17
HBV RNA from Hepatitis B Patient Sera contains significant amounts of encapsidated spliced HBV RNA variants

Nuclease digestion and detergent treatment studies indicate that secreted HBV RNA was present within enveloped encapsidated particles. A significant amount of secreted HBV RNA particles from both cultured supernatants and patient samples contained spliced variants. Sequence analyses indicate that many of these spliced RNA variants are similar to those that have been previously identified in the livers of chronic hepatitis B patients or in transfected hepatoma cells. These spliced RNA variants are also similar to previously reported spliced or defective HBV DNA variants detected in patient serum.

108
Hepatitis B core-related antigen correlates with intrahepatic covalently closed circular DNA (cccDNA) levels and activity in untreated chronic hepatitis B (CHB) patients

In large group of CHB patients with available liver biopsy samples, the correlation between HBcrAg and intrahepatic cccDNA levels and indicate that HBcrAg may represent a useful surrogate marker not only for intrahepatic cccDNA amount, but also for its transcriptional and replicative activity.

180

Over the past decade, prevalence of cirrhosis among HCV patients in this US cohort increased almost 3-fold. During the same time period, prevalence of decompensated cirrhosis and incidence of all-cause mortality more than doubled, although the increase in both plateaued in recent years. Prevalence of cirrhosis and decompensated cirrhosis, and incidence of all-cause mortality
The hepatitis B core protein associates with HBV covalently closed circular DNA via the C-terminal domain and facilitates HBV transcription.

HBC CTD (C Terminal Domain) mutations, especially those at arginine clusters III and IV, strongly decreased the level of HBV transcription, possibly via their reduced association with cccDNA. These findings suggested that HBC CTD can be a potential therapeutic target against HBV.

The prevalence of Hepatitis E Virus antibodies in Israel

The HEV seropositivity was significantly associated with increased age, rural residence, traveling to endemic areas and birth out of Israel. Our data indicate that HEV seropositivity is higher in patients with chronic HCV infection and in subjects with daily contacts with swine. A large prospective study is ongoing.

Pre-core mutation status enables delineating a ‘true immune tolerant’ stage in HBV infection

The presence of pre-core region mutations in HBeAg+ untreated patients with normal ALT is associated with stronger HBV-specific immune responses, but more exhausted CD4 and CD8 lymphocytes, higher CXCL10 levels and lower HBeAg and HBsAg levels, indicating immune system recognition of HBV. This profile allows distinction between true ‘immune tolerance’ and ‘early immune engagement’ in the HBeAg+ non-inflammatory stage of chronic hepatitis B.
HCV screening and infection awareness in a cohort of HIV infected and uninfected homeless and marginally housed women in San Francisco, California

Results fill an important gap in information regarding HCV among homeless women, and confirm the need for enhanced screening in this population where a high proportion are baby-boomers and have a history of drug use and psychiatric problems. Due to their age and risk profile, there is a high probability that women in this study have been infected for decades, and thus have significant liver disease. The association with mental illness and HCV suggests that in addition increased screening, augmenting mental health care and support may be needed to enhance treatment success.

751

Hepatitis C Virus Testing, Prevalence, and Treatment in a Large Cohort of Treatment-Naïve, HIV-Positive Individuals

Most patients in this ART-naïve HIV population were evaluated for HCV. While HCV treatment was more common in the DAA era, the majority of cases remained untreated. Treatment delays were also common. Given the importance of controlling HCV disease progression in coinfected patients and the existence of effective therapies, greater effort should be made to treat all coinfected patients, and to continue monitoring for HCV among HIV-monoinfected patients after baseline.

753

Polaris Observatory - Global prevalence of hepatitis C

The global prevalence was estimated by using regional averages for countries without data. Approximately 70 (56–90) million individuals were estimated to experience viremic HCV infection. This is lower than 2014 published estimates due to more recent (lower) prevalence estimates in African countries and a large increase in treatment. Lower estimates can also be attributed to an increase in mortality due to liver-related causes and an aging population. In 2015 alone, approximately 500 thousand individuals were treated and cured. The largest increase in treatment was in the United States (260K treated in 2015) followed by Egypt (190K) and the European Union (135K). Although this increase in treatment is a substantial step towards reducing the global burden of liver related deaths, the current treatment rate is not sufficient to achieve elimination by 2030.
Cost-effectiveness of screening strategy of hepatitis C in France: it is time to change recommendations

Whatever the treatment combination (Table), when we considered treatment for all, compared to the current screening strategy, adding all men aged 18-60 years was associated with the lowest ICER ($27,600-31,900/\text{QALY}$). Targeting all people aged 40-80 was more effective than targeting all men aged 18-60 years and remained cost-effective ($39,100-44,800/\text{QALY}$). Universal screening was even more effective than targeting all people 40-80 and remained cost-effective ($40,300-46,300/\text{QALY}$). In France, although universal screening is associated with the highest costs, it is the most effective strategy and is cost-effective when treatment is initiated regardless of fibrosis.

