

2016-17 (April 2016-March 2017)

HEPATOLOGY

Faculty

Professor and Head Professors	Y.K. Chawla	MD, DM, FAMS, FACG
	R.K. Dhiman	MD, DM, FAMS, FAASLD, FACG FRCP Edin, FRCP London
	Virendra Singh	MD, DM, FASGE
	Ajay Duseja	MD,DM,FAMS, FAASLD, FACG, FSGEI
Assistant Professors	Sunil Taneja	MD, DM
	Madhumita Premkumar (joined on 24.5.2017)	MD,DM

Dr Y.K. Chawla delivered lectures on “Acute on Chronic Liver Failure” and “Portal Hypertension-What’s new in 2016” at Sri Lankan Society of Gastroenterology meeting in July 21-22, 2016 in Sri Lanka. He chaired two sessions on “Liver Metabolic Disorders” and “Update on Liver Fibrosis”, at Asian Pacific Digestive Week-2016 and also delivered a lecture on “The role of elastography in diagnosis of liver fibrosis” in November 2-5, 2016 at Kobe.

He chaired sessions on “Management of Advanced HCC” at Indian Society of Gastroenterology-2016 in December 15-18, 2016 at New Delhi. He delivered a talk on “Management of Hepatitis B-an update” at 24th Bangladesh Gastroenterology Society (BGS-2017) meeting in February 11-12, 2017 at Dhaka, Bangladesh. He delivered three lectures on “Etiology and clinical clues to diagnosis of liver cirrhosis”, “Preventing and treating infections in ACLF: New proposals” and “Herbal medicine for liver disease management: Experience from India” and chaired “Options for Ameliorating acute insult protocols in ACLF” at Asian Pacific Association for the Study of the Liver meeting-2017 in February 15-19, 2017 at Shanghai, China. He chaired a session on “Acute Liver Failure” in 17 International Society for Hepatic Encephalopathy and Nitrogen Metabolism (ISHEN) Symposium-2017 in March 8-11, 2017 at New Delhi.

Dr RK Dhiman is the Governor of American College of Gastroenterology (ACG) for India for the 6 year in a row. He is also a member of International Relations Committee of ACG. He is Editor-in-Chief of Journal of Clinical and Experimental Hepatology (JCEH), which is an international peer-reviewed official Journal of the INASL. He is the Secretary-General of Indian National Association for the Study of Liver (INASL) for period April 2015 to August 2018. He organized 24th Annual Meeting of INASL, Gurgaon from August 4 – 6, 2016. He continues to be President of the prestigious ‘International Society for Hepatic

Encephalopathy and Nitrogen Metabolism (ISHEN)' for the years 2014-17. He was an examiner for DM (Hepatology) at the Institute of Liver and Biliary Sciences, N Delhi and DM (Gastroenterology) at SN Medical College, Jodhpur. He has organized 17th ISHEN symposium, Gurgaon, Delhi NCR from March 9-10, 2017. This Symposium was adjudged to be the best in the history of ISHEN and he was accorded the 'Standing Ovation' for the same. He is Consultant to Punjab Govt. for MukhMantri Punjab Hepatitis C Relief Fund (MMFHCRF), which has been created to treat hepatitis C patients free of cost in Punjab. He is also Chairman of Punjab State Technical Expert Group (TEG) on injection safety, which is primarily meant to prevent spread of infections to both community and service providers resulting from unsafe and used syringes.

