

**2013-14 (April 2013-March 2014)****HEPATOLOGY****Faculty**

<b>Professor and Head Professors</b>	Y.K. Chawla	MD, DM, FAMS, FACG
	R.K. Dhiman	MD, DM, FAMS, FACG
	Virendra Singh	MD, DM, FASGE
<b>Associate Professor</b>	Ajay Duseja	MD, DM, MNAMS, FACG
<b>Assistant Professor</b>	Sunil Taneja (20.11.2013)	MD, DM

**Dr. Y. K. Chawla** was invited as a Guest Faculty to the 23rd Conference of the Asian Pacific Association for the Study of Liver (APASL-2013) held at Singapore in June 2013. He gave a talk on “Stem Cell Therapy in Liver Disease” at the International Conference on “Innovations in Biotech & Medicine” in August 2013 at Bangalore. He was invited as a speaker on “Natural history and pathogenesis of NCPF” at the PGI-AllMS “Current Perspectives in Liver Disease 2013” held at AllMS, New Delhi in October 2013. He was invited to Chair the Gen. Amir Chand Oration on “Effect of the lifestyle interventions in coronary artery disease” at the 53rd Annual Conference of the National Academy of Medical Sciences Meeting at AllMS, Jodhpur in October 2013. He was invited to deliver the Late Dr. Sushila Nayar Oration on “Hepato-Cellular Carcinoma” in the 11th Annual Conference “NIMACON-2013” at Nagpur in November 2013. He was invited as a panelist for the session on “Management of HCC” at the Indian Cancer Congress 2013 held in November 2013 at New Delhi. He gave a talk on “Treatment of HCV Infection and CKD: when, how and why?” at the Annual conference of Indian Society of Gastroenterology at Ahmedabad in November 2013. He was invited as faculty for the 2nd International Liver Symposium on “Controversies in Liver diseases and Transplantation” in January 2014 at Gurgaon. He was a speaker on “Post Graduate training in Gastroenterology and Hepatology” for Indo-Qatar GI Symposium at Doha, Qatar in February 2014. He gave the Platinum Jubilee Lecture on “Non Alcoholic Fatty Liver diseases- a Hepatologists Perspective” at 101st Indian Science Congress held in February 2014 at Jammu. He spoke on “Non-alcoholic fatty liver – Indian perspective” at the 69th Annual Conference of the Association of Physicians of India at Ludhiana in February 2014. He gave a talk on “Algorithm for approach and management of sepsis at the 3rd Asian Pacific Association for the Study of the Liver-Acute on Chronic Liver Failure consensus meeting at New Delhi in February 2014. He was an invited faculty at the Annual Conference of the SGEI- ‘Endocon – 2014’ to discuss “Competency in Endoscopy – Is it the curriculum, test, trainee or trainer?” in

March 2014. He spoke on “Roadmap for Eradication of Hepatitis B in India” at the 22<sup>nd</sup> Annual Conference of Indian National Association for the Study of Liver 2014 in March 2014 at Jaipur.

**Dr. R.K. Dhiman** is the Governor of American College of Gastroenterology (ACG) for India and participated in Governors meeting at the Annual Meeting of ACG held in San Diego, USA in October 2013. He is also a member of International Relations committee member of ACG and participated in the meeting held on October 14, 2013. He also presented his research work entitled "Pretreatment with sulforaphane prevents oxidative stress in brains of acute hyperammonemic rats" at the Annual Scientific Meeting and PG Course of ACG held at San Diego from October 11 to 16, 2013. Dr Dhiman spoke on “High protein diet in hepatic encephalopathy” at the 8th International Symposium on Alcoholic Liver and Pancreatic Diseases and Cirrhosis (ISALPD/C), held in November 2013 at New Delhi. He was a panelist on “The liver donor in the NAFLD era” and chaired a session on “Role of biopsy in HCC in the era of biomarkers” at the 2nd International Liver Symposium held at Gurgaon in January 2014. Dr Dhiman presented his research work "Probiotic preparation in the treatment of MHE-A double-blind, randomized, placebo controlled study" at the World Congress of Gastroenterology and Asian Pacific Digestive Week held at Shanghai in September 2013. Dr Dhiman has been elected as President-Elect for the years 2012-2014 and President for the years 2014-2016 of the prestigious International Society for Hepatic Encephalopathy and Nitrogen Metabolism (ISHEN).

