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Official Desk

Herbal Drugs

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The use and sales of herbal medications have increased dramatically over the past several years in India. The market continues to grow, with a presence being established for commercially-prepared herbal products in community pharmacies throughout the nation. Many people now take herbal medicines or herbal products for their health care needs in different health-care settings.

Among consumers, there is a widespread misconception that "natural" always means "safe", and a common belief that remedies from natural origin are harmless and carry no risk. However there are WHO reports stating that herbal medicines are expected to have side effects, which may be of an adverse nature. Some adverse events reported in association with herbal products are attributable to problems of quality. Major causes of such events are adulteration of herbal products with undeclared other medicines and potent pharmaceutical substances, such as corticosteroids and nonsteroidal anti-inflammatory agents.

Adverse events may also arise from the mistaken use of the wrong species of medicinal plants, incorrect dosing, errors in the use of herbal medicines both by health-care providers and consumers, interaction with other allopathic prescription or non prescription drugs and use of products contaminates with potentially hazardous substances, such as toxic metals, pathogenic microorganisms and agrochemical residues.

However, mass media reports of adverse events tend to be sensational and give a negative impression regarding the use of herbal medicines in general rather than identifying the causes of these events, which may relate to a variety of issues.

The safety of herbal medicines has become a major concern to both national health authorities and the general public. Inadequate regulatory measures, weak quality control systems and largely uncontrolled distribution channels may have been contributing to the occurrence of adverse events.

Another major issue to be addressed is drug interaction of herbal supplements with both prescription and nonprescription medications which causes very serious adverse effects.

For example, the herbal supplement St John's wort is known to interact with numerous medications such as antidepressants, anticonvulsants, blood thinners, antiviral medication for HIV infection, allergy medications, drugs that suppress the immune system, birth control pills and cardiovascular drugs such as digoxin. The herbal supplements like feverfew, ginger, and ginkgo can interact with some drugs used for breast cancer and a host of other medications.

To increase the awareness of the above issue, patients/ consumers education is of the higher priority and also qualified professional practice in the field of herbal medicines is necessary. Especially if patient has a history of allergy to plants, weeds or pollen, it is the responsibility of pharmacist to immediately refer to healthcare provider before dispensing herbal supplements.

Patients taking blood thinners should also always consult their health care provider before using any of these herbal supplements. Since older individuals may have a greater incidence of having multiple medical conditions and are more likely to take multiple medications, it is imperative that they also consult their primary healthcare provider before using any herbal supplements to avoid any possible interactions or contraindications.

With the increasing use of herbal medications, there is a greater need for pharmacist training programs in this area. Pharmacists are in an ideal position to educate patients about herbal medicines. This should include the uses of herbal medications, its common drug interactions, adverse drug effects and precautions of herbal medications used with other prescription/non prescription drugs.

Hence, pharmacist should take a stand to curb this herbal medicine dispensing along with the other prescription or non prescription drugs without the knowledge.

Sources: 1. http://nccam.nih.gov/health/ 2. www.fda.gov/medwatch

CONTENTS

Drug of the Quarter

Drug : **Lixisenatide**

Class : Antidiabetic drug

Dosage Form : Injection

DCGI Approval : 15th Jan 2015

Indication: Treatment of type 2 diabetes mellitus in combination with oral antidiabetic drugs and/or basal insulin in adults with inadequate glycemic control with these agents and diet and exercise.

Dose Information

Adult Dosing:

- Starting dose: 10 mcg subQ once daily for 14 days.
- Maintenance dose: A fixed maintenance dose of 20 mcg subQ once daily is started on Day 15.
- Lixisenatide is administered once daily subcutaneously (SubQ), within the hour prior to any meal of the day.

Paediatric Dosing: Data not available.

Pharmacokinetics

Absorption

- Time to Peak Concentration (Tmax): SubQ: 1 to 3.5 hours

Distribution

- Protein Binding, Albumin: 55%
- Volume of Distribution: 100 L

Metabolism: Metabolic degradation

Excretion

- Extensive Renal Clearance (rate)
- Total Body Clearance: 35 L/hr

Elimination Half-life: 3 hours

Caution:

- Concomitant use with both basal insulin and sulfonylurea not recommended due to increased risk of hypoglycaemia
- Avoid use in diabetes mellitus type 1, diabetes ketoacidosis, pancreatitis, severe gastrointestinal diseases (eg, severe gastroparesis) and severe renal impairment.

Mechanism of Action/Pharmacology:

Lixisenatide is a selective glucagon-like peptide-1 (GLP-1) receptor agonist that acts as an incretin mimetic agent to enhance glucose-dependent insulin secretion from the pancreatic beta cells.

Adverse Effects

Common

- **Endocrine metabolic:** Hypoglycemia
- **Gastrointestinal:** Diarrhea, Nausea, Vomiting
- **Neurologic:** Headache

Serious

- **Cardiovascular:** Heart failure
- **Immunologic:** Anaphylaxis

Drug-Drug interactions

Category	Drug/s (Example)	Interaction Effect	Management
Atypical antipsychotic agents*	Asenapine, Aripiprazole, Amisulpride, Clozapine, Risperidone, Olanzapine	Increased risk of hyperglycemia due to decreased glucose-lowering effects.	If concomitantly used, adjust antidiabetic drug doses as necessary.
Protease inhibitors*	Amprenavir, Atazanavir, Darunavir, Fosamprenavir, Indinavir, Nelfinavir	Protease inhibitors cause worsening of glycemic control and hyperglycemia.	Use caution with the concomitant administration.
Beta-blockers**	Acebutolol, Atenolol, Betaxolol, Bisoprolol, Carvedilol, Labetalol, Metoprolol, Nebivolol	Concomitant administration may lead to hypo- or hyperglycemia, or may obscure symptoms of hypoglycemia.	If concomitantly used, closely monitor for hypoglycemia.
Coumarin derivative**	Acenocoumarol	Concomitant administration may slow the absorption of the coumarin derivatives due to delayed gastric emptying	Use caution with the concomitant administration.
Oral contraceptives**	Ethinyl Estradiol, Etonogestrel, Levonorgestrel, Medroxyprogesterone	Increased risk of hyperglycemia due to decreased glucose-lowering effects.	If concomitantly used, adjust antidiabetic drug doses as necessary.

