

# CHIPS REGIMEN

## Nobel Prize In Medicine Goes To “Self-eating” Cells

The Nobel prize in medicine was awarded to cellular biologist Yoshinori Ohsumi for his research in autophagy, a vital mechanism of biological cells by which they digest and recycle waste.

Autophagy literally meaning “self-eating”, was first observed in the 1960s, when researchers observed that living cells “recycled” its own waste, destroying subcellular parts of itself and transporting them to other regions of the cell.

Yoshinori Ohsumi used baker’s yeast to elucidate the mechanism of autophagy in yeast, identifying genes essential in the cell’s waste-processing system.

After the contribution of Ohsumi, we now know that

Autophagy controls important physiological functions where cellular components need to be degraded and recycled.

Autophagy can rapidly provide fuel for energy and building blocks for renewal of cellular components, and is therefore essential for the cellular response to starvation and other types of stress.

After infection, autophagy can eliminate invading intracellular bacteria and viruses.

Autophagy contributes to embryo development and cell differentiation.

Cells also use autophagy to eliminate damaged proteins and organelles, a quality control mechanism that is critical for counteracting the negative consequences of aging.

The Importance of Ohsumi’s Findings in Medicine:

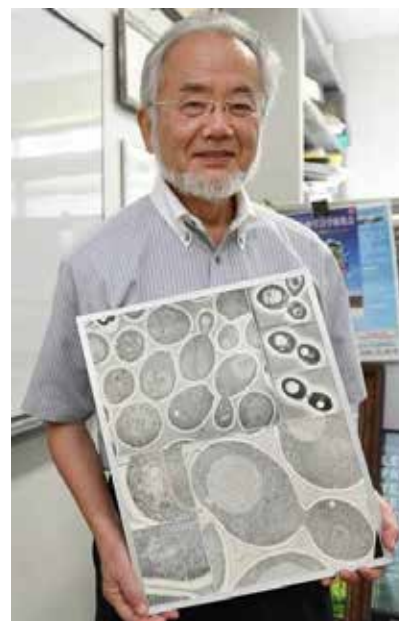
With the discovery of protein complexes which control autophagy, this lays a foundation to the concept of inducing autophagy with the help of genes that regulate the above mentioned protein complexes so as to break down the proteins responsible for various neurological diseases like



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- ◆ Dementia ( tau)
- ◆ Parkinson’s disease (alpha-synuclein)
- ◆ Huntington’s disease (mutant huntingtin).

Apart from the above mentioned aspects, autophagy also provides a protective function to limit tumour necrosis and inflammation, and to mitigate genome damage in tumour cells in response to metabolic stress.



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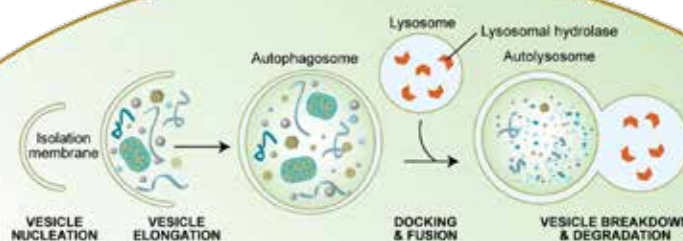
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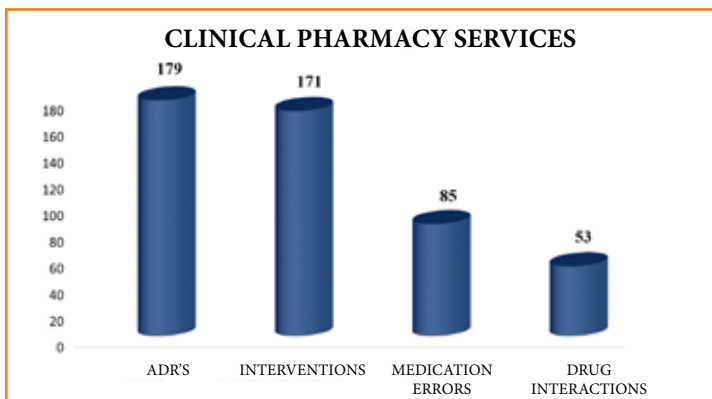
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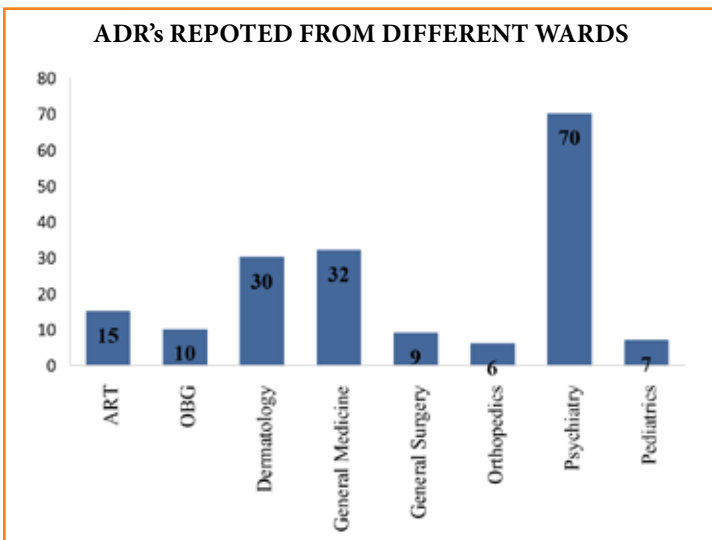
# DEPARTMENTAL ACTIVITIES