Dr Dhiman is Editor-in-Chief of *Journal of Clinical and Experimental Hepatology*, which is an international peer reviewed official Journal of Indian National Association for the Study of Liver (INASL). On behalf of INASL, Dr Dhiman participated in the Elsevier Journal Editors' Conference - “The Future of Academic Publishing - Fostering Collaboration; Embracing Innovation” held at Beijing in October 2013.

Dr Dhiman delivered prestigious ISG-CM Habbibullah Oration on “Minimal Hepatic Encephalopathy” at the Annual Conference of Indian Society of Gastroenterology held in Ahmedabad in November/December 2013. He also chaired a session on "Molecular Perspective and Clinical Evidences of Essential Phospholipids in Managing Liver Disorders and Clinical Evidences of Essential Phospholipids in Liver Disorders-Indian Perspective" and was a panelist on “Clinical Translation of Hepatitis Virus Replication”. Dr Dhiman delivered talks on “Gut microbiome and hepatic encephalopathy” and “Management of anti-tubercular Hepatotoxicity” at the 22<sup>nd</sup> Annual Conference of INASL held in Jaipur in March 2014. Dr Dhiman gave a talk on “Care of a patient with liver cirrhosis: Prolonging survival” at the LIVCON – 2013, Hepatitis Foundation of India (HFI), held in Agartala in April 2013. He delivered a talk on "Ethical Issues in Clinical trials" in the ICMR-funded Training Program in Clinical Trial Methodology

with emphasis on investigator-initiated trials" held at PGIMER, Chandigarh in August 2013. Dr Dhiman delivered a talk on "Portal Cavernoma Cholangiopathy: Indian Consensus" at the single theme on 'Vascular diseases of Liver' of Current Perspectives in Liver Disease – 2013 held at AIIMS, New Delhi in October 2013; Dr Dhiman chaired a session in "Hot Topics in AASLD 2013" held in December 2013 at Mumbai. He delivered 2 talks on "Analgesics and NSAIDs use in a patient with jaundice and HVPG- How, When, Why?" at Up-to-date in Hepatology organized by Department of Hepatology, Madras Medical College, Chennai in July 2013; Dr Dhiman delivered a talk on "Portal Hypertension and Budd-Chiari syndrome in pregnancy" at the NAMS symposium on "Liver Disease in Pregnancy" held at GMCH Chandigarh in November 2013; he delivered a talk on "Minimal hepatic encephalopathy should be routinely looked and to be treated" at the Mid-term INASL meeting organized by the Department of Gastroenterology and Hepatology, Sir Ganga Ram Hospital on "Controversies in Hepato-Biliary Diseases" in September 2013 in New Delhi; Dr Dhiman spoke on "Changing Paradigm in Hepatology in last 20 yrs" at the Annual Conference of Indian Society of Gastroenterology (UP Chapter) and Mid-term conference of Gastrointestinal Endoscopy of India (SGEI) held in Varanasi in April 2013; Dr Dhiman chaired a session on "Assessment and Optimization for Liver Transplantation" at the Master Class in Liver Disease 2014 - "Perioperative Care of the Liver Transplant Recipient" held in Chennai in January/ February 2014. He chaired a session on "Lean NASH – Is it a distinct entity?" at the Single Theme Meeting on NAFLD – Basics to Clinical Practice, under the aegis of INASL held at Chandigarh in February 2014; Dr Dhiman was an invited faculty of a mid-term meeting of the INASL focusing on 'HCV Therapy in India' held at Lucknow in March 2014; he discussed the "Role of INASL in Planning epidemiological studies and prevention of HCV in India" and gave a talk on "Prevention of HCV infection in India".

Dr Dhiman also served as an external examiner of DM Gastroenterology for National Academy of Medical Sciences, Kathmandu, Nepal in March 2014.