He gave a talk on "Decompensated cirrhotic - best practices in management of HE" at "3rd International Liver Symposium 2016 organized by Medanta Liver Institute, Medanta - The Medicity, Gurgaon on April 1 - 3, 2016. He also attended the 2016 MetaECHO Conference held in Albuquerque, New Mexico, USA from April 6-9, 2016 and had undergone ECHO Immersion training from 11-12 April 2016. He delivered a talk entitled "Management of Budd-Chiari syndrome" in LIV-UP 2016 Update on Liver Diseases organized by the Kurnool Medical College, Kurnool. He delivered a talk on "Management of minimal hepatic encephalopathy" at the 5 National conference on liver disease "Liver Clinics 2016" held on July 2-3, 2016 in Madras Medical College, Chennai. He was a guest faculty at the 24th Annual meeting of INASL at Gurgaon held from August 4-6, 2016; he delivered talks on "Hepatitis C control in Punjab, Minimal/Covert hepatic encephalopathy - Implications, diagnosis, and management and INASL vision for ECHO, chaired following sessions - EASL/INASL session, Plenary session of oral paper presentation, SR Naik oration and management of hepatic encephalopathy in outpatients. He delivered 2 talks on "How to treat HCV in late 2016: Do we have different recommendations in India?" and "Control of Hepatitis C in India: The Punjab Model" at the Institute of Liver Gastroenterology & Pancreaticobiliary – Sciences (ILGPS), Sir Ganga Ram Hospital, New Delhi held on September 3-4, 2016, New Delhi. He delivered a talk on "Probiotics in Liver Disease" in the 1st Annual conference of the Indian Society of Clinical Nutrition held from October 14-16, 2016 at ILBS, New Delhi. He was an invited Guest faculty at the American Association for the Study of Liver Diseases (AASLD) on November 11-15, 2016 at Boston, USA, which is a rare honour for hepatologists from world-over; very few Indian hepatologists got this honour. He delivered a talk on "Managing hepatic encephalopathy in the outpatient setting" in a session on "Hepatic encephalopathy as a complication of ACLF: A clearer path ahead?" He

also presented his research work entitled “Comparative effectiveness of different pharmacological interventions for the treatment of minimal hepatic encephalopathy: A Systematic review with network meta-analysis”.

He was invited as guest faculty at the “Symposium of ‘Miyakawa Memorial Research Foundation (MMRF)’ held in Tokyo, Japan and delivered 2 talks on “Managing hepatic encephalopathy in the outpatient setting” and “Control of Hepatitis C in India: The Punjab Model for HCV Elimination”. He delivered a talk on “Approaching HCV as a Public Health Issue: Punjab Experience” at the 6th Kolkata Liver Meeting in Kolkata from December 1-3, 2016. He was a guest faculty at the Annual conference of Indian Society of Gastroenterology held in New Delhi from December 15-18, 2016; he delivered talks on “Statins in Portal Hypertension: New kid on the block” and on “Probiotics in liver Diseases” and chaired a session on “Management of Acute liver failure”. He was a guest faculty at the Liver Age 2017, Advanced Graduate Education held at Hotel Novotel, Hyderabad from January 6 to 8, 2017. He taught the participants the recent advances in Hepatology and prepared participants for subsequent evaluation and delivered a talk on “Hepatic encephalopathy - acute liver failure versus chronic liver disease”. He delivered a talk on “Immunotherapy in hepatocellular carcinoma at second symposium on "GI Immunology: Bridging the Clinician-Scientist Gap", which is jointly organized by the Department of Gastroenterology, All India Institute of Medical Sciences, New Delhi; Harvard Medical School, Boston, USA and Translational Gastroenterology Unit, Oxford, UK” at The Oberoi Hotel, Gurgaon from 14 to 15 January 2017.

He was invited as a specialist to participate in a 2-day Roundtable on Blood Borne Infections on February 3-4, 2017, at Mumbai. He also spoke on “Epidemiology of hepatitis C” and on “Innovative models of service delivery for the management of hepatitis C across Punjab”. He delivered a talk on “Wilson disease and pregnancy” at the Single theme meeting on “Wilson Disease – Bench to the Bedside” held at , Mumbai on March 25, 2017.

Dr Virendra Singh was a guest faculty at the 3rd International Liver Symposium organised by the Medanta, The Medicity at Gurgaon, on April 2-3, 2016. He attended Indian National Association for Study of the Liver (INASL), organised at Gurgaon, from August 5-7, 2016 and spoke on "Symposium on Alcoholic Liver Disease: Treatment of Alcoholic hepatitis after STOPAH" at the annual conference of the Indian National Association for Study of the Liver (INASL), organised at Gurgaon, from August 5-7, 2016. He attended AASLD Conference held at Boston(USA) from November 11-15, 2016. He presented paper entitled "Granulocyte-Colony Stimulating Factor (G-CSF) plus N-Acetyl Cysteine (NAC) in Severe

Alcoholic Hepatitis " which was selected as a Late breaking oral paper at The Liver Meeting®2016, AASLD's 67th Annual Meeting held on November 11-15, 2016 in Boston, USA. He also presented paper entitled "Quality of Life and Outcomes after Multiple Courses of Granulocyte-Colony Stimulating Factor and Growth Hormone in Patients with Decompensated Cirrhosis "which was selected as a Late breaking Poster at The Liver Meeting®2016, AASLD's 67th Annual Meeting, held on November 11-15, 2016 in Boston, USA.