The following are the activities performed by the Department of Clinical Pharmacy at NRI General Hospital during the period of January, 2016 to July, 2016.

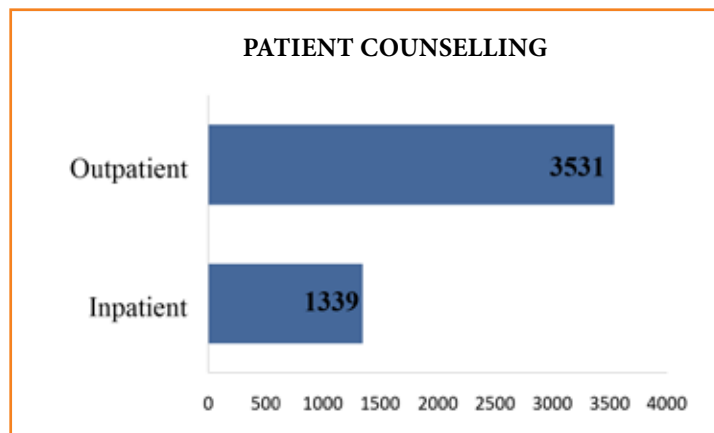


Active surveillance of Adverse Drug Reactions are being carried out by the Dept. of Clinical Pharmacy at NRI General Hospital. A total of 179 adverse drug reactions were identified from different wards along with active follow up of the patients.

All the ADRs were assessed by using algorithms for Probability (WHO scale, Naranjo's algorithm, Karch and Lasagna algorithm), Severity (Modified Hartwig scale), Preventability (Modified Shumock & Thornton scale) and Predictability and documented.



Effective Patient counselling was imparted in Inpatient and Outpatient units is by Dept. of Clinical pharmacy and the number of counseling's performed was depicted below.



Dept. of Clinical Pharmacy started providing Outpatient Counselling to all the patients visiting NRI General Hospital on OPD basis in view of large OPD turnover which is estimated around 400-500 patients per day.

It was initiated in the month of March, where well trained Interns from the Dept. of Clinical Pharmacy were posted at Outpatient counselling unit to provide all the necessary information pertaining to drug administration, possible ADRs, safety precautions and life style modifications.



## STUDENTS CORNER

### Statins for Migraine Prevention

Migraine is a disorder characterized by recurrent attacks of headache widely variable in intensity, frequency and duration. Migraine therapy is of two types- Abortive and Preventive therapy. In abortive therapy, triptan class of drugs like sumatriptan, zolmitriptan and Preventive therapy includes antiepileptics like divalproex sodium, sodium valproate, and topiramate; and beta-blockers like metoprolol, propranolol, and timolol are used.

Statin drugs are not mentioned in any current guidelines but the use of statins for the prevention of migraine was first reported by a case report. A 58-year-old male who had hypercholesterolemia was prescribed with atorvastatin 20 mg daily. He had a history of recurrent typical aura with migraine (approximately two episodes per month). After he began statin therapy, his migraine attacks disappeared.

In a cross-sectional study of nearly 6000 people found that statin use was associated with a lower prevalence of migraine. The use of statins among participants who had a serum 25-hydroxy vitamin D level >57 nmol/L (22.8 ng/mL) had a much lower risk for severe headache or migraine. In a double-blind, controlled study 57 adults with episodic migraine were randomly assigned to either simvastatin 20 mg twice daily plus vitamin D3 (cholecalciferol) 1000 IU twice daily or identical placebo for 24 weeks. In the simvastatin/vitamin D group, 8 patients experienced 50% reduction in the number of migraine days at 12 weeks and 9 patients at 24 weeks; only 1 patient in the placebo group experienced a reduction in migraine days.

Statins reduce migraine attack frequency by improving endothelial function, arterial stiffness, and vascular tone. Other actions, such as reducing inflammatory responses and decreasing platelet aggregation and thrombosis, also could contribute to the beneficial effect on migraine. For patients who do not respond to first-line treatments, a statin will be worth based on limited clinical evidence and a good safety profile.