**Dr Virendra Singh** attended Digestive Disease Week Conference held at Orlando, Florida (USA) in May, 2013. He delivered a guest lecture on "New biomarkers of renal tubular damage in patients with cirrhosis" during the Asian Pacific Association for Study of Liver conference held at Singapore, in June 2013. He chaired a session at the Current Perspectives in Liver Disease 2013 Single theme Conference on "Vascular diseases of Liver" held at AIIMS, New Delhi in October 2013. His research entitled "Noradrenaline versus terlipressin in the treatment of hepatorenal syndrome: a randomized study J Hepatol 2012; 56:1293-1298" was discussed at the special session "Advances for Practitioners" at AASLD 2013 at Washington DC held in October/November 2013. He attended ENDOCON Conference held at Pune in March 2014. Dr Singh delivered a talk on

“Management of Hepatorenal syndrome in Indian Scenario- Alternative treatment (Nor-adrenaline, midodrine) is equally good” at Mid-term INASL meeting organized by the Department of Gastroenterology and Hepatology, Sir Ganga Ram Hospital on “Controversies in Hepato-Biliary Diseases” in September 2013 in New Delhi; He delivered a guest lecture on “Spectrum of various complications of Viral Hepatitis and their diagnostic approach” at Asia Pacific Congress of Virology held in Delhi in December 2013. He delivered a guest lecture on “Management of Hyponatremia in cirrhosis” at INASL Conference held at Jaipur in March 2014. Delivered a guest lecture on “NAFLD : Progress in Diagnosis & Staging” at Mid Term national conference of society of gastrointestinal Endoscopy of India ( SGEI) and annual conference of Indian society of Gastroenterology ( U P Chapter) held in April 2013 at Banaras Hindu University, Varanasi

**Dr Ajay Duseja** presented a paper entitled ‘Genetic polymorphism in Cluster of differentiation 14 (CD14) gene C (-159) T is associated with nonalcoholic fatty liver disease (NAFLD) at the Asian Pacific Digestive Week / World Congress of Gastroenterology 2013, held at Shanghai (China) in September 2013. He also attended the Regional Council Members Meeting of the International Coalition for the Hepatology Education Providers (IC-HEP) held at Shanghai (China) in September 2013 and presented the ‘Burden of Hepatitis C virus in India.’ He was a Guest speaker on ‘Asymptomatic rise in Transaminases’ and ‘Fibroscan in Liver disease’ at LIVERCON 2013 in April 2013 at Agartala Govt. Medical College, Agartala organised by the Hepatitis Foundation of Tripura. He was a Guest speaker on ‘Approach to a patient with asymptomatic rise in transaminases’ and ‘Treatment of Decompensated HBV cirrhosis’ at the ‘Gastroenterology CME cum Update’ organised at IGMCM, Shimla in June 2013 and a Guest speaker on ‘Liver biopsy is mandatory in the management of patients with NAFLD’ at the ‘ConverGE- Controversies to Consensus in Gastroenterology’ organised at Bangalore in June 2013. He was a Guest speaker at a CME on ‘Hepatitis C Virus’ organised by the department of Gastroenterology, DMC, Ludhiana in August 2013. He was also a Guest speaker on ‘Should Hepatitis C Be treated in patients with chronic kidney disease Prior to kidney Transplant’ at the conference on “Controversies in Hepato-Biliary Diseases” organised by the Department of Gastroenterology and Hepatology, Sir Ganga Ram Hospital in September 2013 at New Delhi. He was a Guest Speaker on ‘Monitoring and Management in Alcoholic Liver Disease’ at HPAPICON 2013 organised by the Association of Physicians- HP chapter in October at Chail (HP) and a Guest Speaker on ‘Vascular Diseases of Liver - Etiologies – Known and Unknown’ at the ‘CPLD- 2013’ organised at AIIMS, New Delhi in October 2013. He chaired a session on ‘Treatment of HCV prior to Renal and Liver Transplantation’ at the International symposium on Alcoholic Liver and Pancreatic Diseases and Cirrhosis organised by Institute of Liver Biliary Sciences, New Delhi in November at New Delhi. He delivered a talk on “HEV in Pregnancy – Pathogenesis, Diagnosis,

