JSS ACADEMY OF HIGHER EDUCATION & RESEARCH
(DEEMED TO BE UNIVERSITY) MYSURU

CLINICAL PHARMACY NEWSLETTER

A Newsletter of Drug and Prescribing Information
Published by
Clinical Pharmacy Services Department, Govt. Headquarters Hospital, Ooty
(A Unit of Department of Pharmacy Practice, JSS College of Pharmacy, Ooty)

VOLUME XXVI ISSUE 04

October - December 2020

INSIDE THIS ISSUE

ONCE-WEEKLY INSULIN: COULD IT ALTER TREATMENT ?

Phase 2 data for the investigational, once-weekly basal insulin analogIcodec (Novo Nordisk) showing comparable efficacy and safety to once-daily insulin glargine U100 have been published in the New England Journal of Medicine (N Engl J Med 2020; 383:2107-2116).

Insulin Icodec could potentially improve acceptance and likely would facilitate management in type 2 diabetes patients needing basal insulin, and it will be transform the way in which the physicians manage people with type 2 diabetes requiring insulin.

Insulin Icodec binds to albumin to create a circulating depot with a 196-hour (8.1 days) half-life, so the once-weekly injection is designed to cover an individual's basal insulin requirements for a full week, with steady insulin release. Because of its concentrated formulation, its injection volume is equivalent to that of daily glargine U100.

In the 26-week randomized phase 2 trial involving 247 insulin-naive patients with type 2 diabetes, once-weekly Icodec's glucose-lowering and safety profiles were similar to those of once-daily insulin glargine U100. In addition, new data at EASD showed that switching to Icodec from other basal insulins is efficacious without causing severe hypoglycaemia.

Hence, some patients will find once-weekly basal insulin an attractive option, while other patients will be indifferent to its availability.

The Phase 2 Study: Once-Weekly is Just as Good as Daily

In the phase 2, randomized, double-blind, double-dummy, parallel-group treat-to-target trial, the patients had baseline A1c levels of 7.0% to 9.5% despite taking metformin, with or without a dipeptidyl peptidase 4 (DPP-4) inhibitor. They were randomized to weekly insulin Icodec plus daily placebo (n = 125) or daily insulin glargine U100 plus weekly placebo (n = 122). The primary endpoint, change in A1c from baseline to week 26, dropped 1.33 percentage points with Icodec and 1.15 percentage points with glargine, down to 6.7% and 6.9%, respectively. The difference wasn't significant (P = .08). Fasting plasma glucose levels dropped by 58 mg/dL with icodec and 54 mg/dL with glargine (P = .34). Time-in-range (70-140 mg/dL or 3.9-7.8 mmol/L) as assessed by flash glucose monitoring (FreeStyle Libre Pro) was greater with Icodec, by 5.4 percentage points, corresponding to an extra 78 minutes per day in range.

Mild hypoglycaemia was more common with Icodec than glargine (509 vs. 211 events per 100 patient-years, but rates of moderate/clinically significant hypoglycaemia (52.5 vs. 46 per 100 patient-years, respectively) and severe hypoglycaemia (1.4 vs. 0 per 100 patient-years) did not differ significantly (P = .85). And the duration of hypoglycaemia wasn't longer with Icodec compared with glargine, despite its longer duration of action. Rates of other adverse events were similar between the groups. Use of a once-weekly basal insulin could reduce the number of annual insulin injections from 365 to just 52.

New Data: Switching to Icodec is Effective, Safe

The new data on switching came from a 16-week, open-label, phase 2 trial of 154 patients with type 2 diabetes with insufficient glycaemic control (mean A1c 7.9%) while taking oral medication and basal insulin. They were randomized to once-weekly Icodec with or without an initial loading dose, or once-daily glargine U100. Insulin doses were titrated weekly based on blood glucose levels as measured by continuous glucose monitoring (Dexcom G6).

The primary endpoint, time-in-range (70-180 mg/dL or 3.9-10.0 mmol/L) during weeks 15-16 was significantly better for Icodec plus loading dose compared to glargine U100 (72.9% vs 65.0%, P = .01) and similar between Icodec and glargine U100 (66.0% vs 65.0%, P = .75).Estimated mean percentage point reductions in A1c were 0.77 for Icodec plus loading dose, 0.47 for Icodec without the loading dose, and 0.54 for glargine U100. Rates of moderate to severe hypoglycemia were similar between Icodec plus loading dose and glargine U100 (78.0 and 79.4 events per 100 patient-years, respectively), and lower for Icodec without the loading dose (14.8/100 patient-years). There were no unexpected safety findings reported during the trial.