He attended Annual conference of Indian Society of Gastroenterology organised at New Delhi on December 15-18, 2016 and delivered a guest lecture on "Is Renal Failure In Cirrhosis Reversible?" at ISGCON 2016 December 15-18, 2016.

He was a speaker at the 'Clinical School of Hepatology' at First National Conference on Critical Care and Infections in Liver Diseases organised by Institute of Liver and Biliary Sciences (ILBS), New Delhi from January 25-26, 2017.

He was guest speaker at APASL Conference held at Shanghai(China) from February 15-19, 2017 and spoke on "Treatment of Ascites: Drugs, Decompression or Device?" and "Antibiotics' options in SBP: evidences and unsolved issues".

Dr Ajay Duseja was a guest speaker on 'Non-invasive assessment of NAFLD' at the 3rd International Liver Symposium organised by the Medanta, The Medicity at Gurgaon, on April 2-3, 2016. He was speaker on 'Acute on Chronic Liver Failure' at the "PurbanchalGastroCon'organizedat Kolkata on April 9-10, 2016. He spoke on 'Staging of HCC – Loco-regional Perspective' organised at a Radiology CME on IRE at Chandigarh on April 29-30, 2016. He was a speaker on 'Management of Viral Hepatitis in Pregnancy' at the Gynaecological CME organised by FOGSI in Chandigarh on July 18, 2016. He spoke on 'Simple steatosis – Is it really benign', 'HCC in Non-cirrhotic NASH', 'ACLF – The Indian Scenario' and ' HCV – Indian Registry' at the annual conference of the Indian National Association for Study of the Liver (INASL), organised at Gurgaon, from August 5-7, 2016. He was a speaker on 'Liver biopsy vs Fibroscan' at the Gastroenterology CME organised at IGMC, Shimla on August 27, 2016. He was a speaker on 'Acute on Chronic Liver failure (ACLF) – Definition and prognosis' at the Gastroenterology CME organised by the department of Gastroenterology, PGIMER, Chandigarh on October 1-2, 2016. was elected the Fellow of the National Academy of Medical Sciences (FAMS) at the annual conference of the National Academy of Medical Sciences, held at Raipur from October 21-23, 2016. He was an invited speaker on 'Management of CHC in CKD and post renal transplantation' at

the ISOT 2016 – Annual conference of the Indian Society of Organ Transplantation organised at Chandigarh on October 7-9, 2016. He was also an invited speaker on ‘Nutritional Approach in NAFLD – Facts and Fantasies’ at the Annual conference of Indian Society of Clinical Nutrition organised at Institute of Liver and Biliary Sciences, New Delhi from October 14-16, 2016. He participated and presented a paper in the ‘Liver Meeting – the annual conference of American Association for Study of Liver’ held at Boston (USA) from November 11-15, 2016. He spoke on ‘Step-wise Approach in NAFLD’ at the Medicine Update organised by department of Medicine at NSCB Govt. Medical College, Jabalpur (MP) on November 19-20, 2016. He spoke on ‘Role of Viral Load and genotyping in HBV and HCV infection’ at the Microcon 2016 – Annual conference of the Indian Society of Microbiology organised at Chandigarh on November 25-27, 2016. He chaired a session on “Nonalcoholic Fatty Liver Disease” at the 15th Current Perspectives in Liver Diseases (CPLD) with single theme meeting on ‘New Horizons in the Management of Liver diseases’ held at Chandigarh on November 26-27, 2016. He spoke on “Weight reduction, lifestyle modifications and bariatric surgery - the traditional in NAFLD” at Kolkata Liver Meeting organised by School of Digestive and Liver Diseases, Institute of Post Graduate Medical Education & Research Kolkata and Liver Foundation, West Bengal on December 1–3, 2016. He was speaker on ‘Can we predict future in NAFLD’, ‘Expert on NAFLD in the session ‘Coffee with Experts’ and Chaired the ‘Datta Memorial Oration’ at the Annual conference of Indian Society of Gastroenterology organised at New Delhi on December 15-18, 2016. He was a guest speaker on ‘Future treatment of NAFLD’ at “LiverAGE- Advanced Graduate Education” training programme organised by Asian Institute of Gastroenterology, Hyderabad from January 6-8, 2017. He was a speaker on ‘Auto-immune Hepatitis’ at the ‘GI Immunology and Inflammation - Bridging the Clinician-Scientist Gap’ conference organised jointly by the Department of Gastroenterology, AIIMS New Delhi and Harvard Medical School, Boston at New Delhi on January 14-15, 2017. He chaired a session on “Management of ARDS in a Cirrhotic” at a conference on Intensive Care organised by Institute of Liver and Biliary Sciences (ILBS), New Delhi on January 24-25, 2017. He was a guest speaker on “NASH: do we really have an effective treatment?” at the ‘APICON 2017 – annual conference of the association of physicians of India’ organised at Mumbai from January 27-28, 2017. He chaired the session on ‘Nonalcoholic Fatty Liver Disease’ at the 8th Ramanbhai Foundation, International Symposium on ‘Current Trends in Healthcare - Advances in New Drug Discovery Development’ organised at Ahmedabad from February 2-4, 2017. He also