Severity: *The interaction may be life-threatening and/or require medical intervention to minimize or prevent serious adverse effects.
**The interaction may result in exacerbation of the patient's condition and/or require an alteration in therapy.

Effects in Pregnancy and Lactation:

Pregnancy: Study report or clinical data during pregnancy are not available. Weigh the potential benefits of drug treatment against potential risks before prescribing this drug during pregnancy.

Breast-feeding: Study report or clinical data on weaning children are not available.

Patient Education

- Instruct patient to avoid activities requiring mental alertness or coordination until drug effects are realized, as drug may cause hypoglycemia, particularly with coadministration of basal insulin or a sulfonylurea.
- Side effects may include nausea, vomiting or diarrhea.
- Direct patient to report symptoms of hypoglycemia.
- Advise patient to report symptoms of anaphylaxis.
- Teach patient proper techniques and placement of injections.
- Patient should take injection within 1 hour prior to any daily meal, but preferably with the same meal each day.
- Direct patient to inject drug within the hour before the next meal if they miss a dose.

References:

1. http://www.micromedexsolutions.com/ 2. https://www.nice.org.uk/

Meanings: **Gastroparesis-** A condition in which the stomach can't empty food properly, **Anaphylaxis-** A severe, potentially life-threatening allergic reaction. ❑

Drug News – Around the Globe

1. Drug: Eltrombopag** **Country: USA**

Eltrombopag is a thrombopoietin receptor agonist.

Approved Indications: Eltrombopag tablet is approved to treat low blood platelet count in pediatric patients – ages one year and older – with a rare blood disorder called chronic immune thrombocytopenic purpura (ITP).

The safety and efficacy of eltrombopag in pediatric patients younger than one year with ITP or in pediatric patients with thrombocytopenia associated with chronic hepatitis C and severe aplastic anemia have not been established.

Side-effects: Upper respiratory tract or nose and throat (symptoms including fever, cough, nasal congestion, runny nose and sore throat), diarrhea, abdominal pain, rash and increase in liver enzymes[1].

2. Drug: Dichlorphenamide* **Country: USA**

Dichlorphenamide is a sulfonamide and a carbonic anhydrase inhibitor.

Approved Indications: Dichlorphenamide in tablet form is approved for the treatment of primary hyperkalemic and hypokalemic periodic paralysis.

Dosing Information: Initial, 50 mg orally twice daily; adjust dose weekly based on individual response and tolerability. Maximum total daily dosage: 200 mg.

Side-effects: Burning or pricking sensation, difficulty thinking and paying attention, changes in taste and confusion[1].

3. Drug: Flibanserin* **Country: USA**

Flibanserin is a serotonin 1A receptor agonist and a serotonin 2A receptor antagonist.

Approved Indications: Flibanserin in tablet form is approved for the treatment of premenopausal women with acquired and generalized hypoactive sexual desire disorder (HSDD).

Flibanserin is not indicated for postmenopausal women, for men or to enhance sexual performance. Concomitant alcohol use is contraindicated due to increased risk of severe hypotension and syncope.

Dosing Information: The recommended dosage is 100 mg orally once at bedtime.

Side-effects: Dizziness, somnolence (sleepiness), nausea, fatigue, insomnia and dry mouth[1].

4. Drug: Sacubitril/Valsartan* **Country: USA**

Sacubitril/Valsartan is a combination antihypertensive agent, where Sacubitril is a neprilysin inhibitor and Valsartan is an angiotensin II receptor blocker (ARB).

Approved Indications: Sacubitril/Valsartan combination in tablet form is approved to reduce the risk of cardiovascular death and chronic heart failure. This tablet is contraindicated in pregnancy.

Dosing Information: The initial dose is sacubitril 24 mg/valsartan 26 mg orally twice daily in patients not currently taking an ACE inhibitor (ACE-I) or ARB or currently taking low doses of those drugs.

Side-effects: Hypotension, hyperkalemia, cough and dizziness[1].

5. Drug: Brexpiprazole* **Country: USA**

Brexpiprazole is an atypical antipsychotic.

Approved Indications: Brexpiprazole tablet is approved to treat adults with schizophrenia and as an add-on treatment to an antidepressant medication to treat adults with major depressive disorder.

Brexpiprazole is not approved for the treatment of patients with dementia-related psychosis.

Dosing Information: The recommended initial dosage for major depressive disorder is 0.5 to 1 mg orally once daily; titrate at weekly intervals based on response and tolerability. For schizophrenia the dosage is 1 mg orally once daily on days 1 to 4; titrate to 2 mg orally once daily on days 5 to 7, then to target dosage of 4 mg orally once daily beginning on day 8, based on response and tolerability.

Side-effects: Akathisia, dyspepsia, headache, somnolence and weight gain[1].

6. Drug: Evolocumab* **Country: USA**

Evolocumab belongs to a new class of drug known as PCSK9 inhibitors.

Approved Indications: Evolocumab injection is approved for some patients who are unable to get their low-density lipoprotein (LDL) cholesterol under control with current treatment options. It is indicated in patients diagnosed with primary hypercholesterolemia or mixed dyslipidemia or homozygous familial hypercholesterolemia, as an adjunct to diet in combination with a statin or statin with other lipid-lowering therapies

Side-effects: Nasopharyngitis, upper respiratory tract infection, flu, back pain and reactions such as redness, pain or bruising where the injection is given[1].

