beneficial in slowing down the disease progression in frequent exacerbators. However, many of these trials found an increased risk of nonfatal pneumonia among users of inhaled steroids. Carefully weighing the risk of pneumonia and other adverse effects against the important benefit of reduction in exacerbations, Global initiative for management of obstructive lung disease (GOLD) guidelines recommend inhaled steroids for category C and D classification of COPD which represent more symptomatic subset of patient population.

While preferences of traditional drugs were constantly changing with growing scientific evidences, newer molecules were introduced during last decade which are currently set to revolutionize management of COPD. One such drug is Roflumilast, a oral selective phosphodiesterase-4 inhibitor, which was found to reduce exacerbations and hospital admissions in patients with severe chronic obstructive pulmonary disease and chronic bronchitis (REACH trial, Lancet, 2015). Other newer drugs include long acting bronchodilators like Indaceterol maleate and Glycopyronnium bromide whose efficacy as lone drug or in combination has been demonstrated in several clinical trials leading to FDA approval of these drugs for use in clinical practice. New England Journal of Medicine recently published (May, 2015) the results of long awaited FLAME trial which involved over 3000 subjects with COPD randomized to either Indacaterol - Glycopyronnium group or Salmetrol - fluticasone group. The study followed these subjects for 52 weeks after a run in period of 4 weeks, and found that Indacaterol - glycopyronnium was more effective than salmeterol-fluticasone in preventing COPD exacerbations at the same time with better safety profile than the latter. This combination of long acting bronchodilators is currently available in Indian market from Novartis Pharmaceuticals and Lupin Pharma Limited. Though with prohibitive introductory costs, this drug has shown a great promise in management of COPD as a replacement for highly disputed use of inhaled steroids. With more research molecules in the pipeline, a paradigm shift is expected in the management of COPD leading to possible phase-out of traditional molecules like inhaled steroids and tiotropium.

2016

FDA APPROVED DRUGS

DRUG NAME	ACTIVE INGREDIENT	APPROVAL DATE	FDA-APPROVED USE
VENCLEXTA	Venetoclax	April 2016	For chronic lymphocytic leukemia in patients with a specific chromosomal abnormality
DESCOVY	Emtricitabine And Tenofovir Alafenamide	April 2016	For the treatment of HIV-1 infection
CABOMETYX	Cabozantinib	April 2016	advanced renal cell carcinoma
BEVESPI AEROSPHERE	Glycopyrrolate And Formoterol Fumarate	April 2016	chronic obstructive pulmonary disease
NUPLAZID	Pimavanserin	April 2016	To treat hallucinations and delusions associated with psychosis experienced by some people with Parkinson's disease
TECENTRIA	Atezolizumab	May 2016	To treat urothelial carcinoma, the most common type of bladder cancer
AMELUZ	Aminolevulinic Acid Hydrochloride	May 2016	actinic keratosis
AFSTYLA	Antihemophilic Factor (Recombinant), Single Chain	May 2016	hemophilia A
OPDIVO	Nivolumab	May 2016	classical Hodgkin lymphoma
LENVIMA	Lenvatinib	May 2016	advanced renal cell carcinoma
NUPLAZID	Pimavanserin	May 2016	hallucinations and delusions associated with Parkinson's disease psychosis
ZINBRYTA	Daclizumab	May 2016	To treat multiple sclerosis
OCALIVA	Obeticholic Acid	May 2016	To treat rare, chronic liver disease
AXUMIN	Fluciclovine F 18	May 2016	A new diagnostic imaging agent to detect recurrent prostate cancer
BYVALSON	Nebivolol And Valsartan	June 2016	hypertension
VAXCHORA	Cholera Vaccine, Live, Oral	June 2016	Cholera
NETSPOR	Gallium Ga 68 Dotatate	June 2016	A diagnostic imaging agent to detect rare neuroendocrine tumors

Ref : www.fda.gov/drugs/developmentapprovalprocess/druginnovation/ucm483775.com

NEWS ROOM

PCSK - 9 Inhibitors - A Newer Entry in Cardiovascular Prescriptions

ProproteinConvertaseSubtilisin/Kexin type 9 is an enzyme encoded by PCSK9 gene in humans. PCSK9binds to LDL receptorson liver and this binding demolishes the action of LDL receptors. Thismakes the LDLreceptors unable to metabolisethe LDL in blood. Monoclonal antibodies(MAB) of PCSK 9 completed the clinical trials recently and two such MABs are now available in the market. Evolocumab (Brand name: Amgen), Alirocumab (Brand : Aventis). Bococizumab (Brand : Pfizer)(in phase 3 trials).When given in combination with statins that upregulate the level or LDL receptors, the combination becomes very powerful that can even take the blood cholesterol to 40 to 30 mg/dl. The advantage of these drugs over statins is that they are given through an injection that is required to be taken once in every 2 to 4 weeks, whereas statins require daily dosing. Currently FDA approved these drugs for maximally tolerated statin therapy patients with heterozygous familial hypercholesterolemia and clinical atherosclerotic CVS disease patients. Muscle related adverse effects are a way lower than statins and hence can be used in older patients. Common side effects include irritation at the injection site, flu like symptoms and malaise.