chaired the session on ‘Designing Clinical trials in Hepatic Encephalopathy’ at the 19th ISHEN symposium organised at Gurgaon, from March 9-11, 2017.

Dr Sunil Taneja was a moderator in the session on ‘Interventional procedures in HPB diseases’ at the 3rd International Liver Symposium organised by the Medanta, The Medicity at Gurgaon, on April 2-3, 2016. He spoke on ‘Budd Chairi Syndrome -When to consider Liver transplantation’ and on the ‘ALF Registry’ at the annual conference of the Indian National Association for Study of the Liver (INASL), organised at Gurgaon, from August 5-7, 2016. He was a speaker on ‘Approach to Raised transminases’ at the Gastroenterology CME organised at IGMC, Shimla on 27 August, 2016. He was a moderator in the session ‘Immune therapy of Hepatitis B’ and spoke on ‘New Frontiers in Hepatic Encephalopathy’ at the conference of Clinical Application of Advancement in Hepatobiliary Diseases” at New Delhi on September 3-4, 2016. He chaired a session on ‘Liver Regenerative transplant Tolerance: clinical protocols’ at the 2nd CLBS symposium on Advances in Adult and Paediatric Liver Transplantation at New Delhi from September 17-19, 2016. He was invited as a speaker on ‘Living Donor Liver Transplantation is transparent activity in India?’ at the ISOT 2016 – Annual conference of the Indian Society of Organ Transplantation organised at Chandigarh on October 7-9, 2016. He chaired a session on “Acute on chronic liver failure” at the 15th Current Perspectives in Liver Diseases (CPLD) with single theme meeting on ‘New Horizons in the Management of Liver diseases’ held at Chandigarh on November 26-27, 2016. He chaired a session on “HBV Therapy” at Kolkata Liver Meeting organised by School of Digestive and Liver Diseases, Institute of Post Graduate Medical Education & Research Kolkata and Liver Foundation, West Bengal on December 1–3, 2016. He spoke on ‘Probiotics in Liver Diseases’ and ‘HCC interventions in Video Forum on Interventions in Liver Disease’ at the Annual conference of Indian Society of Gastroenterology organised at New Delhi on December 15-18, 2016. He spoke on ‘Albumin versus crystalloids’ and was a part of panel discussion on the ‘Management of Cerebral edema in ALF’ at a conference on Intensive Care organised by Institute of Liver and Biliary Sciences (ILBS), New Delhi on January 24-25, 2017. He spoke on ‘Prevention of new HCV infections in the general population’ at the North East Gastro meet from February 3-4, 2017. He participated and presented a paper in the ‘Liver Meeting – The annual conference of Asia Pacific Association for the Study of Liver’ held at Shanghai (China) from February 15-19, 2017. He also chaired the session on ‘Pathogenesis of Brain Edema’ at the 19th ISHEN symposium organised at Gurgaon, from March 9-11, 2017.