Ref: https://www.medscape.com/viewarticle/937847

CORONAVIRUS DISEASE (COVID-19): SIMILARITIES AND DIFFERENCES WITH INFLUENZA

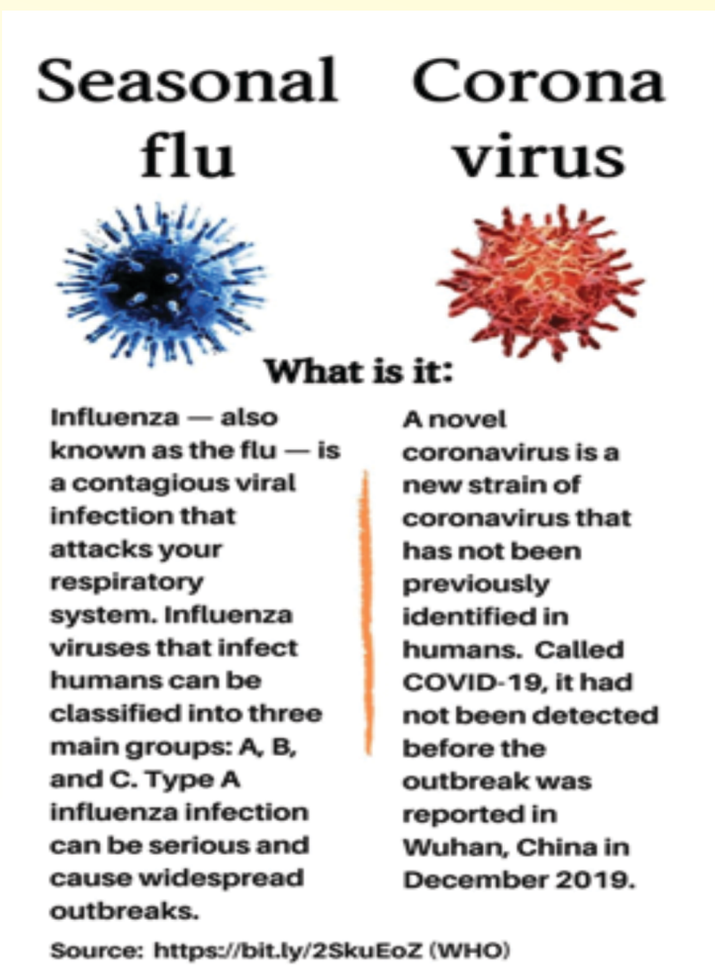
This information is intended for educating the general public as well as Pharmacists regarding few aspects of COVID-19 and Influenza infections.

As the COVID-19 outbreak continues to evolve, comparisons have been drawn to influenza. Both cause respiratory disease, yet there are important differences between the two viruses and how they spread. This has important implications for the public health measures that can be implemented to respond to each virus.

How are COVID-19 and influenza viruses similar?

- COVID-19 and influenza viruses have a similar disease presentation. That is, they both cause respiratory disease, which presents as a wide range of illness from asymptomatic or mild through to severe disease and death.

- Both viruses are transmitted by contact, droplets and fomites. As a result, the same public health measures, such as hand hygiene and good respiratory etiquette (coughing into your elbow or into a tissue and immediately disposing of the tissue), are important actions all can take to prevent infection.



How are COVID-19 and influenza viruses different?

The speed of transmission is an important point of difference between the two viruses. Influenza has a shorter median incubation period (the time from infection to appearance of symptoms) and a shorter serial interval (the time between successive cases) than COVID-19 virus. The serial interval for COVID-19 virus is estimated to be 5-6 days, while for influenza virus, the serial interval is 3 days. This means that influenza can spread faster than COVID-19.

Further, transmission in the first 3-5 days of illness, or potentially pre-symptomatic transmission –transmission of the virus before the appearance of symptoms – is a major driver of transmission for influenza. In contrast, while we are learning that there are people who can shed COVID-19 virus 24-48 hours prior to symptom onset, at present, this does not appear to be a major driver of transmission.

The reproductive number – the number of secondary infections generated from one infected individual – is understood to be between 2 and 2.5 for COVID-19 virus, higher than for influenza. However, estimates for both COVID-19 and influenza viruses are very context and time-specific, making direct comparisons more difficult. Children are important drivers of influenza virus transmission in the community. For COVID-19 virus, initial data indicates that children are less affected than adults and that clinical attack rates in the 0-19 age group are low. Further preliminary data from household transmission studies in China suggest that children are infected from adults, rather than vice versa.