Prevention and Management' at the NAMS symposium on "Liver Disease in Pregnancy" held at GMCH Chandigarh in November 2013. He gave two talks on 'Chronic HBV Infection in a Young patient: When to Treat?' and 'Interferon in Chronic Hepatitis B – Time for an Obituary' and gave the prestigious 'Zydus – Alidac Oration on 'Nonalcoholic Fatty Liver Disease – The Indian Scenario' at the Annual Conference of Indian Society of Gastroenterology at Ahmedabad in November/December 2013. He was a Guest Speaker on 'Nonalcoholic Fatty Liver Disease' at the CME - API-DIAS (Dissemination of Updated Information through API Speakers) organised by API in December 2013 at Chandigarh. He was a Panelist in the session on 'Acute on Chronic Liver Failure' at the 2<sup>nd</sup> International Liver symposium organised by the Medanta Institute of Liver Diseases and Transplantation, Medanta – The Medicity, Gurgaon in January 2014. He was a Guest Speaker on 'Detection and Management of HCC' at the APICON – 2014 organised by the Association of Physicians of India at Ludhiana in February 2014. He spoke on "Molecular targets in Non Alcoholic Fatty Liver disease' at 101<sup>st</sup> Indian Science Congress held in February 2014 at Jammu. He was a Guest speaker on 'Treatment of CHC in patients with ESRD and renal transplantation', 'Treatment of CHC in the presence of hepatic steatosis and metabolic syndrome' and 'CHC in ESRD – PGIMER Experience' at the INASL – HCV Task Force Consensus meeting organised at SGPGI, Lucknow in March 2014. He was an invited faculty in the Annual conference of the Indian National Association for the Study of Liver (INASL) organised at Jaipur in March 2014 where he gave three talks on 'Nonalcoholic fatty Liver Disease' and one talk on 'Chronic hepatitis C.

**Dr Sunil Taneja** was invited as faculty in the Single Theme Meeting on NAFLD-Basics to clinical Practice, under the aegis of INASL held on February 15 -16, 2014; He chaired a session on 'Recent selected landmark publications on NAFLD'. He was invited as a faculty and also delivered a talk on Liver Transplantation: Role of Physician in the 22<sup>nd</sup> Annual conference of INASL held in Jaipur from March 28-30, 2014.

## SERVICE

An outpatient liver clinic is conducted every Monday and Friday. A total No. of **23084** old and **5115** new patients were seen in liver clinic during 2013-2014. During the year, the investigations performed included:

<b>Name of Test/Procedure</b>	<b>2014-15</b>	<b>2013-14</b>	<b>2012-13</b>	<b>2011-12</b>
UGI Endoscopies		2725	2667	2057
Lower GI Endoscopies		95	74	57
ERCPS		335	339	332
Ultrasound		1958	2332	2221
Endoscopic Ultrasound (EUS)		18	25	20
Fibroscan		3679	3181	363
Liver function tests		00	653	500
Anti HCV		4126	3399	2800
HBsAg		4650	3967	3000
HBeAg/Anti HBe		2500	3512	220
Anti HEV (IgM)		780	768	670
Anti HBc (IgM)		350	256	220
Anti HBc (total)		515	366	165
Anti HBs		200	200	150
Anti HAV (IgM)		760	805	412

These services were rendered to outpatients, patients attending special clinics, emergency and indoor patients.

## TRAINING

Residents of Internal Medicine rotated through the department for training imparted through regular sessions of clinical case discussions, topic discussions, hepato-radiology rounds, seminars, liver biopsy rounds and journal clubs. They were also trained to perform bedside procedures like liver biopsy, abdominal paracentesis, etc. One Ph.D student passed out in the year 2013-14.

## RESEARCH COMPLETED

### ICMR

**1. EXPRESSION AND POLYMORPHISM OF TOLL LIKE RECEPTORS (TLR) AND SMALL INTESTINAL BACTERIAL OVERGROWTH IN PATIENTS WITH NONALCOHOLIC FATTY LIVER DISEASE (NAFLD)**

Two hundred patients with NAFLD, 60 patients with chronic viral hepatitis and 50 healthy volunteers were studied for TLR2, TLR4 and CD14 polymorphisms and mRNA/protein expression. Small intestinal bacterial overgrowth (SIBO) was studied in 32 patients with NAFLD. No association of TLR2 Arg753Gln, CD14 C (-550) T, TLR Asp299Gly and Thr399Ile polymorphisms were found with NAFLD. However, significant association of CD14 C (-159) T polymorphism with NAFLD was observed on multiplicative as well as on recessive models of association of gene polymorphism. Patients with TT genotype of CD14 C (-159) T were found to have 2.6 fold increased risk of developing NAFLD. Forty percent of patients with NAFLD had evidence of SIBO.

**2. EFFICACY OF ANTIVIRAL DRUGS IN REDUCING HEPATITIS B VIRUS (HBV) COVALENTLY CLOSED CIRCULAR DNA (CCDNA) AND MUTATIONS.**

This study was done to examine the effects of antiviral drugs on HBV cccDNA and emergence HBV-RT mutations in chronic hepatitis B (CHB) patients during treatment. Higher number of CHB patients showed presence of serum HBV cccDNA compared to HBV related cirrhosis subjects. We conclude that serum HBV cccDNA is a poor predictor of treatment response as it disappears from serum prior to achieving negativity of serum HBV DNA. Moreover, the presence of HBV-RT amino acid substitutions was observed prior of start of any antiviral therapy in a significant number of CHB patients.