Available doses:

Alirocumab : SC injection : 75mg/ml and 150mg/ml
Evolocumab : SC injection : 140mg/ml

S.M.Vithunes
J.HarishPrabakar
D.Potrilingam

Ref:

- Medscape.com/viewarticle/861024
- Medscape.com/viewarticle/854762

Purple Urine Bag Syndrome (PUBS)

Discoloration of urine is not uncommonly encountered in clinical practice and may indicate a significant pathology. However, the majorities of instances are benign and occur as the result of trauma to the urological system during procedures or ingestions of substances such as medication or food. Purple discoloration of a urinary catheter bag is rare and can be alarming to both patients and healthcare workers. This phenomenon is known as the purple urine bag syndrome. It is associated with urinary tract infections occurring in catheterized patients, generally elderly females with significant comorbidities and constipation. Gram negative bacteria in the urine produce the enzyme indoxyl phosphatase. This converts indoxyl sulfate in the urine into the red and blue colored compounds indirubin and indigo. The most commonly implicated bacteria are Providencia stuartii, Providencia rettgeri, Klebsiella pneumoniae, Proteus mirabilis, Escherichia coli, Morganella morganii, and Pseudomonas aeruginosa.

Jeeva .V. Nair, Jini Sosa James, Fijomon Kuriakose

Reference : Noriko Soffi Harun et al, Urine Bag Syndrome : A Rare and Interesting Phenomenon. Southern Medical Journal Purple

REPORTED ADVERSE REACTIONS

ADVERSE REACTION	CAUSATIVE DRUGS	ADVERSE REACTION	CAUSATIVE DRUGS
Anaphylaxis	Paclitaxel	Ototoxicity	Furosemide
Bleeding	UFH	Pruritis	Allopurinol
Constipation	Ondansetron	Pedel edema	Verapamil
Constipation	Livogen	Pedel edema	Amlodipine
Dizziness	Propranolol	Rashes	Neurobione
Erythroderma	Allopurinol	Restlessness	Levetiracetam
Gynaecomastia	Spironolactone	Sleep disturbance	Atorvastatin
Hyperglycemia	Dexamethasone	Steven Johnsons Syndrome	Leflunomide
Hyperkalemia	Eplerenone	Thrombocytopenia	Linezolid
Loose stools	Augumentin	Thrombophlebitis	Furosemide
Myalgia	Prednisolone	Vomiting	Adriamycin
Orthostatic hypotension	Tamsulosin	Vomiting	Voveran

Source: Peripheral Phamacovigilance Center, Department of Pharmacologu, PSG IMS&R, Coimbatore

Proton Pump Inhibitors & Vitamin Deficiency

The researchers evaluated whether the long-term use of proton pump inhibitors (PPIs) was associated with vitamin B12 deficiency. Vitamin B12 deficiency may lead to irreversible neurological damage and other complications if left untreated for a long period. Vitamin B12 absorption involves peptic enzymes to cleave dietary B12 from dietary proteins. This is performed primarily by pepsin, which requires gastric acid to

Dr. Jothilakshmi's discussion on Rational Drug Therapy In Paediatrics

Dr. Muthusamy's session on the science behind clinical research

Interactive session and problem based learning by Santosh Shevade

activate it from its pepsinogen precursor. Without gastric acid, vitamin B12 would not be cleaved from dietary protein and would not be able to bind to R-proteins, which in turn protect vitamin B12 from pancreatic digestion. It has been hypothesized that since gastric acidity is required for vitamin B12 absorption, acid suppression may lead to malabsorption and ultimately vitamin B12 deficiency from atrophic gastritis and achlorhydria.

PPIs have been associated with an increased risk of other vitamin and mineral deficiencies by their mechanism of action centers on inhibition of the H+/K+ ATPase enzyme in gastric mucosal parietal cells, which is responsible for hydrogen ion secretion in exchange for potassium ions in the gastric lumen. As a result, PPIs can modify the bioavailability and absorption of essential vitamins and minerals both in the stomach and duodenum, which may also affect more distal absorption. While these risks are considered to be relatively low in the general population, they may be notable in elderly and malnourished patients, as well as those on chronic hemodialysis and concomitant PPI therapy. No current evidence recommends routine screening or supplementation for these potential vitamin and mineral deficiencies in patients on either short- or long-term PPI therapy. Reducing inappropriate prescribing of PPIs can minimize the potential risk of vitamin and mineral deficiencies.

Mrs.P.Rama,Assistant Professor

Reference :

http://kfrc.co.in/Journal/archive/april2015/94-100.pdf

https://www.prescqipp.info/resources/send/166-safety-of-long-term-ppis/1942-bulletin-92-safety-of-long-term-ppis

http://www.ijopp.org/sites/default/files/10.5530ijopp.9.1.13.pdf\

DEPARTMENT ACTIVITIES

The CPE programme was conducted on April 27 th 2016 during which Dr. Amareswar Reddy from the department of emergency medicine explained how to deal with various real life emergency situations. Moreover a quiz was conducted on oncology, ICU and medication administration.

On the 17 th and 18 th of June, a public health awareness programme was conducted at PSG high school Vedapatti and Karadivavi where students and parents were taught about various hygiene techniques and instructed to maintain clean surroundings for the purpose of good health.

On the 21st of June a CPE programme was conducted during which Dr. Jothilakshmi from pediatrics talked about rational drug therapy in children. Also a quiz was conducted on the topics nephrology and gastroenterology.

On the 24 th and 25th of June a workshop was conducted by Novartis regarding "Role of Pharmacist in Clinical Research".

CONTACT

Principal | PSG College of Pharmacy | Peelamedu | Coimbatore - 04 | Tamilnadu

Ph: 0422-4345841 | Extn: 5847, 5982.