While the range of symptoms for the two viruses is similar, the fraction with severe disease appears to be different. For COVID-19, data to date suggest that 80% of infections are mild or asymptomatic, 15% are severe infection, requiring oxygen and 5% are critical infections, requiring ventilation. These fractions of severe and critical infection would be higher than what is observed for influenza infection.

Those most at risk for severe influenza infection are children, pregnant women, elderly, those with underlying chronic medical conditions and those who are immunosuppressed. For COVID-19, our current understanding is that older age and underlying conditions increase the risk for severe infection.

Mortality for COVID-19 appears higher than for influenza, especially seasonal influenza. While the true mortality of COVID-19 will take some time to fully understand, the data we have so far indicate that the crude mortality ratio (the number of reported deaths divided by the reported cases) is between 3-4%, the infection mortality rate (the number of reported deaths divided by the number of infections) will be lower. For seasonal influenza, mortality is usually well below 0.1%. However, mortality is to a large extent determined by access to and quality of health care.

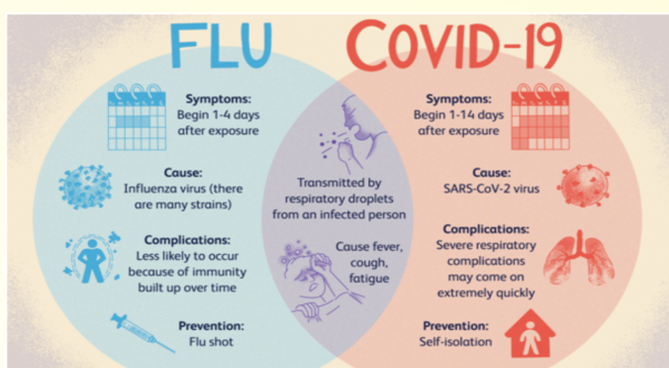
What medical interventions are available for COVID-19 and influenza viruses?

While there are a number of therapeutics currently in clinical trials more than 20 vaccines are under development for COVID-19, there are two vaccines approved in India for COVID-19 (COVISHIELD & COVAXIN).
In contrast, antivirals and vaccines available for influenza. While the influenza vaccine is not effective against COVID-19 virus, it is highly recommended to get vaccinated each year to prevent influenza infection.

Reference:

https://www.who.int/emergencies/diseases/novel-coronavirus-2019

https://www.verywellhealth.com/coronavirus-flu-differences-4798752



DRUG PROFILE

VIBEGRON

Class:

Vibegron is a Selective human beta-3 adrenergic receptor agonist

Indication:

Vibegron is used for the treatment of overactive bladder (OAB) with symptoms of urge urinaryincontinence, urgency, and urinary frequency in adults.

Mechanism of Action:

Vibegron is a selective human beta-3 adrenergic receptor agonist. Activation of the beta-3 adrenergic receptorincreases bladder capacity by relaxing the detrusor smooth muscle during bladder filling

Dosage form and Administration:

Vibegron is available as tablets of 75 mg, which are oval, light green, film-coated, debossed with V75 on one side and no debossing on the otherside.
The recommended dosage of Vibegronis 75 mg tablet orally, once daily with or without food. Patient has to swallow Vibegron tablets whole with a glass of water. In adults, Vibegron tablets also may be crushed, mixed with a tablespoon (approximately 15 mL) ofapplesauce and taken immediately with a glass of water.

Dosing in Hepatic& Renal Impairment:

No dosage adjustment for Vigebron is recommended for patients with mild to moderate hepatic impairment(Child-Pugh A and B). Vigebron has not be studied in patients with severe hepatic impairment (Child-PughC) and is not recommended in this patient population.

No dosage adjustment for Vibegron is recommended for patients with mild, moderate, or severe renalimpairment (eGFR 15 to <90 mL/min/1.73 m^2). Vibegron has not been studied in patients with eGFR <15mL/min/1.73 m^2 (with or without hemodialysis) and is not recommended in these patients.

Pharmacokinetics:

Mean VibegronC_{max} and AUC increased in a greater than dose-proportional manner up to 600 mg (8 times theapproved recommended dosage). Steady state concentrations are achieved within 7 days of once daily dosing.The mean accumulation ratio (R_{ac}) was 1.7 for C_{max} and 2.4 for AUC_{0-24hr}.Median VibegronT_{max} is approximately 1 to 3 hours.