Reference:

1. www.fda.gov/

Note - ** Available in India, * Not available in India

Meanings: **Immune thrombocytopenic purpura-** A bleeding disorder in which the immune system destroys platelets, which are necessary for normal blood clotting, **Periodic paralyses-** A group of rare hereditary disorders that cause episodes of muscle weakness or paralysis, **Hyperkalemia-** High potassium concentration in the blood, **Hypokalemia-** Low potassium concentration in the blood, **Akathisia-** A movement disorder characterized by a feeling of inner restlessness and a compelling need to be in constant motion, as well as by actions such as rocking while standing or sitting, lifting the feet as if marching on the spot and crossing and uncrossing the legs while sitting, **PCSK9-** A protein in the liver called proprotein convertase subtilisin kexin 9, that plays a critical role in the modulation of plasm LDL-C levels, **Dyspepsia-** Indigestion, **Somnolence-** Sleepiness or drowsiness, **Hypercholesterolemia-** High levels of cholesterol in the blood, **Dyslipidemia-** An abnormal amount of lipids in the blood. ❑

Safety Alerts

1.Drugs: Dipeptidyl peptidase-4 inhibitors-sitagliptin, saxagliptin, linagliptin**

Country: USA

-May cause severe joint pain

Dipeptidyl peptidase-4 inhibitors are antidiabetic drugs used with diet and exercise to lower blood sugar in adults with type 2 diabetes.

Alert: The USFDA warns that this class of drugs may cause joint pain that can be severe and disabling, from 1 day to years after treatment initiation.

Hence, KSPC-DIRC alerts the healthcare professionals to be cautious while prescribing Dipeptidyl peptidase-4 inhibitors[1,2].

2. Drugs: Diazoxide* **Country: USA**

-May cause pulmonary hypertension in infants and children

Diazoxide is a potent arteriolar vasodilator used primarily in the

treatment of hypertensive emergencies.

Alert: The USFDA warns that pulmonary hypertension has been reported in infants and children treated with diazoxide for low blood glucose concentrations. In all cases, the pulmonary hypertension resolved or improved after diazoxide was discontinued.

Hence, KSPC-DIRC alerts the healthcare professionals about the new safety changes of Diazoxide[1].

3. Drug: Ingenol mebutate* **Country: USA**

-May cause severe allergic reactions

Ingenol mebutate topical gel is used to treat facial and nonfacial actinic keratosis, a scaly, crusty lesion on the skin that may be red or yellow in colour.

Alert: The USFDA is warning about reports of severe allergic reactions and herpes zoster (shingles) associated with the use of ingenol mebutate topical gel. The allergic reaction may include throat tightness, difficulty breathing, feeling faint or swelling of the lips or tongue.

Hence, KSPC-DIRC alerts the healthcare professionals to be cautious while prescribing Ingenol mebutate topical gel [1].

4. Drug: Hydroxyzine** **Country: Japan**

-May cause QT interval prolongation or ventricular tachycardia

Hydroxyzine is a potent antihistamine used to treat IgE-mediated pruritus and urticaria.

Alert: The MHLW/PMDA warns that QT interval prolongation or ventricular tachycardia (including torsades de pointes) may occur with the use of Hydroxyzine.

Hence, KSPC-DIRC alerts the healthcare professionals about the new safety changes of Hydroxyzine[3].

5. Drug: Memantine** **Country: Japan**

-May cause Rhabdomyolysis

Memantine is indicated in the treatment of moderate to severe dementia associated with Alzheimer's disease.

Alert: The MHLW/PMDA warns that Rhabdomyolysis may occur in patients with the use of Memantine. The symptoms include myalgia, feelings of weakness, increased creatine kinase (creatine phosphokinase) or increased myoglobin in blood and urine etc. In addition, caution should be exercised for development of acute renal failure due to rhabdomyolysis.

Hence, KSPC-DIRC alerts the healthcare professionals to be cautious while prescribing Memantine[2,3].

References:

1. www.fda.gov/
2. http://www.tga.gov.au/
3. Ministry of Health, Labour & Welfare (MHLW) and Pharmaceuticals and Medical Devices Agency (PMDA), Japan: www.pmda.go.jp/english/

Note - ** Available in India, *Not available in India

Meanings: Herpes zoster (shingles) - A viral infection causing painful, blistering skin rash, **Rhabdomyolysis-** The breakdown/destruction of muscle tissue that leads to the release of muscle fiber contents into the blood. ❑

Continuing Pharmacy Education (CPE)

Dispensing Instructions to the Pharmacists

Anti-diabetics Medications-oral

Oral Antidiabetic drugs are medicines developed to stabilize and control blood glucose levels and used in the treatment of type 2 diabetes mellitus. These oral drugs can be used alone or in combination to provide effective therapy for type 2 diabetes.

There are different types of oral medications available:

- **Biguanides** eg: Metformin
- **Sulfonylureas** eg: Glipizide, Glimiperide, Glibenclamide, Gliclazide, Tolbutamide
- **Thiazolidinediones / Glitazones** eg: Pioglitazone
- **Meglitinides** eg: Repaglinide, Nateglinide
- **Alpha-glucosidase inhibitors** eg: Acarbose, Voglibose, Miglitol
- **Dipeptidyl Peptidase-4 (DPP-4) Inhibitors** eg: Sitagliptin, linagliptin
- **Sodium Glucose Co-Transporter 2 Inhibitors** eg: Canagliflozin Dapagliflozin

Below is a brief overview of each class.

Drugs	Use	Warnings*	Less serious side effects	Advice**
Biguanides	To decrease hepatic glucose production and improves insulin sensitivity and thereby used in the treatment of type II diabetes mellitus.	Prescription to be reconfirmed in case of patients with a history of heart or blood vessel disease, heart failure, blood circulation problems, kidney disease, liver disease, anemia, an adrenal gland or pituitary gland disorder.	Asthenia, flatulence, nausea/vomiting, diarrhea, indigestion vitamin B12 deficiency (less frequent).	Advise to take this drug with or immediately after meals, at times and intervals as per the prescription. This is to avoid lactic acidosis. Advise patient to report signs/symptoms of lactic acidosis (nausea, vomiting, abdominal pain, tachypnea). Elderly patients (80 years and older) are at increased risk. Strictly avoid alcohol during therapy; it may potentiate toxicity (hypoglycemia) of metformin in the patient.