**3. TO STUDY THE PROTECTIVE EFFECT OF NRF2 GENE AGAINST OXIDATIVE STRESS AND INFLAMMATION IN FRONTAL CORTEX AND CEREBELLUM REGIONS OF BRAIN AND BLOOD IN ACUTE HYPERAMMONEMIC RATS**

Role of oxidative stress has been suggested in pathogenesis of hyperammonemia/hepatic encephalopathy. NF (nuclear factor) -E2 related factor (Nrf2) is a transcription factor which regulates transcription of a number of antioxidant genes including heme oxygenase-1 (HO-1), superoxide dismutase (SOD), catalase and genes involved in glutathione regulation like glutathione peroxidase and glutathione reductase. This study demonstrated the presence of oxidative stress in frontal cortex and cerebellum of brain and in blood of acute hyperammonemic rats and revealed protective effect against oxidative stress by Nrf2 activator, sulforaphane in both regions of brain and in blood.

**PHARMACEUTICAL FUNDED (CD PHARMA, NEW DELHI)**

**4. SECONDARY PROPHYLAXIS OF HEPATIC ENCEPHALOPATHY. FINAL RESULTS OF A DOUBLE BLIND, RANDOMIZED, PLACEBO CONTROLLED STUDY WITH SUPPLEMENTATION WITH A PROBIOTIC PREPARATION.**

Over a 6-month period, treatment with probiotic significantly reduced the risk of hospitalization involving hepatic encephalopathy and improved severity of liver disease and systemic inflammation.

**5. SMALL INTESTINE BACTERIAL OVERGROWTH AND ROLE OF PROBIOTIC, VSL#3 IN PATIENTS WITH NONALCOHOLIC FATTY LIVER DISEASE.**

Thirty biopsy proven patients with NAFLD were randomized to receive VSL3, Norfloxacin or a placebo. Efficacy in each group was studied either by histology or by reduction in endotoxemia and improvement in cytokine profile. Results are being analysed

**6. SUPPLEMENTATION WITH A PROBIOTIC PREPARATION FOR THE TREATMENT OF MINIMAL HEPATIC ENCEPHALOPATHY (MHE) IN CIRRHOTIC PATIENTS: A DOUBLE-BLIND, RANDOMIZED, PLACEBO CONTROLLED STUDY**

There was no significant difference in the reversal of MHE between probiotic and placebo group. Probiotic treatment resulted in a significant decrease in plasma IL-6 (P=0.007) and oxindole (P=0.036) levels. However, probiotic treatment resulted in partial improvement in cognitive functions, significant improvement in IL-6, oxindole and MCS of SF-36 in patients with cirrhosis with MHE.

**DEPARTMENTAL**

**7. PERSISTENCE OF COGNITIVE IMPAIRMENT AFTER RESOLUTION OF OVERT HEPATIC ENCEPHALOPATHY**

This study conclusively demonstrated learning impairment in cirrhotic patients with previous episode of OHE despite normal mental status. Improvement in PHES on repetition can be used as a measure of learning in future studies.

**8. MAGNETIZATION TRANSFER RATIO IN MINIMAL HEPATIC ENCEPHALOPATHY**

This study demonstrated that decreased magnetization transfer ratio (MTR) in Minimal hepatic encephalopathy (MHE) patients and improvement after treatment suggests reversible low grade cerebral edema. A negative correlation between arterial ammonia, IL-6 levels and MTR; a positive correlation between PHES and MTR in MHE patients suggests, that



inflammation has a role to play in ammonia induced low grade cerebral edema in them.