763
What Happens After Screening and Linkage to Care? Examination of HCV Care Cascade Outcomes Among 5,000 Urban Baby Boomers Screened for HCV 2012-2014

Our results show that following a highly successful HCV screening and linkage to care program, there remains significant drop off along the later stages of the HCV Care Cascade. This resulted in suboptimal numbers of patients initiating DAA therapy, despite the fact that excellent outcomes were achieved once patients initiated therapy. Our finding that lost to follow up was a significant contributor to non-treatment suggests that interventions focused on maintaining patients in care (patient navigators, case managers) could improve treatment uptake in this underserved population with high HCV prevalence.

772
Increasing incidence of hepatitis C virus among HIV-infected men who have sex with men from 2000-2015 in San Diego: a retrospective cohort analysis

HCV incidence among HIV-positive MSM in San Diego is increasing, with rates similar to London and other major European cities, and double that observed in the US Multicenter AIDS Cohort Study. This study also documented HCV infection among HIV+ MSM who do not inject drugs. Further work determining the epidemic trajectory and prevention required to control the epidemic is needed.

**Figure 1.** HCV incidence among HIV-positive MSM in San Diego, 2000-2015
Adherence to HCV Birth Cohort Screening Guidelines by Primary Care and Subspecialty Physicians in an Integrated Healthcare System

Overall, we observed a low adherence to HCV birth cohort screening guidelines among different outpatient settings in an integrated healthcare system, as EMR-documented HCV antibody test results were found in only 15% of all eligible patients. Patients younger than age 65 were more likely to be tested than older patients, and there was significant variability between different specialty clinics, with screening rates varying from 10% to 17%. Our study identifies opportunities for increased HCV antibody screening efforts that could incorporate age- and clinic-specific practice patterns.

Hepatitis Mobile Team: a new concept for benefit toward drugs users and precarious people with hepatitis C in France

Specific screening, follow up and support of these difficult to treat populations are essential for increase medical management and cure of HCV patients. HMT offered complement services and not substitution of existing services. It was new useful tool to screen, diagnosis and treat these patients by outside pathway of care.

Implementing HepCure - An Innovative Web-based Toolkit for Hepatitis C to Train Primary Care Providers and Increase Patient Engagement

The HepCure platform brings HCV infected patients, primary care providers, and expert hepatologists together to increase treatment capacity and patient engagement with the goal of improving health outcomes. The initial implementation phase has led to the recommendation for a series of enhancements including EHR integration and creating capacity for local experts to provide case based tele-education through a hub and spoke model. These upgrades are in process along with research to evaluate the outcomes of providers and patients using HepCure. Implementation of HepCure in resource limited settings without EHRs is also being explored.

Hepatitis C Virus Seroprevalence Survey in the Country of Georgia

HCV seroprevalence in Georgia is high overall, exceeding 50% among persons reporting IDU, and is higher in urban than in rural settings. Among those who tested HCV antibody-positive, awareness of infection was low, and most had not been treated. Knowledge of current nationwide HCV prevalence and associated risk factors will inform implementation of prevention, screening, and treatment strategies and will establish a baseline to track progress toward elimination over time.

Project ITTREAT (Integrated Community Based Test –Stage-Treat) HCV Service for People who Inject Drugs (PWID)

Prevalence of positive HCV serological markers remain high in PWID, which might explain the almost 40% prevalence of significant hepatic fibrosis. Compliance in this difficult to engage cohort was ~90% with HCV treatment outcomes comparable to secondary care. Our on going prospective study endorses the success of this novel, easy to replicate “one-stop” community based HCV treatment model with onsite mobile TE.
Hepatitis C virus exposure, infection and associated risk behaviours in two maximum-security prisons in New South Wales, Australia

A high proportion of prisoners with HCV infection from maximum-security prisons reported injecting risk behaviours. Among prisoners at risk of HCV, those with previous HCV exposure and clearance were more likely to report high risk injecting than those with no previous exposure, suggesting the risk for re-infection and the need for increased prevention activities. Surveillance of HCV incidence should focus on detecting both HCV re-infection and primary infection.