Drugs	Use	Warnings*	Less serious side effects	Advice**
Sulfonylureas	To lower blood glucose levels by stimulating insulin secretion from the pancreas and thereby used in the treatment of type II diabetes mellitus.	Prescription to be reconfirmed in case of patients with a history of kidney disease, liver disease, heart or blood vessel diseases, adrenal or pituitary gland disorder.	Hypoglycemia,weight gain, allergic skin reactions, heartburn, dizziness, headache.	Advise patient to take this drug with breakfast or first main meal of the day. Advise to avoid alcohol.
Thiazolidinediones	To increase the hepatic sensitivity to insulin and enhances the glucose clearance and thereby used in the treatment of type II diabetes mellitus.	Prescription to be reconfirmed in case of patients with a history of liver disease, heart disease, heart failure or bladder cancer.	Anemia, edema, headache, myalgia, weight gain, pharyngitis, sinusitis, upper respiratory infection.	Advise to take this medicine with or without food. If a dose is missed, the dose should not be doubled in the following day.
Meglitinides	Used to stimulate the release of insulin from pancreatic B-cells and thereby improve glycemic control in adults with type 2 diabetes mellitus.	Prescription to be reconfirmed in case of patients with a history of kidney disease, liver disease, heart or blood vessel disease, an adrenal disorder, a pituitary gland disorder or nerve disorders.	Headache, diarrhea, nausea, stuffy or runny nose, cough, sneezing, sore throat.	Advise to take this medicine within 30 minutes before a meal. Advise diabetic patients to monitor for signs/symptoms of hyper- or hypoglycemia and to report difficulties with glycemic control.
Alpha-glucosidase inhibitors	Used to delay the digestion and absorption of carbohydrates, hence reduce the blood sugar elevation during treatment of adults with type 2 diabetes mellitus.	Prescription to be reconfirmed in case of patients with a history of kidney disease or bowel disease.	Flatulence, hypoglycemia, diarrhea, flatulence, bloating, abdominal pain or discomfort, abdominal fullness, nausea, dizziness.	Advise patient to take this drug with breakfast or first main meal of the day.
Dipeptidyl Peptidase IV Inhibitors	Used in the treatment of type II diabetes mellitus as an adjunct to diet and exercise.	Prescription to be reconfirmed in case of patients with a history of kidney disease or a history of pancreatic diseases.	Hypoglycemia, headache, nasopharyngitis, upper respiratory infection.	Advice to take this medicine with or without food.
Sodium Glucose Co-Transporter 2 Inhibitors	Used in the treatment of type II diabetes mellitus as an adjunct to diet and exercise.	Prescription to be reconfirmed in case of patients with a history of kidney disease, liver disease, or high potassium or cholesterol levels.	Abdominal pain, constipation, increased, thirst, nausea, fatigue.	Advice to take this medicine before the first meal of the day.

Notes:

* Make sure that the patient has informed the doctor the pregnancy and lactating status.

** Stress the importance of adhering to specific diet, weight reduction, exercise and personal hygiene programs. Explain how and when to perform self-monitoring of blood glucose level.

** Make sure patient understands that therapy relieves symptoms but doesn't cure disease.

** Advise not to cut, break, or chew sustained-release (SR) tablets.

** Advise not to take other medications including OTC drugs, without medical advice.

** Tell patient not to change drug dosage without medical approval.

** Advise the patient to check blood sugar regularly as directed by the physician.

** Inform patients about signs, symptoms & management of hypoglycaemia. Symptoms of hypoglycemia are: sweating, anxiety, dizziness, hunger, rapid heartbeat, impaired vision, weakness & fatigue, headache & irritability.

** Management of hypoglycemia: drink half cup of juice or chew 3-4 hard candies or 2 table spoon resins or 1 tablespoon honey or 1 table spoon of condensed milk.

References:

1. Handbook of Pharma SOS, Educational Series-III, 6th Edition 2014, published by Karnataka State Pharmacy Council, Bangalore..
2. www.micromedexsolutions.com, Micromedex (R) 2.0, 2002-2015, Truven Health Analytics Inc.
3. http://emedicine.medscape.com/

Drug Usage in Special Population - Pediatrics and Geriatrics

Cardiovascular System Drugs (oral)

Drug (Oral)	Use in Children (Paediatrics)	Use in Elderly (Geriatric)
Amiodarone	Safety and effectiveness in children have not been established.	No dosage adjustment required.
Amlodipine	Safety and efficacy in children less than 6 years is not established.	Dosage adjustment may be required in geriatric and in patients with liver disease.
Atenolol	Safety and effectiveness in children have not been established.	Dosage adjustment may be required in patients with impaired renal function.
Carvedilol	Safety and effectiveness in children have not been established.	Dosage adjustment is required especially in severe liver impairment.
Diltiazem	Safety and effectiveness in children have not been established.	Dosage adjustment required especially in liver impairment.
Enalapril	Safety and effectiveness have been established. Safe to use in children.	Dosage adjustment required especially in renal failure.

(to be continued……)

Reference: Drug Usage in special Population-Pediatrics and Geriatrics, Educational Series-II, 5th Edition 2014, published by Karnataka State Pharmacy Council, Bangalore.

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Drug Usage in Special Population - Pregnancy and Lactation

Cardiovascular System Drugs (oral)

Drug (Oral)	Use in Pregnancy (Teratogenicity)	Use in Breastfeeding (Lactation)
Amiodarone	USFDA Category D. Teratogenicity with this drug is confirmed. To be used when benefit outweighs risk.	Excreted in milk. Medical advice is necessary.
Amlodipine	USFDA Category C. Limited data on Amlodipine use during pregnancy. Use only if the potential benefit outweighs the potential risk to the fetus.	Data not available. Medical advice is necessary.
Atenolol	USFDA Category D. Teratogenicity with this drug is confirmed. To be used when benefit outweighs risk.	Controversial data. Medical advice is necessary.
Carvedilol	USFDA Category C.Limited data on Carvedilol use during pregnancy. Use only if the potential benefit outweighs the potential risk to the fetus.	Data not available. Medical advice is necessary.
Diltiazem	USFDA Category C. Limited data on Diltiazem during pregnancy. To be used when benefit outweighs risk.	Controversial data. Medical advice is necessary.
Enalapril	USFDA Category D. Teratogenicity with this drug is confirmed. To be used when benefit outweighs risk.	Excreted in breast milk. But safe to use since this drug poses minimal risk to the infant.