Effect of Food:

No clinically significant differences in vibegron pharmacokinetics were observed following administration of a high-fat meal.

The mean apparent volume of distribution is 6304 liters. Human plasma protein binding of Vibegron isapproximately 50%. The effective half-life is 30.8 hours across all populations.
CYP3A4 is the predominant enzyme responsiblefor in vitro metabolism.Following a radiolabeled dose, approximately 59% of the dose (54% as unchanged) was recovered in feces and20% (19% as unchanged) in urine.

Adverse Reactions:

Urinary tract infection (6.6%), Headache (4%), Bronchitis (2.9%), Nasopharyngitis (2.8%), Diarrhea (2.2%), Nausea (2.2%), Upper respiratory tract infection (2%), Dry mouth (<2%), Constipation (<2%), Residual urine volume increased (<2%), Urinary retention (<2%), Hot flush (<2%).

Contraindications:

- Tablets are contraindicated inpatients with known hypersensitivity to Vibegron or any components of the product

Precautions:

- Urinary retention has been reported in patients taking Vibegron. The risk of urinary retention may be increased in patients with bladder outlet obstruction and also in patients taking muscarinic antagonist medications for the treatment of OAB.

- There are no available data on Vibegron use in pregnant women to evaluate for a drug-associated risk of major birth defects, miscarriage, or adverse maternal or foetal outcomes.In animal studies, no effects on embryofoetal development were observed following administration ofvibegronduring the period of organogenesis at exposures approximately 275-fold and 285-fold greater than clinicalexposure at the recommended daily dose of Vibegron in rats and rabbits, respectively.
- The safety and effectiveness of Vibegron in pediatric patients have not been established.

Drug Interactions:

- Digoxin: Concomitant administration of Vibegron increased Digoxin C_{max} and AUC by 21% and 11%, respectively.
- No clinically significant differences in Vibegron pharmacokinetics were observed when used concomitantly with Ketoconazole (P-gp and strong CYP3A4 inhibitor), Diltiazem (P-gp and moderate CYP3A4 inhibitor), Rifampin (strong CYP3A4 inducer), or Tolterodine.
- No clinically significant differences in the pharmacokinetics of the following drugs were observed when used concomitantly with Vibegron: Tolterodine, Tolterodine 5-Hyroxy Metabolite, Metoprolol, Combined oral contraceptive (Ethinyl Estradiol, Levonorgestrel), or Warfarin.

Reference:

https://www.accessdata.fda.gov/drugsatfda_docs/label/2020/213006s000lbl.pdf

https://gemtesa.com

EVENT CORNER

- Dr. S Ponnusankar, Dr. Deepalakshmi M,Dr.Swathi Swaroopa B,Dr. Keerthana C,Dr. Aneena Suresh, Department of Pharmacy Practice attended the national level Webinar on 'Leading COVID-19 challenges in Hospital: Lessons learnt' organized by Department of Health systems management studies, JSS Academy of Higher Education & Research, Mysuru on 2nd October 2020.
- Dr. Deepalakshmi M, Lecturer, Department of Pharmacy Practice participated in the national level webinar on 'Think Like a Nurse' with an Innovative Multi-Patient Acute Care Hospital Simulation Scenario' organized by National Education management solutions 436 Creamery Way, Suite 300Exton, PA 19341 on 7th October 2020.
- Dr. Deepalakshmi M, Lecturer, Department of Pharmacy Practice participated in the national level webinar on 'Nutrition for health & disease: Exploring new horizons for sustenance' organized by Department of Nutrition & Dietetics, Faculty of Life sciences, JSS Academy of Higher Education & Research, Mysuru on 7th to 9th October 2020.
- Dr. Deepalakshmi M, Lecturer, Department of Pharmacy Practice participated in the national level webinar on 'Home medication review' organized by Karnataka Registered Pharmacists Association (KRPA) and Manipal College of Pharmaceutical Sciences, on 10th October2020.
- Dr. M. Deepalakshmi, Lecturer, Department of Pharmacy Practice participated in Two days International e-Conference on 'Expanding Frontier Of Pharmaceutical Research Towards Global Exigency' organized by Department of Pharmaceutics, Karpagam College of Pharmacy, Coimbatore in association with Indian Pharmaceutical Association, Coimbatore Local Branch on 15th and16th October 2020.
- Dr. M Deepalakshmi, Lecturer, Department of Pharmacy Practice presented a paper entitled 'Impact of Pharmacist Conducted Health Education on Menstrual Hygiene Management among Adolescent Girls' during the two days International e-Conference on 'Expanding Frontier Of Pharmaceutical Research Towards Global Exigency' organized by Department of Pharmaceutics, Karpagam College of Pharmacy, Coimbatore in association with Indian Pharmaceutical Association, Coimbatore Local Branch on 15th and16th October 2020.