Hepatitis B and C prevalence and epidemiology among women in Spain

An important percentage of women infected with these viruses are immigrant population. The difference in HBV/HCV prevalence between pregnant and fertile age women may be due to: 1) the fertile age group had a high number of women with high risk to infection and 2) in relation to the HCV prevalence. HCV screening in Spain is not universal during the gestation and therefore it is performance mainly on high-risk women. The women over 25 years of age have an increased risk to viral hepatitis infection due to lack of prophylactic cares for HBV and to lack of HCV blood screening until 1990.

Prevalence of Hepatitis E Virus Infection in HCV and HCV/HIV Coinfected Patients

HEV exposure is higher in those with HCV and/or HIV than has been reported in general population surveys. Older HCV mono-infected and HCV/HIV co-infected persons are more likely to be exposed. However, HCV/HIV co-infected patients with low CD4 have less robust immune response as evidenced by lower antibody titers. We speculate that this may lead to increased proportions of false negative results in this subgroup. Further evaluation of qualitative profiling of antibodies to HEV including determination of binding avidity are indicated.

Social disparities and co-evolution of HIV/HCV infections, mental disorders and substance use: the British Columbia Hepatitis Testers Cohort (BC-HTC)

Overall, HIV monoinfected individuals lived in urban areas (92%), had low injection drug use (IDU, 4%), problem alcohol use (4%) and were materially more privileged than other groups. HIV/HCV co-infected and HCV seroconverters were materially most deprived (14%, 12%), had higher IDU (34%, 53%), problem alcohol use (15%, 17%) and major mental illnesses (12%, 21%). HIV, HCV and HIV/HCV coinfection began to increase in rural areas after 2004. Material deprivation, IDU and opioid substitution therapy increased overtime among seroconverters. Multivariable multinomial regression models mirrored descriptive trends. Overtime, odds of IDU declined among HCV prevalent and HIV monoinfected individuals but not in seroconverters. Decline in odds of problem alcohol use were observed in seroconverters and coinfected individuals overtime (Figure 1). Results could inform optimal alignment of prevention, care and support services for HIV and HCV infected population within the context of changing epidemiology, disparities and risk profiles of these groups.
The Burden of Viral Hepatitis B and C Infection in the United States Population

The viral hepatitis burden in the U.S. today primarily reflects that of hepatitis C and is greater among men and African Americans.
New blood test multi-targeted for liver fibrosis outperforms all other blood tests and even elastography in chronic liver diseases.

Multi-targeting biomarkers improves the accuracy of non-invasive fibrosis staging in a highly significant manner compared to classical single-target blood tests, matching liver elastography even for cirrhosis diagnosis.

Hepatitis C Screening: The Downstream Dissemination of Evolving Guidelines in a Resident Continuity Clinic

Adherence to HCV screening guidelines in a resident continuity practice prior to any educational intervention was low at 8.5 percent. Regular reminders through emails, conferences and lectures can increase the awareness and improve screening rate. In our resident continuity practice, HCV screening rate improved by 325% by increasing awareness of the HCV screening guidelines through regular reminders and education of house staff.
Minimal Risk of Hepatitis B Virus Reactivation in Hepatitis B Virus Surface Antigen-Negative Chronic Hepatitis C Patients Receiving Direct Acting Antiviral Agents

The risk of HBV reactivation was low in HCV-infected patients receiving IFN-free DAA treatment, and HBV reactivation was limited to HBV/HCV-coinfected patients. Furthermore, the risk of HBV-related ALT flares or hepatic decompensation is also minimal in those with HBV reactivation.

Screening for Hepatitis C in Baby Boomer Population Using EMR Pop-Up and Targeted Mailing from Primary Care Physicians in a Single Community Teaching Hospital

The use of automated processes incorporated into electronic medical record systems, can be an effective way of increasing screening rates for viral infections. This in combination with a targeted mailing campaign can expand the ability of primary care physicians to test their patients, and identify infected individuals. The prevalence rate of HCV in baby boom generation at our institution appears to be lower than previously reported.

The role of community-based hepatitis C testing in reaching young, at-risk adults

This study suggests that community-based programs are an important site for engaging and testing young adults who are at risk for HCV and who may not have access to regular health care. With the epidemiology of HCV revealing a rise of cases among young adults, support is warranted to promote testing in locations frequented by this group.
Clinical evaluation of a newly developed chemiluminescence enzyme immunoassay for HCV core antigen

The results of basic examinations and specificity test are reliable, and the concordance rates with conventional assays are high. The nonspecific reaction caused by hypergammaglobulinemia is found to be reduced. The new assay “Lumipulse Presto HCV Ag” can be used with high clinical efficiency.