(to be continued……)

USFDA Category C: Animal reproduction studies have shown an adverse effect on the fetus and there are no adequate and well-controlled studies in humans. Drug should be given only if the potential benefit justifies the potential risk to the fetus.

USFDA Category D: There is positive evidence of human fetal risk, but the benefits from use in pregnant women may be acceptable despite the risk (e.g., if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective).

Reference: Drug Usage in special Population-Pregnancy and Lactation, Educational Series-I, 5th Edition 2014, published by Karnataka State Pharmacy Council, Bangalore.

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ಔಷಧ ತಜ್ಞರಿಗೊಂದು ಸಲಾಮ್

Continued from - April-June 2015 issue

ಫಾರ್ಮಸಿಸ್ಟ್ ಅಥವಾ ಕೆಮಿಸ್ಟ್ ಎಂದರೆ ಮೆಡಿಕಲ್ ಸ್ಟೋರ್‌ನಲ್ಲಿ ಔಷಧ ಮಾರಾಟ ಮಾಡುವವರಷ್ಟೇ ಅಲ್ಲ, ಆರೋಗ್ಯ ಕ್ಷೇತ್ರದಲ್ಲಿ ವೈದ್ಯಕೀಯ ವಿಜ್ಞಾನರಂಗದಲ್ಲಿ ಪ್ರತ್ಯಕ್ಷವಾಗಿ, ಪರೋಕ್ಷವಾಗಿ ರೋಗಿಗಳ ವ್ಯಕ್ತಿಗಳ ರೋಗ ನಿವಾರಣೆಗಾಗಿ, ಆರೋಗ್ಯ ಸುಧಾರಣೆಗಾಗಿ, ಸಮಷ್ಟಿಯ ಹಿತಕ್ಕಾಗಿ ಅಹರ್ನಿಶಿ ದುಡಿಯುವವರಲ್ಲಿ ಔಷಧತಜ್ಞರೂ ಒಬ್ಬರು ! ಔಷಧತಜ್ಞ ಅಥವಾ ಕೆಮಿಸ್ಟ್ ಅಥವಾ ಫಾರ್ಮಸಿಸ್ಟ್ ಇವರೇ ವೈದ್ಯ ಮತ್ತು ರೋಗಿಯ ನಡುವಿನ ಮುಖ್ಯ ಕೊಂಡಿ !

ಆಧುನಿಕ ವಿಜ್ಞಾನದಲ್ಲಿ ಫಾರ್ಮಸಿ ಅಥವಾ ಔಷಧ ವಿಜ್ಞಾನವನ್ನು ಮೂರು ಮುಖ್ಯ ಭಾಗವಾಗಿ ವಿಂಗಡಿಸಲಾಗಿದೆ.

1. ಫಾರ್ಮಸ್ಯುಟಿಕ್ಸ್ 2. ಫಾರ್ಮಕೊಗ್ನಸಿ. 3. ಫಾರ್ಮಸಿ ಪ್ರಾಕ್ಟೀಸ್

'ಫಾರ್ಮ ಕೋ ಇನ್ ಫಾರ್ಮಟಿಕ್ಸ್ ಎಂಬ ಆಧುನಿಕ ವಿಭಾಗವು ಇದೆ. ಇದರಲ್ಲಿ ಕ್ರಮ ಬದ್ದವಾಗಿ ಔಷಧದ ಸಂಶೋಧನೆ, ಪ್ರಯೋಗ, ಸುರಕ್ಷಿತ ಬಳಕೆಯ ಕುರಿತಾಗಿ ಔಷಧ ತಜ್ಞರಿಗೆ ಸುದೀರ್ಘ ಜ್ಞಾನ ದೊರೆಯುತ್ತದೆ.

ಕೆಮಿಸ್ಟ್ ಅಥವಾ ಫಾರ್ಮಸಿಸ್ಟ್ ಅಥವಾ ಔಷಧ ತಜ್ಞರು ಫಾರ್ಮಸಿ ಅಥವಾ

ಡ್ರಗ್ ಸ್ಟೋರ್ ಅಥವಾ ಮೆಡಿಕಲ್ ಸ್ಟೋರನ್ನು ಹೊಂದಿರುತ್ತಾರೆ. ಅವರು ಪ್ರತಿ ಔಷಧಿಯ ಗುಣ, ಪರಿಣಾಮಗಳನ್ನು ಅಭ್ಯಸಿಸಿ ಅರಿತಿರುವುದರಿಂದ ರೋಗಿಯ ಚಿಕಿತ್ಸೆಯಲ್ಲಿ ಹಾಗೂ ಆರೋಗ್ಯ ವೃದ್ಧಿಯಲ್ಲಿ ಅವರ ಪಾತ್ರ ಮಹತ್ವದ್ದು.

ಫಾರ್ಮಸಿಸ್ಟರು ಅಂತಾರಾಷ್ಟ್ರೀಯವಾಗಿ ಕಟ್ಟಿಕೊಂಡಿರುವ ಸಂಘವೇ ಇಂಟರ್‌ನ್ಯಾಷನಲ್ ಫಾರ್ಮಸ್ಯೂಟಿಕಲ್ ಫೆಡರೇಶನ್ (F.I.P.)

ವಿಶ್ವದ ವಿವಿಧೆಡೆ ಔಷಧ ತಜ್ಞ ಅಥವಾ ಫಾರ್ಮಸಿಸ್ಟ್‌ಗಳಲ್ಲೂ ವಿಶೇಷ ವಿಭಾಗಗಳಿವೆ.

ಉದಾ:

1. ಜೀರಿಯಾಟ್ರಿಕ್ ಫಾರ್ಮಸಿಯಲ್ಲಿ ಔಷಧತಜ್ಞ, (ವೃದ್ಯಾಪ್ಯದ ರೋಗಗಳ ಕುರಿತಾದ ಔಷಧ ಶಾಸ್ತ್ರ ಜೀರಿಯಾಟ್ರಿಕ್ಸ್).