- Dr. G K Sadagoban, Dr. Swathi Swaroopa B, Lecturer, Department of Pharmacy Practice participated in online webinar on 'Clinical Decision Support with BMJ Best Practice: Dynamic Algorithms that Change as Patients Change' organized by British Medical Journal on 16th October 2020.
- Dr. Khayati Moudgil, Clinical Resident, Department of Pharmacy Practice participated in the national level webinar on 'Natural Molecules As Significant Immuno-Modulators And Antiviral Agents Against Sars-Cov-2/ COVID-19' organized by Society of Pharmaceutical Sciences and Research (SPSR) on 18th October 2020
- Dr. M Deepalakshmi Lecturer, Department of Pharmacy Practice participated in national level webinar on 'PCOS- A major cause of concerns in young and adolescent girls' organized by Cadila, EVA Next on 20th October 2020.
- Dr. Aneena Suresh, Lecturer, Department of Pharmacy Practice completed 'Importance of Research Methodology in Clinical Research and Pharmacovigilance' a Short Term Training Programme sponsored by All India Council of Technical Education on 26th to 31st October 2020.
- Dr. S. Ponnusankar, Dr Arun KP, Dr. Deepalakshmi M, Dr GK Sadagoban, Dr.Swathi Swaroopa B, Dr. Keerthana C, Dr. Khayati Moudgil, Department of Pharmacy Practice attended the national level webinar on 'Ethics Commitee Working Procedures - Practical Guidelines' organized by Department of Pharmacology, JSS medical college, JSS Academy of Higher Education & Research, Mysuru on 28th October 2020.
- Dr. S. Ponnusankar, Professor & Head, Department of Pharmacy Practice received an award for 'Advancement of Research' from JSS Academy of Higher Education & Research, Mysuru on 21st October 2020.

Dr. S Ponnusankar, Professor & Head, Department of Pharmacy Practice, JSS College of Pharmacy, Ooty receiving the award from Dr. B Suresh, Pro-Chancellor and accompanied by Dr Surinder Singh, Vice-Chancellor, JSS Academy of Higher Education & Research, Mysuru on 21st October 2020