SERVICE

An outpatient liver clinic is conducted every Monday and Friday. A total No. of 28665old and 7563new patients were seen in liver clinic during 2016-2017. During the year, the investigations performed included:

Name of Test/Procedure	2016-17	2015-16	2014-15
UGI Endoscopies	3127	3117	2685
Lower GI Endoscopies	83	101	110
ERCs	381	430	363
Ultrasound	963	1424	1903
Endoscopic Ultrasound (EUS)	59	171	73
Fibroscan	7650	5810	5621
Anti HCV	4858	5035	4834
HBsAg	4637	5342	5151
HBeAg/Anti HBe	2050	3895	3257
Anti HEV (IgM)	908	1096	1016
Anti HBc (IgM)	442	465	439
Anti HBc (total)	2810	2720	1154
Anti HBs	355	520	516
Anti HAV (IgM)	946	1127	1011

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

TRAINING

Nine residents were pursuing DM (Hepatology) and three PhD fellows were pursuing PhD training in the department during the year. MD residents from the department 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. DM residents from the department of Gastroenterology also rotated through the department for training imparted through regular sessions of bedside clinical case discussions, liver transplant forums, hepato-radiology rounds, seminars, liver

biopsy rounds, journal clubs and through specialised procedures like liver transplantation, Fibroscan, TJLBs, TIPS/DIPS, TACE, and RFA etc done for the patients of the department.

RESEARCH COMPLETED

DEPARTMENTAL

1. To study the prevalence of erectile dysfunction in cirrhotic patients and their response to tadalafil, a phosphodiesterase-5 inhibitor

This study evaluates the prevalence of erectile dysfunction (ED) in patients with CLD, and its response to therapy. 41.7% patients had an International Index of Erectile Function (IIEF) score of <25, suggestive of ED. Of the 25 ED patients given Tadalafil, the mean IIEF scores at baseline improved significantly after 4 weeks of Tadalafil (P <0.001) therapy and 11(44%) had resolution of ED.

2. Circulating neutrophil dysfunction in ACLF patients

Patients with ACLF despite having raised white cell count still have increased susceptibility to infections. We addressed to this paradox and proved that patients with ACLF have impaired neutrophil function. Neutrophils were in a “burntout” or “exhausted state” characterised with impaired phagocytosis and increased resting oxidative burst. Neutrophil phagocytic capacity and phenotype were a robust predictor of 90-day survival.

3. Comparison of rifaximin and norfloxacin in preventing spontaneous bacterial peritonitis in cirrhotic patients

We compared rifaximin and norfloxacin in both primary and secondary prophylaxis of SBP in cirrhotic patients with ascites. Thirteen of 33 (39%) patients receiving norfloxacin for secondary prophylaxis and 6 of 30 (20%) patients receiving norfloxacin for primary prophylaxis developed SBP compared to 2 of 26 (7%) patients receiving rifaximin for secondary prophylaxis and 4/28(14%) patients receiving rifaximin for primary prophylaxis. Patients receiving norfloxacin had higher rate of development of SBP compared to rifaximin in both primary (20% vs 14%; P=0.731) and secondary (39% vs 7%; P=0.007) arm.

4. Cultural differences in the acceptability of lactulose therapy for prevention of the first overt hepatic encephalopathy episode

The aim was to define using a discrete choice questionnaire (DCQ), the preference and reasons behind acceptance and rejection of lactulose in cirrhotics from USA and

India. We found that there are significant variations in lactulose acceptance as CHE therapy and OHE primary prophylaxis between Indian and American cirrhotics. The acceptance of lactulose and its higher doses increases in specific recipients with a more favorable benefit/risk profile aimed at reduction of OHE development.

5. Dynamic assessment of prognostic scores in predicting short term outcome of patients with acute on chronic liver failure

We found that the prognostic scores at day 5-6 were better predictors of mortality than baseline assessment. Simple Organ Failure Count (AUROC 0.87, 95%CI 0.81-0.93) and CLIF-SOFA (AUROC 0.88, 95%CI 0.82-0.94) at day5-6 were the best predictors of 28-day mortality. 90-day mortality was best predicted by CLIF-C-ACLF (AUROC 0.79, 95%CI 0.71-0.85) at day 5-6. Patients who showed worsening of number of organ failures by day 5-6 had poorer survival (28day mortality-OR 2.78, 95% CI 1.27-6.25, P=0.01, 90-day mortality-OR 2.94, 95%CI 1.15-7.69, P=0.03). Moreover, patients who persisted to be in ACLF grade-3 had a 97% 28-day and 100% 90-day mortality.