2. ಕಾರ್ಡಿಯೋವ್ಯಾಸ್ಕ್ಯುಲಾರ್ ಫಾರ್ಮಸಿ ಅಥವಾ ಹೃದ್ರೋಗಗಳ ಔಷಧ ಶಾಸ್ತ್ರದಲ್ಲಿ ವಿಶೇಷ ಔಷಧ ತಜ್ಞ.

ಇದೇ ರೀತಿಯಲ್ಲಿ ಕ್ಯಾನ್ಸರ್, ಮನೋರೋಗ, ಟಾಕ್ಸಿಕಾಲಜಿ (ವಿಷ ಅಥವಾ ಅಗದತಂತ್ರ) ಇವೇ ಮೊದಲಾದ ವಿಭಾಗಗಳಲ್ಲಿ ವಿಶೇಷ ಔಷಧ ತಜ್ಞರಿದ್ದಾರೆ.

ಕಮ್ಯುನಿಟಿ ಫಾರ್ಮನಿಸ್ಟ್ ಆಸ್ಪತ್ರೆಯ ಫಾರ್ಮಸಿಸ್ಟ್ ಕ್ಲಿನಿಕ್‌ಗಳ ಫಾರ್ಮಸಿಸ್ಟ್ ಮನೋರೋಗಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ಆಸ್ಪತ್ರೆಗಳ ಔಷಧಾಗಾರ ಔಷಧತಜ್ಞ ವೆಟರ್ನರಿ ಫಾರ್ಮಸಿಗೆ ಸಂಬಂಧಿಸಿದ ಔಷಧತಜ್ಞ.

ನ್ಯೂಕ್ಲಿಯರ್ ಫಾರ್ಮಸಿ: ಅಂದರೆ ಕ್ಯಾನ್ಸರ್ ಮೊದಲಾದ ರೋಗದಲ್ಲಿ ಬಳಸುವ ಹಾಗೂ ರೋಗನಿದಾನ (ಡಯಾಗ್ನೋಸಿಸ್) ಕ್ಕೆ ಬಳಸುವ ರೇಡಿಯೋ ಆಕ್ಟೀವ್ ವಸ್ತುಗಳನ್ನು ಔಷಧೀಯವಾಗಿ ತಯಾರಿಸುವ ಶಾಸ್ತ್ರ – ಈ ವಿಭಾಗದ ವಿಶೇಷ ಔಷಧತಜ್ಞ. ಮೂಲಕ ಔಷಧ ತಜ್ಞರಿಂದ ರೋಗಿ ಔಷಧ ತರಿಸಿಕೊಳ್ಳುವ ಫಾರ್ಮಸಿಯೇ ಇಂಟರ್‌ನೆಟ್ ಫಾರ್ಮಸಿ. ಆದರೆ ಇಲ್ಲೂ ವೈದ್ಯಕೀಯ ತಪಾಸಣೆಯ ವೈದ್ಯರ ಚೀಟಿ (ಪ್ರಿಸ್ಕ್ರಿಪ್ಶನ್) ಅವಶ್ಯ. ಈ ವಿಭಾಗದ ತಜ್ಞ ಇಂಟರ್‌ನೆಟ್ ಫಾರ್ಮಸಿಯ ವಿಶೇಷ ಔಷಧ ತಜ್ಞ. ಸರಿ ಸುಮಾರು ಕ್ರಿ.ಶ.2000 ದ ಕಾಲಾನಂತರ ಜನಪ್ರಿಯವಾಗುತ್ತಿರುವ ಈ ವಿಧದ ಫಾರ್ಮಸಿಯಲ್ಲಿ ಅನುಕೂಲತೆಗಳೂ ಇವೆ. ಅಂತೆಯೇ ದುರ್ಬಳಕೆಯೂ ಇದೆ. ವೈದ್ಯರ ಔಷಧ ಚೀಟಿಯ ಹೊರತಾಗಿ ಔಷಧ ತರಿಸಿಕೊಳ್ಳುವ ರೋಗಿಗಳೂ ಇದ್ದಾರೆ. ಆದರೆ ಇದರಿಂದ ಪಾರ್ಶ್ವ ಪರಿಣಾಮ, ದುಷ್ಪರಿಣಾಮ ಉಂಟಾಗುವುದರಿಂದ ಜಾಗ್ರತೆ, ಮುತುವರ್ಜಿ ಅತೀ ಅವಶ್ಯ.

ಸ್ಪೆಶಾಲಿಟಿಫಾರ್ಮಸಿ: ಈ ವಿಭಾಗದಲ್ಲಿ ಕಾರ್ಯನಿರ್ವಹಿಸುವ ಫಾರ್ಮಸಿಸ್ಟ್ರು ಕ್ಯಾನ್ಸರ್, ಹೆಪಟೈಟಿಸ್, ದೀರ್ಘಕಾಲೀನ ಆಮವಾತ, ಆಸ್ತಮಾ ಮುಂತಾದವುಗಳಲ್ಲಿ ನೀಡುವ ಇಂಜೆಕ್ಷನ್, ಇನ್‌ಹೇಲರ್, ರಕ್ತನಾಳದ ಮೂಲಕ ನೀಡುವ ಔಷಧದ್ರವ್ಯಗಳು (ಇನ್‌ಫ್ಯೂಶನ್ಸ್) ಮುಂತಾದವುಗಳನ್ನು ನೀಡುತ್ತಾರೆ.

ಜೊತೆಗೆ ಔಷಧಗಳನ್ನು ಕ್ರಮಬದ್ಧವಾಗಿ ಜೋಡಿಸುವ, ನೀಡುವ ರೋಗಿಗಳಿಗೆ ವಿವರಿಸುವ ಕೆಲಸ ಮಾಡುತ್ತಾರೆ.