# TODAY'S MUST WATCH

BRAND	DRUG	INDICATION
Adlyxin	Lixisenatide	Type II Diabetes Mellitus.
Vaxchora	Cholera Vaccine(Live, Oral)	For active immunization against Cholera.
Syndros	Dronabinol oral solution	For the treatment of anorexia associated with AIDS and nausea and vomiting associated with cancer chemotherapy.
Rayaldee	Calcifediol	For the treatment of secondary hyperparathyroidism in adults with stage 3 or 4 chronic kidney disease.
Troxyca ER	Oxycodone + Naltrexone	For the management of severe pain.
Sustol	Granisetron	For the prevention of chemotherapy-induced nausea and vomiting.
Xiidra	Lifitegrast	For the treatment of dry eye disease
Exondys 51	Eteplirsen	For the treatment of Duchenne muscular dystrophy
Yosprala	Aspirin and Omeprazole	For the prevention of cardiovascular and cerebrovascular events

- Dronabinol** is an orally administered liquid formulation which belongs to the class of cannabinoids, a pharmaceutical version of tetrahydrocannabinol ("THC"). Dronabinol has complex effects on the CNS, including central sympathomimetic activity. Cannabinoid receptors have been discovered in neural tissues. These receptors may play a role in mediating the effects of dronabinol. Dronabinol is specifically indicated for Anorexia associated with weight loss in patients with Acquired Immune Deficiency Syndrome (AIDS). Nausea and vomiting associated with cancer chemotherapy in patients who have failed to respond adequately to conventional antiemetic treatments.

**Reference :** <http://www.centerwatch.com/drug-information/fda-approved-drugs/drug/100160/syndros-dronabinol-oral-solution>

- Lifitegrast** is an orally active dual leukocyte function-associated antigen-1 (LFA-1)/intracellular adhesion molecule-1(ICAM-1) inhibitor. LFA-1 is a cell surface protein found on leukocytes and blocks the interaction of LFA-1 with its cognate ligand intercellular adhesion molecule-1 (ICAM-1). ICAM-1 may be overexpressed in corneal and conjunctival tissues in dry eye disease. LFA-1/ICAM-1 interaction can contribute to the formation of an immunological synapse resulting in T-cell activation and migration to target tissues.

**Reference :** <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm510720.htm>

## CLINICAL CONNECTION

### PPI's increase Risk for HE in patients with Cirrhosis

- Hepatic encephalopathy (HE) is a serious complication of cirrhosis and is associated with gut dysbiosis. Proton pump inhibitors (PPIs), frequently prescribed to patients with cirrhosis, can contribute to small bowel bacterial overgrowth which pose a risk to the development of Hepatic Encephalopathy.
- A case-control study nested within a sample of Taiwan National Health Insurance beneficiaries (n=1,000,000), followed longitudinally from 1998 through 2011. Patients with cirrhosis and an occurrence of HE (n=1166) were selected as the case cohort and matched to patients without HE (1:1, controls) for sex, enrollment time, end-point time, follow-up period and advanced cirrhosis. PPI use was defined as >30 cumulative defined daily doses (cDDD); PPI non-use was defined as ≤30 cDDD.
- Among patients with cirrhosis and an occurrence of HE, 38% (n=445) had a history of PPI use before HE occurrence. We observed a relationship between dose of PPI taken and HE risk. The confounder-adjusted odd ratios were 1.41 (95% CI, 1.09–1.84), 1.51 (95% CI, 1.11–2.06), and 3.01 (95% CI, 1.78–5.10) for patients with 30–120 cDDD, 120–365 cDDD, and >365 cDDD, respectively, compared with PPI non-users.
- It is therefore important for healthcare providers to carefully consider prolonged PPI use by patients with cirrhosis.

**Reference :** DOI: <http://dx.doi.org/10.1053/j.gastro.2016.09.007>

### Adjunctive Azithromycin Prophylaxis for Cesarean Delivery

- The addition of azithromycin to standard regimens for antibiotic prophylaxis before cesarean delivery may further reduce the rate of postoperative infection is the clinical finding of "The Cesarean Section Optimal Antibiotic Prophylaxis" (C/SOAP) trial which was a double-blind, pragmatic, randomized clinical trial conducted at 14 hospitals in the United States.
- The primary outcome was a composite of endometritis, wound infection, or other infections (abdominopelvic abscess, maternal sepsis, pelvic septic thrombophlebitis, pyelonephritis, pneumonia, or meningitis) occurring up to 6 weeks after surgery.
- Of 17,790 women who were screened at the 14 clinical sites from April 2011 through November 2014, a total of 1019 were randomly assigned to the azithromycin group and 994 to the placebo group and the primary composite outcome occurred in 62 women (6.1%) who received azithromycin and in 119 (12.0%) who received placebo (relative risk, 0.51; 95% confidence interval [CI], 0.38 to 0.68; P<0.001). The use of azithromycin was associated with significantly lower rates of endometritis (3.8% vs. 6.1%; relative risk, 0.62; 95% CI, 0.42 to 0.92; P=0.02) and wound infections (2.4% vs. 6.6%; relative risk, 0.35; 95% CI, 0.22 to 0.56; P<0.001).