6. Cytokeratin – 18 (CK-18) is a useful Biomarker in Differentiating between NASH and No-NASH amongst Patients with Nonalcoholic Fatty Liver Disease (NAFLD).

Forty biopsy proven patients with NAFLD were categorised into NASH (NAS \geq 5) and no-NASH (NAS $<$ 5) as per the NAFLD activity histology score. Out of 40 patients with NAFLD, 11 patients (27.5%) had histological NASH whereas 29 patients (72.5%) had no-NASH. CK-18 was significantly different between patients with NASH (3.755 \pm 1.000 ng/ml) and no-NASH (2.307 \pm 0.572 ng/ml) (p=0.0001). However there was no difference between in the mean values of CRP and IL-6 between patients with NASH and no-NASH.

7. Pharmacological and non-pharmacological treatment improves quality of life in patients with nonalcoholic fatty liver disease (NAFLD)

One hundred patients with diagnosis of NAFLD on ultrasound were treated for 6 months with either life style modifications alone (n= 75) or life style modifications + vitamin E (800 U/daily) [n=25]. Chronic liver disease questionnaire (CLDQ), impact of weight on quality of life-lite version (IWQOL-Lite), health promoting life style profile II (HPLP II) and body weight, image and self esteem evaluation (B-WISE)

scores were used to assess the improvement in QOL after treatment. Baseline QOL was affected in 69 (69%) and 95 (95%) patients as assessed by CLDQ and HPLP II scores which improved to 20% and 64% patients respectively after treatment. None of the scores showed any difference in the improvement of QOL between patients managed with lifestyle modifications alone and lifestyle style modifications + vitamin E.

8. Monocyte HLA-DR Expression, Neutrophil Oxidative Burst Capacity and Cytokine Analysis in Patients with Decompensated Cirrhosis with and Without Acute-on-Chronic Liver Failure (ACLF)

In 96 patients with decompensated cirrhosis there was no difference in mean percentage of monocytes with HLA-DR expression and mean density of HLA-DR expression on the surface of these cells amongst patients with and without ACLF. The quantitative increase in NOB after stimulation with PMA was insignificantly different amongst patients with and without ACLF. Patients with ACLF had significantly higher pro-inflammatory [IL-1, IL-6, IL-8, IL-12, TNF- α] and anti-inflammatory [IL-10] cytokines in comparison to patients with decompensated cirrhosis without ACLF.

9. Renal dysfunction in patients with nonalcoholic fatty liver disease is related to the presence of diabetes mellitus and severity of liver disease

In 100 patients with NAFLD, presence of renal dysfunction was estimated by glomerular filtration rate and by evaluating 24 hour urinary protein and microalbumin. Twenty eight (28%) patients with NAFLD had evidence of impaired renal function with 5 (5%) having abnormal glomerular filtration rate, 18 (18%) having significant proteinuria and 5 (5%) having both. Presence of type 2 diabetes mellitus, raised hepatic transaminases and advanced fibrosis on transient elastography were found as independent predictors of impaired renal function.

10. Transient Elastography has limited efficacy for fibrosis assessment in End Stage Renal Disease patients on maintenance hemodialysis with suspected liver disease.

In 68 patients on hemodialysis there was a significant change of LSM after HD with a mean LSM reduction of 7.2 (5.25-9.19) kPa. On stratification in two groups by net ultrafiltration during HD (> or <2.5 L), change in LSM was substantially higher in patients when total fluid removed was >2.5L, (8.6 vs 5.1, P=0.05). 18 patients

underwent liver biopsy; LSM after HD performed better at detecting significant fibrosis, with area under ROC 0.71 (0.46-0.97), vs 0.64 (0.38-0.90) respectively.

11. Successful Treatment of Chronic hepatitis C infection with directly acting antivirals in renal transplant recipients.

Forty seven HCV infected renal transplant recipients treated with directly acting antivirals had SVR 12 rates of 100% in all groups except in the sofosbuvir and ribavirin group (86%). The only serious adverse effect was anemia observed in 8 (57%) patients in the sofosbuvir and ribavirin group leading to drug discontinuation in 2 (14.2%) patients. No patients had worsening of renal dysfunction or required modification of immunosuppressant doses while DAAs therapy.

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12. Prevalence and clinico-epidemiology of non-alcoholic fatty liver disease (NAFLD) in patients with metabolic syndrome.