ಕೌನ್ಸಿಲಿಂಗ್ ನೀಡುವುದು, ದುಬಾರಿ ಔಷಧಗಳ ಕುರಿತಾಗಿ ಮಾಹಿತಿ ಹಾಗೂ ವೆಚ್ಚಗಳನ್ನು ತಿಳಿಸುವುದು, ಕ್ಯಾನ್ಸರ್‌ನಂಥ ಸಂದರ್ಭಗಳಲ್ಲಿ ಕ್ಯಾನ್ಸರ್ ರೋಗಿಗಳಿಗೆ ಔಷಧದ ಪರಿಣಾಮ, ಅಡ್ಡ ಪರಿಣಾಮ ಇತ್ಯಾದಿಗಳ ಕುರಿತಾಗಿ ತಿಳಿಹೇಳುವುದು ಮುಂತಾದವು ಇವರ ಮುಖ್ಯ ಕಾರ್ಯ.

2013ನೆಯ ಇಸವಿಯಲ್ಲಿ ಎಫ್.ಡಿ.ಎ. ಯಿಂದ ಪ್ರಮಾಣೀಕರಿಸಲ್ಪಟ್ಟ ಸ್ಪೆಶಾಲಿಟಿ ಡ್ರಗ್ಸ್ 19. ಆದ್ದರಿಂದ ಸ್ಪೆಶಾಲಿಟಿ ಫಾರ್ಮಸಿಯ ಔಷಧತಜ್ಞರಿಗೆ ಎಲ್ಲಿಲ್ಲದ ಬೇಡಿಕೆ. ಇದಕ್ಕಾಗಿಯೇ ಸ್ಪೆಶಾಲಿಟಿ ಫಾರ್ಮಸಿ ಬೇಡಿಕೆ. ಇದಕ್ಕಾಗಿಯೇ ಸ್ಪೆಶಾಲಿಟಿ ಫಾರ್ಮಸಿ ಸರ್ಟಿಫಿಕೇಶನ್ ಬೋರ್ಡ್ ಅಸ್ತಿತ್ವಕ್ಕೆ ಬಂದಿದೆ ಹಾಗೂ ಈ ವಿಭಾಗದ ಔಷಧತಜ್ಞರಿಗಾಗಿ, ಈ ಬೋರ್ಡ್ ಪರೀಕ್ಷೆಗಳನ್ನು ನಡೆಸಿ ಸರ್ಟಿಫಿಕೇಟ್ ನೀಡುತ್ತದೆ.

ಫಾರ್ಮಸಿ ಚಿಹ್ನೆಗಳು

- ಮೋರ್ಟರ್ ಮತ್ತು ಪೆಸಲ್ Rx ಅಕ್ಷರದೊಂದಿಗೆ ಆಂಗ್ಲರ ಚಿಹ್ನೆ.
- ಹಸುರು ಗ್ರೀಕ್ ಕ್ರಾಸ್ – ಫ್ರಾನ್ಸ್‌ನಲ್ಲಿ
- ಕೆಂಪು ೦ ಅಕ್ಷರ – ಜರ್ಮನಿಯಲ್ಲಿ
- ಆಸ್ಕ್ಲೇಪಿಯಸ್‌ನ ರಾಡ್ – ಅಂತಾರಾಷ್ಟ್ರೀಯವಾಗಿ ಅಂಗೀಕೃತವಾದ ಚಿಹ್ನೆ

ಭವಿಷ್ಯದಲ್ಲಿ ಔಷಧಶಾಸ್ತ್ರ ಮತ್ತು ಔಷಧತಜ್ಞರು

ಆರೋಗ್ಯ ರಕ್ಷಕ ವ್ಯವಸ್ಥೆ ಮತ್ತು ಆರೋಗ್ಯ ಸೇವೆಗಳಲ್ಲಿ ಔಷಧ ಸಂಶೋಧನೆಯಲ್ಲಿ ಔಷಧತಜ್ಞರ ಪಾತ್ರ ಮಹತ್ತ್ವದ್ದಾಗಿರುವುದರಿಂದ ಭವಿಷ್ಯದ ವೈದ್ಯಕೀಯ ವಿಜ್ಞಾನದ ಒಂದು ಭಾಗವೇ ಅವರಾಗಿದ್ದಾರೆ.

ಔಷಧಿ ನೀಡುವ ಬದಲಾಗಿ ಇಂದು ಫಾರ್ಮಸಿಸ್ಟರು ರೋಗಿಯ ಆರೈಕೆಯ ವಿಭಾಗಗಳಲ್ಲಿ ವಿವಿಧ, ವಿಶಿಷ್ಟ ವಿಭಾಗದ ಫಾರ್ಮಸಿಗಳಲ್ಲಿ ಔಷಧತಜ್ಞರಾಗಿ ಕಾರ್ಯ ಮಾಡಲು ಇಂದು ಔಷಧ ತಜ್ಞರು ಉತ್ಸುಕರಾಗಿದ್ದಾರೆ.

ಕ್ಲಿನಿಕಲ್ ಫಾರ್ಮಸಿ ಎಂಬ ವಿಭಾಗವೇ ಅಮೆರಿಕದಲ್ಲಿ ಆರಂಭವಾಗಿದೆ. ಡಾಕ್ಟರ್ ಆಫ್ ಫಾರ್ಮಸಿ (pharm.D) ಎಂಬ ಪದವಿಯನ್ನೂ ನೀಡುತ್ತಾರೆ.

ರೋಗಿಗಳಿಗೆ ವಿವಿಧ ಸೇವೆಗಳನ್ನು ಸೌಲಭ್ಯಗಳನ್ನು 'ಮೆಡಿಕೇಶನ್ ಥೆರಪಿ ಮ್ಯಾನೇಜ್‌ಮೆಂಟ್ (MTM) ಮೂಲಕ ಔಷಧತಜ್ಞರು ಒದಗಿಸುತ್ತಾರೆ.