### **9. CLIF-SOFA IS BETTER THAN THE APASL CRITERIA FOR DEFINING ACUTE-ON-CHRONIC LIVER FAILURE AND PREDICTING OUTCOME**

The 28-day mortality in no acute-on-chronic liver failure (ACLF) and ACLF groups was 8.3% and 47.4% ( $P=0.018$ ) as per Chronic Liver Failure–Sequential Organ Failure Assessment (CLIF-SOFA) and 39% and 37% ( $P=0.665$ ) as per Asia-Pacific Association for the Study of Liver (APASL) criteria. The 28-day mortality in patients with no ACLF ( $n=12$ ), ACLF grade 1 ( $n=11$ ), ACLF grade 2 ( $n=14$ ) and ACLF grade 3 ( $n=13$ ) as per CLIF-SOFA criteria was 8.3%, 18.2%, 42.9% and 76.9% ( $\chi^2$  for trend,  $P=0.002$ ) and 90-day mortality was 16.7%, 27.3%, 78.6% and 100% ( $\chi^2$  for trend,  $P<0.0001$ ) respectively. CLIF-SOFA criteria is better than APASL criteria to classify patients into ACLF based on their prognosis. CLIF-SOFA score is the best predictor of short-term mortality.

### **10. SILDENAFIL, A PHOSPHODIESTERASE-5 INHIBITOR, DOES NOT IMPROVE COGNITION AND QUALITY OF LIFE IN CIRRHOTIC PATIENTS WITH MINIMAL HEPATIC ENCEPHALOPATHY**

As a proof of concept, this study was performed to assess the efficacy and safety of sildenafil treatment in patients with cirrhosis of liver with MHE. This study demonstrated no improvement in cognition and HRQOL related to sildenafil treatment. This study also demonstrated no impact of sildenafil on various other parameters such as severity of liver disease as assessed by CTP and MELD scores, and ammonia and IL-6 levels with escalating dose of sildenafil for 4 weeks. However, sildenafil was safe and no major side-effects were observed.

### **11. APACHE II SCORE IS SUPERIOR TO SOFA, CTP AND MELD IN PREDICTING THE SHORT-TERM MORTALITY IN PATIENTS WITH ACUTE-ON-CHRONIC LIVER FAILURE (ACLF).**

One-hundred consecutive patients (87 males, median age 49, 25-75 IQR 38-55.7 years) with ACLF were evaluated prospectively. The diagnosis of ACLF was based on the Asian Pacific Association for the Study of the Liver criteria except for including non-hepatotropic infections as acute events. Majority ( $n=78$ ) of patients had alcohol related cirrhosis and alcoholic hepatitis ( $n=50$ ) as the acute insult for ACLF. Fifty three patients either died or left hospital in very sick state. Overall, APACHE II had a better accuracy [AUROC (0.74)]

than MELD (0.67), SOFA (0.65) and CTP (0.61) for predicting in-hospital mortality in all patients. Even for patients with alcoholic hepatitis, APACHE II [AUROC (0.88)] performed better than DF (0.69) and GAHS (0.76).

## **12. OBSTRUCTIVE SLEEP APNEA (OSA) IS AN IMPORTANT PREDICTOR OF HEPATIC FIBROSIS IN PATIENTS WITH NONALCOHOLIC FATTY LIVER DISEASE (NAFLD)**

Of 100 patients of NAFLD with mean age of  $41 \pm 11$  years and BMI of  $28.3 \pm 4.4$  Kg/m<sup>2</sup>, 63 were males and 59 had metabolic syndrome. Prevalence of symptomatic obstructive sleep apnoea (OSA) in NAFLD after polysomnography was 3%. Of 23 patients of OSA with mean age of  $46 \pm 12$  years and BMI  $32.2 \pm 7.6$  Kg/m<sup>2</sup>, 18 (78%) were males and 17 (74%) had metabolic syndrome. Three (13%) had mild, 5 (22%) had moderate and 15 (65%) patients had severe OSA. Prevalence of NAFLD in OSA based on ultrasound was 91.3% while prevalence of raised hepatic transaminases was 30.4%. Body mass index and male gender (OR 4.79, 95% CI: 1.12-20.48) were significant independent predictors of OSA in NAFLD. Apnea-hypopnea index was the only significant independent predictor of significant fibrosis in these patients.

### **Research in progress**

#### **ICMR**

1. Comparison of ablative therapies in hepatocellular carcinoma.
2. Role of astrocyte glucose transporter (GLUT-1) and glycine transporter (GLYT-1) in the pathogenesis
3. To study the protective effect of Nrf2-ARE pathway against oxidative stress and inflammation in frontal cortex and cerebellum regions of brain in acute and chronic hyperammonemic rats.

#### **LIVER FOUNDATION, KOLKATA WEST BENGAL**

4. Diabetes – Liver Disease Embrace” “Comprehensive action for metabolic health and wellbeing-integration of a diabetes intervention with a liver health program”.