In this cross-sectional study, 432 adult patients with an established diagnosis of MetS(ATP III criteria with modified waist) were enrolled across 10 centres in India over one year. Amongst 432 patients with MetS, central obesity was the most common component [424(98.14%)] followed by low HDL-C levels [365(84.5%)], elevated SBP [346(80.09%)], high fasting glucose levels [288(66.67%)] and elevated triglycerides [169 (39.12%)]. Insulin resistance with HOMA-IR > 1.64 was present in 383 (88.6%) patients. Two hundred and ninety-eight (69%) patients with MetS were diagnosed with NAFLD (mean age 48.6 ±10.61 years, mean BMI 30 ± 4.94 kg/m²) with higher prevalence in females [186 (62.4%)] in comparison to males [112 (37.6%)]. Most common risk factors associated with NAFLD were high waist circumference [292 (98%)] and HOMA-IR [273(91.61%)] followed by obesity [265(88.92%)] and high fasting glucose levels [231(77.51%)]. In total 117 (39.26%) patients had NFS > 0.675 suggesting presence of advanced fibrosis whereas low probability of advanced fibrosis was present in 38 (12.75%) patients (NFS< - 1.455). Risk factors most commonly observed in patients with advanced fibrosis were central obesity [116 (99.14%)], HOMA IR >1.64 [108 (92.3%)], low HDL-C levels [102 (87.17%)], high SBP [94 (80.34%)] and fasting glucose [84 (71.79%)].

RESEARCH IN PROGRESS

ICMR

1. ApolipoproteinC3 (APO C3) and Patatin like Phospholipase Domain Containing Protein 3 (PNPLA3) Gene polymorphism and expression in patients with Nonalcoholic fatty liver disease (NAFLD).

Extramural projects

- 1. Next Gen Pharma India Pvt. Ltd.**

Pentoxifylline With versus Without VSL#3 in Severe Alcoholic Hepatitis: An Investigator Initiated Double-Blind, Randomized, Placebo-Controlled Trial.

- 2. Gilead/Klinera**

GS-US-334-1775: “GS-US-334-1775, “A multicentre, prospective observational, post marketing surveillance study to evaluate the safety and efficacy of sofosbuvir- based regimens in clinical practice for the treatment of patients with chronic hepatitis C virus infection in India”.

- 3. Gilead/Klinera**

GS-US-334-0110: “A Phase 3, Randomized, Double-Blind Study to Evaluate the Safety and Efficacy of Tenofovir Alafenamide (TAF) 25 mg QD versus Tenofovir Disoproxil Fumarate (TDF) 300 mg QD for the Treatment of HBeAg Positive, Chronic Hepatitis B.”

- 4. Cadila Healthcare Limited, Zydus Cadila**

Prospective, multi-centre, double – blind, randomized trial of Saroglitazar 4mg vs Placebo in patients with Nonalcoholic steatohepatitis–

- 5. Department of Science and Technology (DST), Chandigarh**

Non-invasive assessment of disease severity by glycoproteomics in patients with nonalcoholic fatty liver disease (NAFLD).

- 6. OPTIMIS Bayer Zydus Pharma**

Outcomes of HCC patients treated with TACE followed or not followed by sorafenib and the influence of timing to initiate sorafenib”.

Departmental

7. Multidrug Resistant Infections in Acute Decompensation of Cirrhosis

8. Role of neuroinflammation (by microglial activation) in patients with acute liver failure and in patients with cirrhosis of liver and hepatic encephalopathy: An autopsy-based study
9. Role of microRNA as autophagy inhibitor in sorafenib resistant hepatocellular carcinoma.
10. International Multicenter Study -Role of gut microbiota alterations in liver disease: An international multicentricmultiethnic study
12. Treatment of hepatitis C patients in a public health care setting under MukhMantri Punjab Hepatitis C Relief Fund (MMPHCRF)
13. Resistant associated variants in hepatitis C patients who have failed to sofosbuvir-based treatment
14. G-CSF in alcoholic hepatitis.
15. G-CSF in cirrhosis.
16. G-CSF and NAC in alcoholic hepatitis.
17. Beta blockers in Cirrhotic ascites.
18. Comparison of Patients with infection related ACLF with acute hepatic insult related ACLF amongst patients with alcoholic cirrhosis.
19. Investigating the role of Phyllanthin in elucidating the fatty liver disease pathway by different gene expression and protein level in mice model fed on MCDD diet.
20. Prevalence and Risk factors of non-alcoholic fatty liver disease in HIV mono infected patients.
21. Frailty in Outpatients with cirrhosis – Predicting unplanned hospitalization at 6 months