ಹಳ್ಳಿಯ ಗಲ್ಲಿಗಳಲ್ಲಿ ತಳಮಟ್ಟದ ಆರೋಗ್ಯ ಸೇವೆಯನ್ನು ಔಷಧ ಕ್ಷೇತ್ರದಲ್ಲಿ ಒದಗಿಸುವ ಔಷಧ ತಜ್ಞರಿಂದ ಹಿಡಿದು ಸೂಪರ್ ಸ್ಪೆಶಾಲಿಟಿ ಆಸ್ಪತ್ರೆಗಳಲಿ ವಿವಿಧ ವಿಶೇಷತೆಯನ್ನು ಹೊಂದಿರುವ ವಿಶೇಷ ಔಷಧ ತಜ್ಞರವರೆಗೆ ಫಾರ್ಮಸಿಸ್ಟ್‌ರು ವಿಶ್ವದ ಎಲ್ಲೆಡೆ ಪಸರಿಸಿದ್ದಾರೆ.

ಕೃತಜ್ಞತೆಗಳು

1. ಡಾ॥ ಅನುರಾಧ ಕಾಮತ್,
ಶ್ರೀ ಭುಬನೇಂದ್ರ ಕ್ಲೀನಿಕ್, ಉಪ್ಪುಂಡ, ಉಡುಪಿ
E-mail: dranukamath@gmail.com

2. ಮುಖ್ಯ ಸಂಪಾದಕರು,
ತರಂಗ ಸಂಪುಟ 33, ಸಂಚಿಕೆ 1, ಜನವರಿ 1, 2015 ❑

KSPC News

1. Oxbridge College of Pharmacy

Sri. Bhagavan P.S., Registrar, Karnataka State Pharmacy Council, Bengaluru was the Chief Guest for the Teachers' Day Programme held at Oxbridge College of Pharmacy on 9th September 2015. The programme was anchored by Dr. Rajesh, Principal, Oxbridge College of Pharmacy, Bengaluru.

After administering Guru Vandana to the students and faculties, he stressed on the need to put on professional outlook by every Pharmacist before the public. The habit of presenting ourselves in whatever dress and look should be avoided. One must be able to identify the Pharmacy profession in our walk and talk.

He requested the faculty to assign one hour in a month to allow the students to have group discussion on any current issues to improve their communication skill.

2. Srinivas College of Pharmacy, Mangalore

The Srinivas College of Pharmacy, Mangalore conducted the Students council and Fresher's day programme for the year 2015-16 of D.Pharm,

B.Pharm, M.Pharm & Pharm D. The programmed was inaugurated by Dr. A.R.Shabaraya, Principal & Director, Srinivas College of Pharmacy on 10th September 2015 and called the students to make best use of the council body and organise variety of programmes and develop leadership qualities. The student council President and members of the year 2015-16 took the oath during the ceremony. Student Council President, Mr. Abhishek shared about the importance of the council body and ensured of conducting many more programmes under his leadership to the utmost satisfaction of the college.

Dr. E.V.S. Subrahmanyam, Professor & Student's Council advisor, Srinivas College of Pharmacy & Member of Karnataka State Pharmacy Council, Bengaluru along with other Student's Council advisors, Mr. Krishnananda Kamath, Mrs Shwetha Kamath and Ms. Paramita Das were present during the function. Ms. Apeksha anchored the program, Ms. Sumayya proposed vote of thanks.

3. Krupanidhi College of Pharmacy, Bengaluru

Sri. D.A. Gundu Rao, President, Karnataka State Pharmacy Council, Bengaluru was the Guest of Honor for the 5th National Conference on the 'Role of Clinical Pharmacists in Improving Medication Safety and Pharmacoeconomics' organized and hosted by Krupanidhi College of Pharmacy, Bengaluru & Association of Community Pharmacists of India and Kautilya Society Pharmacoeconomics & Outcomes Research Bangalore city Chapter held on 22 & 23 Aug 2015.

Other guests present for the inauguration where Sri. Raghurama Bhandary, Drugs Controller for the State of Karnataka, Sri S.G. Biligiri, Director, Juggat Pharma, Dr. Ivan Salamon, Professor & EU project Manager, University of Presov, Republic of Slovakia, Prof. Dr. Anantha Nagappa Naik, Dept. of Pharmacy Management, Manipal College of Pharmaceutical Sciences.

The programme was presided by Prof. Dr. Suresh Nagpal, Chairman, Krupanidhi Group of Institutions, Mrs. Geetha Nagpal, Vice Chairperson, Krupanidhi Group of Institutions, Prof. Prakash V Mallya, Director, Krupanidhi College of Pharmacy and Dr. Raman Dang, Principal & LOC Chairman of the event.

A total of 290 delegates from 5 states and 5 countries participated in this event as delegates and speaker and invitees.

4. Indian Pharmacology Society (IPS) Bangalore Chapter Pharmacology Conference-2015

Sri. Samson P. George, Drug information Pharmacist, Drug Information & Research Center, Karnataka State Pharmacy Council, Bengaluru attended the two days IPS Bangalore Chapter Pharmacology Conference-2015 organized by IPS Bangalore chapter & Department of Pharmacology, Dr.B.R.Ambedkar Medical College, Bengaluru & Department of Quality, Bangalore Baptist Hospital, Bengaluru held during 5th -6th August 2015.

The conference was on 'Clinical Research-Amendments & Impacts'. The resource panel includes experts from various fields of Medical Affairs, Medical Writing, Academic Research, Pre-clinical research, Pharmacovigilance etc.

Dr. S. Sacchidanand, Registrar (Evaluation), Rajiv Gandhi Institute of Health Sciences, Karnataka, Bengaluru was the chief guest who inaugurated the event along with other guests.

Around 300 delegates including students attended this event.

The preconference workshop was on 'Management of Medication & Patient Safety'. The main learning objectives were to lead the quality initiative with respect to Management of Medication. The topics included NABH standards for medications management, Medication errors, Prescription audit etc.

Dr. Navin Thomas, Director & CEO, Bangalore Baptist Hospital, Bengaluru, Dr. Raju Koneri, President, IPS-Bangalore Chapter & Director, Karnataka College of Pharmacy, Bengaluru, Dr. L.Padma, Prof. & HOD of Pharmacology, Dr. B.R. Ambedkar Medical College, Dr. Badari Datta, Consultant ENT Surgeon, HOD of Quality Department, Bangalore Baptist Hospital were present.

Around 60 delegates participated in this preconference workshop.

Additional Information on any article is available on request
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