- Dr. M Deepalakshmi, Dr. C. Keerthana, Dr. Khayati Moudgil, Department of Pharmacy Practice participated in the International level online webinar on '6th International Diabetes & Endocrine Conference 2020' organized by Sri Ramakrishna Hospital, Coimbatore on 30th October and 1st November 2020.
- Dr. Khayati Moudgil, Department of Pharmacy Practice participated in the national level webinar on 'NDMA impurity in medicine: a source of bewilderment for the patients' organized by National Society of Pharmaceutical Sciences and Research (SPSR) on 1stNovember 2020.
- Dr. M Deepalakshmi, Dr. C Keerthana, Dr. Aneena Suresh, Dr. Swathi Swaroopa, Dr. Khayati Moudgil, Department of Pharmacy Practice participated in the national level online webinar on 'Infection Prevention & Control Practices in a Healthcare Setup' organized by Department of Health System Management Studies (DHSMS), JSS Academy of Higher Education & Research, Mysuru on 07th November 2020.
- Dr. Khayati Moudgil, Department of Pharmacy Practice participated in the national level webinar on 'Role of Pharmacist In Preventing Drug Abuse·' organized by National Society of Pharmaceutical Sciences and Research (SPSR) on 8thNovember 2020.
- Dr. M Deepalakshmi, Lecturer, Department of Pharmacy Practice participated in the national level one-week International e-FDP with the theme 'Esoteric Essence of Pharmacy Profession: A Dynamic Impact on Health Care System' organized by St.Paul's College of Pharmacy, Turkayamjal, Hyderabad, in association with IPA, Education Division and IPGA Telangana Branch on 23rd- 28thNovember 2020.
- Dr. KP Arun, Dr. C Keerthana, Department of Pharmacy Practice participated in the national level online workshop on 'Interprofessional Education & Collaborative Practice' organized by Special Interest Group – Interprofessional Education & Collaborative Practice (IPECP), JSSAHER, Mysuru on 25th and 26th November 2020.
- Dr. M Deepalakshmi, Lecturer, Department of Pharmacy Practice participated in national level webinar 'Deccan's International Webinar Series - Tackling the Problem of Patient Medication Noncompliance (Nonadherence): Drivers, Challenges & Solutions' organized by Deccan School of Pharmacy on 27th November 2020.
- Dr S Ponnusankar, Professor & Head, Department of Pharmacy Practice participated in the national level 'Webinar on herbal drugs in the management of lifestyle disorders in the time of COVID-19' organized by Society of Pharmaceutical Sciences and Research (SPSR) on 13thDecember 2020.
- Dr S Ponnusankar, Professor & Head, Department of Pharmacy Practice participated in 'International Virtual Conference on Pharmacoeconomics and Outcomes Research' organized by Chalapathi Institute of Pharmaceutical Sciences, Guntur, Andhra Pradesh on 19thDecember 2020.
- Dr. S Ponnusankar, Dr M Deepalakshmi, Dr Swathi Swaroopa B, Dr. C Keerthana, Department of Pharmacy Practice participated in the national level webinar on 'Vaccine Safety: Basics to Advanced' organized by Regional Training Center for South Zone, Department of Clinical Pharmacy, JSS Medical College and Hospital, JSS AHER, Mysuru & Pharmacovigilance Program of India. Indian Pharmacopeia Commission (IPC), Ghaziabad on 19thDecember 2020.
- Dr Swathi Swaroopa B, Lecturer, Department of Pharmacy Practice participated in one-Week National Faculty Development Programme 'Alpha-2-Omega:Research Methodology for Technical Paper and PhD Thesis Writing' organized by the Department of Basic Sciences &Humanities, GMR Institute of Technology, Rajam, Andhra Pradesh, between 24th-30thDecember, 2020.
- Dr. KP Arun, Asst. Professor, Department of Pharmacy Practice acted as a Resource person and delivered a talk on 'Good Clinical Practices: Guidelines for Pharmacokinetic Studies in Human' during the International E-Workshop on Good Clinical Practices & Health Economics organized by Chitkara College of Pharmacy, Chitkara University, Rajpura, Distt Patiala, Punjab between 7th-11thDecember 2020,

PUBLICATIONS FROM THE DEPARTMENT OF PHARMACY PRACTICE (October - December 2020)

- **Deepalakshmi M,** Ajay SP, Vijay V, Venkatesh J, Rathinam RSK, Vahini B, **Arun K P.** Knowledge on COVID 19 among the healthcare professionals in South Indian states. International Journal of Research in Pharmaceutical Sciences.2020; 11(SPL1): 983-989.
- **Aneena S.** CRUSADE Bleeding Score as a Predictor for the Risk of Bleeding Events in Patients with Acute Coronary Syndrome: A Prospective Study from Tamil Nadu. Journal of Global Pharma Technology. 2020;12(10):01-08.
- Dharini B, Akshatha J S, Uma B, Pooja S, **Deepalakshmi M.** Prolonged Isoniazid-induced Psychosis in a patient on DOTS Therapy – A Case Report. Research J. Pharm. and Tech. 2020;13(11):5267-5269.
- Rajpurohit N, Bharbey PK, Jatin M, **Moudgil K.** Hereditary hemorrhagic telangiectasia: An informative review. Iraqi Journal of Hematology. 2020;9(2):55.
- Raja A, **Sadagoban GK,** Shaji JR, Castelino R, **Swathi SB.** Empagliflozin Managed Type 2 Diabetes Mellitus in Insulin induced Hypertension: A case report. Journal of Global Pharma Technology. 2020; 12(12):14-17.
- Ravinandan AP, Usha DS, Mohammed MG, **Vishwas H N.** Hospital Formulary-An Educational Review. International Journal of Pharmacy and Biological Sciences. 2020; 10(4): 90-95.

For clarifications/ feedback, write to:
The Chief Editor
Clinical Pharmacy Newsletter,
Department of Pharmacy Practice

Prepared & Circulated by:
Department of Pharmacy Practice
JSS College of Pharmacy,
Rocklands, Udhagamandalam- 643001
The Nilgiris Tamilnadu, India
E-mail ID: pharmacypracticeooty@gmail.com
/drsponnusankar@jssuni.edu.in
Phone: (+91)-423-2443393
Fax: (+91)-423-2442937