INDEXED PUBLICATIONS

1. Anand AC, Dhiman RK. Acute on Chronic Liver Failure-What is in a 'Definition'? J ClinExpHepatol 2016;6:233-40.
2. Borkakoty A, Kumar P, Taneja S. Hepatic Encephalopathy. N Engl J Med. 2017;2;376
3. Dhiman RK, Satsangi S, Grover GS, Puri P. Tackling the Hepatitis C Disease Burden in Punjab, India. J ClinExpHepatol 2016; 6:224-32.

4. Gupta T, Dhiman RK, Rathi S, Agrawal S, Duseja A, Taneja S, Chawla Y. Impact of Hepatic and Extrahepatic Insults on the Outcome of Acute-on-Chronic Liver Failure. *J ClinExpHepatol*. 2017; 7:9-15.
5. Kapil S, Duseja A, Sharma BK, Singla B, Chakraborti A, Das A, Ray P, Dhiman RK, Chawla Y. Genetic polymorphism in CD14 gene, a co-receptor of TLR4 associated with non-alcoholic fatty liver disease. *World J Gastroenterol* 2016; 22:9346-55.
6. Kumar P, Taneja S, Singh V. Treatment of patients with cirrhosis. *N Engl J Med* 2016;375:2102-03.
7. Kumar P, Taneja S, Singh V. Treatment of Patients with Cirrhosis. *N Engl J Med*. 2016 Nov 24;375(21):2102-3.
8. Kumar P, Taneja S, Gupta K, Duseja A, Dhiman RK, Chawla YK. Unusual Presentation of Tubercular Liver Abscess in an Immune-Competent Adult. *J ClinExpHepatol*. 2017; 7:77-79
9. Kumar P, Taneja S, Singh V. Do the dose and type of NSBBs really matter? *Hepatology*. 2017 Jul;66:301-02.
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Chapters in a Book

1. Satsangi S, Duseja A. NASH: do we really have an effective treatment? - *Medicine Update*, 2017; 2; 322

Part I

Awards and Honours

1. Dr Dhiman is Secretary-General of INASL for a term 2015-2018. He is Editor-in-Chief of *Journal of Clinical and Experimental Hepatology (JCEH)*, which is an international peer reviewed official Journal of Indian National Association for the

Study of Liver (INASL). He is a governor for American College of Gastroenterology (ACG)

2. Dr Virendra Singh received AmrutModyUnichem Prize -2014 for the year 2014; given by Indian Council of Medical Research in November 2016.
3. Dr Ajay Duseja was elected the Fellow of the National Academy of Medical Sciences (FAMS) at the annual conference of the National Academy of Medical Sciences, held at Raipur from October 21-23, 2016. Dr Sandeep Satsangi senior resident from the department working under the guidance of Dr Ajay Duseja was awarded the first prize for his paper 'Monocyte HLA-DR Expression, Neutrophil Oxidative Burst Capacity and Cytokine Analysis in Patients with Decompensated Cirrhosis with and Without Acute-on-Chronic Liver Failure (ACLF)' in the plenary session of the 57th annual conference of Gastroenterology held at New Delhi from December 15-18, 2016.

Part II- Departmental Highlights

The Department organised the 24th Annual conference of 'The Indian National Association of Study of the Liver' at New Delhi on August 5-7, 2016. The department in association with department of Gastroenterology, AIIMS, New Delhi organised 15th Current Perspectives in Liver Diseases (CPLD) with single theme meeting on 'New Horizons in the management of Liver diseases' at Chandigarh on November 26-27, 2016. The Department organised the 17th International Symposium on Hepatic Encephalopathy and Nitrogen Metabolism at New Delhi on March 9-11, 2017. This Symposium was adjudged to be the best in the history of ISHEN and Dr Dhiman was accorded the 'Standing Ovation' for the same.

Visiting Professors

Dr Piero Amodio, M.D. Associate Prof. Internal Medicine Head CIRMANMEC, DIMED-University of Padua, Via Giustiniani, 235128 Padova, Italy from March 15- 16, 2017.