**Reference :** N Engl J Med 2016; 375:1231-1241.

# STAFF PUBLICATIONS

A total of 22 publications were published by our staff members during the month July to September 2016. A few of them are listed below.

1. D. Suryanarayana Raju, S. Vidyadhara, B. Venkateswara Rao and D. Madhavi. A Modified Liquid Chromatographic Method Development And Validation For Simultaneous Estimation Of Bisoprolol Fumarate And Hydrochlorothiazide In Bulk And Tablet Dosage Form. International Journal of Pharmaceutical Sciences and Research (2016), Vol. 7, Issue 7.
2. K. Kalyani, V. Anuradha, S. Vidyadhara, R. L. C. Sasidhar and T. N. V. Ganesh Kumar. A Stability Indicating RP-HPLC for the Simultaneous Estimation of Hydrochlorothiazide, Amlodipine Besylate and Telemisartan in Bulk and Pharmaceutical Dosage Form. Oriental Journal of Chemistry, Vol. 32(3), 1631-1637 (2016).
3. T. N. V. Ganesh Kumar, S. Vidyadhara, Niteen Ashok Narkhede, Y. Sai Silpa and M. Rajya Lakshmi. Method development, validation, and Stability Studies of Teneligliptin by RP-HPLC and Identification of Degradation Products by UPLC Tandem Mass Spectroscopy. Journal of Analytical Science and Technology. 2016, 1-8.
4. J.Ramesh Babu, S.Vidyadhara, B.Sowjanya Lakshmi. Design and Evaluation of Intra-gastric Buoyant Tablets of Pioglitazone Hydrochloride. Inventi Rapid: NDDS Vol. 2016, Issue 4.
5. B. Praveen Kumar, S. Vidyadhara, T. E. G. K. Murthy, J. Ramesh Babu and R. L. C. Sasidhar. Development and validation of novel UV spectrophotometric and RP-HPLC method for the estimation of paroxetine hydrochloride in bulk and pharmaceutical dosage forms. Der Pharmacia Lettre, 2016 : Volume 8 : Issue 11.
6. T.Balakrishna, S.Vidyadhara, TEGK.Murthy, RLC.Sasidhar, J.Venkateswara Rao. Formulation and Evaluation of Doxylamine Succinate Fast Dissolving Buccal Films. Asian Journal of Pharmaceutics. Jul-Sep 2016 (Suppl), 10 (3), S313-S319.
7. S. Vidyadhara, B. Sudheer, R. L. C. Sasidhar and K. V. Ramana. Electrolyte-induced Controlled Release of Propranolol Hydrochloride Matrix Tablets with Gum Kondagogu. Asian Journal of Pharmaceutics, Jul-Sep 2016 (Suppl), 10 (3), S350- S358.
8. B. Venkateswara Rao, S. Vidyadhara, RLC Sasidhar, T.N.V.Ganesh Kumar & Md.Rokiya. A Novel Stability Indicating RP-HPLC Method Development and Validation for The Simultaneous Estimation of Losartan Potassium, Ramipril and Hydrochlorothiazide in Bulk and Pharmaceutical Dosage form. Eurasian Journal of Analytical Chemistry, 2016, 11(5), 255-265.
9. Ch.Arunkumar, S.Vidyadhara, B.Nagaraju, D.sandeep, S.Vineela. Ex vivo Anti-Alzheimer's and Wound healing Activity of Methanolic Extract of Mimosa tenuiflora. Inventi Rapid: Ethanopharmacology. Vol.2016, issue 4.

## Vanam Manam Organized by CHIPS (29-07-2016)



## Independence Day Celebrations at CHIPS (15-08-2016)



## Classwork Inauguration (29-08-2016)



## Medicinal Plantation at JKC College on the Eve of World Pharmacist Day Celebrations (24-09-16)



## Health Awareness Camp organized by CHIPS at KAMMA BOYS HOSTEL on the Eve of World Pharmacist Day Celebrations (25-09-16)



We are Glad to Receive your Feedback to [chipsregimen@gmail.com](mailto:chipsregimen@gmail.com)

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