#### **DEPARTMENTAL**

5. Cognitive functioning, mental health, and health-related quality of life in survivors of acute liver failure

6. A study of advanced magnetic resonance imaging (MRI) and in vivo <sup>1</sup>H magnetic resonance spectroscopy (MRS) in patients with different grades of acute-on-chronic liver failure
7. G-CSF in alcoholic hepatitis
8. Adrenal insufficiency in cirrhosis
9. A randomised controlled trial of Vitamin D in patients with Nonalcoholic Fatty Liver Disease
10. Impaired renal functions in patients with Nonalcoholic Fatty Liver Disease

### **Publications (All indexed)**

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### **VISITING PROFESSORS**

1. Dr. Satya Vrat Sharma, MBE, 9, Waterdale, Compton, Wolverhampton WV3 9DY United Kingdom.
2. Dr. Ashwani K Singal, Division of Gastroenterology and Hepatology, Department of Medicine, University of Alabama at Birmingham, Birmingham, AL 35294-0012, United States.
3. Dr. Richard Moreau, MD, Director & Consultant Liver Unit, Centre of Biomedical, Paris, France.
4. Dr Sophie Lotersztajn, Research Director, INSERM, U955, Institute Mondor de Research Biomedical, Hospital Henri Mondor 94000 Créteil, France

### **PART-1 (AWARDS HONOURS)**

Dr. Y. Chawla received P.N. Chhuttani Oration Award for the year 2013 for his outstanding work in the field of Gastroenterology on November 29, 2013 from Indian Society of Gastroenterology.

Dr Dhiman received ISG-CM Habbibullah Oration from Indian society of Gastroenterology for his outstanding contribution in Hepatology.

Dr Dhiman has been elected as President-Elect for the years 2012-2014 and President for the years 2014-2016 of the prestigious International Society for Hepatic Encephalopathy and Nitrogen Metabolism (ISHEN).

Dr Ajay Duseja received the prestigious 'Zydus – Alidac Oration' for the year 2013 from the Indian Society of Gastroenterology.

Dr Tarana Gupta, Senior Resident, received best poster presentation award on the poster entitled "CLIF-SOFA score predicts mortality in patients with acute on chronic liver failure" in the Annual Conference of INASL at Jaipur.

Dr Sridhan Umapathy, a Junior Resident working under Dr Dhiman, received Best Plenary session Oral Presentation Award on his research work entitled "Evaluation of Cognitive Impairment after Resolution of Overt Hepatic Encephalopathy" during the 22nd Annual Conference of INASL held in Jaipur from March 28-31, 2014.

## **PART-II (DEPARTMENTAL HIGHLIGHTS)**

The Department organized public forum on "Organ Donation" on September 5, 2013.

The Department, under the aegis of Indian National Association for the Study of Liver (INASL) organised a Single Theme Meeting, 'NAFLD – Basics to Clinical Practice – an INASL initiative' on February 15 -16, 2014.

## **PART – III (RESEARCH HIGHLIGHTS)**

- Patients with TT genotype of CD14 C (-159) T are at 2.6 fold increased risk of developing NAFLD.
- HBV cccDNA is a poor predictor of treatment response as it disappears from serum prior to achieving negativity of serum HBV DNA.
- Hyperammonemia leads to oxidative stress in frontal cortex and cerebellum of brain and in blood; Nrf2 activator, sulforaphane has protective effect against oxidative stress.

- Over a 6-month period, treatment with probiotic significantly reduced the risk of hospitalization involving hepatic encephalopathy and improves severity of liver disease and systemic inflammation.
- There is learning impairment in cirrhotic patients with previous episode of OHE despite normal mental status.
- Decreased magnetization transfer ratio (MTR) in Minimal hepatic encephalopathy (MHE) patients and improvement after treatment suggests reversible low grade cerebral edema.
- CLIF-SOFA criteria is better than APASL criteria to classify patients into ACLF based on their prognosis. CLIF-SOFA score is the best predictor of short-term mortality.
- Sildenafil does not improve cognition in patients with cirrhosis and MHE. However, sildenafil was safe and no major side-effects were observed.
- APACHE II score is superior to sofa, ctp and meld in predicting the short-term mortality in patients with acute-on-chronic liver failure.
- Obstructive sleep apnea is an important predictor of hepatic fibrosis in patients with nonalcoholic fatty liver disease.