Hepatitis C virus core antigen: A simplified treatment monitoring tool among those with recent Hepatitis C virus infection, including for post-treatment relapse

This study demonstrates core antigen provides high specificity when compared with HCV RNA. The potential clinical utility of HCV core antigen requires further evaluation, particularly in the context of low HCV RNA levels.

A program of Testing and Treat Intended to Eliminate Hepatitis C in a Prison: The JAILFREE-C study

In this Spanish prison the HCV prevalence is x15 times the described in the general population, showing a different profile of HCV genotypes and a high viral diversity in HVR1. An elimination program of this nature is intended as a pilot experience that could be extended to other prisons.
Telemedicine-based Hepatitis C Virus (HCV) Management for Individuals on Opioid Agonist Treatment (OAT)

Telemedicine-based HCV care is a feasible, reimbursable model for HCV treatment delivery in an OAT program with excellent initial patient acceptance that strengthens over time. Patient adherence and antiviral efficacy have been excellent. Telemedicine can virtually integrate specialty-based care into the OAT clinic.

<table>
<thead>
<tr>
<th>Question</th>
<th>Option</th>
<th>First TSQ</th>
<th>Later TSQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: I prefer to see the doctor through a computer rather than to go to an off-site clinic.</td>
<td>Disagree</td>
<td>7.7</td>
<td>11.1</td>
</tr>
<tr>
<td></td>
<td>Undecided</td>
<td>28.9</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>38.5</td>
<td>55.6</td>
</tr>
<tr>
<td></td>
<td>Strongly agree</td>
<td>25.0</td>
<td>33.3</td>
</tr>
<tr>
<td>Q5: I would recommend medical treatment via computer to a friend.</td>
<td>Undecided</td>
<td>21.1</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>48.1</td>
<td>55.6</td>
</tr>
<tr>
<td></td>
<td>Strongly agree</td>
<td>30.8</td>
<td>44.4</td>
</tr>
<tr>
<td>Q10: The computer consultation met my medical needs.</td>
<td>Undecided</td>
<td>2.0</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>65.4</td>
<td>22.2</td>
</tr>
<tr>
<td></td>
<td>Strongly agree</td>
<td>32.7</td>
<td>77.8</td>
</tr>
</tbody>
</table>

Cost-effectiveness of an HCV screening and treatment linkage intervention in US methadone maintenance treatment (MMT) programs

HCV care coordination interventions that include screening, education and linkage to care located in MMT settings are likely cost-effective at a conventional $100,000/QALY threshold.
Impact of hepatitis C virus reflex testing on the hepatitis C care continuum among baby boomers in an urban health system

Reflex testing for HCV viral load in HCV Ab positive patients prevents drop-off in the HCV care continuum and significantly reduces the number of days between confirmatory viral load testing. Navigating patients tested as inpatients with complex comorbid conditions remains challenging. In conclusion, reflex HCV PCR testing is a critical component of HCV screening and link to care efforts in hospitals and the community.

Low Rates of Hepatitis B Virus (HBV) Screening and Low Rates of HBV Awareness Among High Risk Patients at a Large, Urban, Safety-Net Hospital

Among adults presenting for outpatient endoscopy at an ethnically diverse safety-net hospital, 61.6% were high risk and eligible for HBV screening. However, only 24.9% of these patients received prior testing, and only 22.5% of patients were aware of their test results.
HDV RNA replication is associated with high HBsAg levels irrespective of HBV DNA and linked with severe liver damage and end-stage liver disease complications.

In our cohort active HDV RNA replication was linked with higher HBsAg levels despite low HBV DNA and significant progression of liver disease with higher rate of complications. Only available peg-IFN therapy had poor response rate in cirrhotic patients and new treatments to combat this serious disease are needed.

Patients with HIV-HBV coinfection are an underestimated reservoir for Hepatitis Delta Virus. An analysis of the ICONA cohort

There was a high rate under-testing for HDV among HIV/HBV coinfected patients, especially in more recent years. In patients receiving anti-HBV therapy the presence of HDV infection was associated to a worse outcome as compared to HBV mono-coinfected patients.
A Primary Care and Community-Based Hepatitis B Screening and Linkage-to-Care Program in New Jersey

Collaborations of providers and community organizations can be effective at screening hard-to-reach foreign-born populations who face lack of insurance, gaps in knowledge, and lack of PCP screening. We found high rates of previous HBV exposure in FB persons and counselled on potential HBV reactivation. Navigation services based out of a primary care office were successful at achieving high rates of follow-up and HBV-directed care.

Novel monitoring of hepatitis B reactivation based on ultra-high sensitive hepatitis B surface antigen assay

ICT-CLEIA is a novel assay for HBV monitoring to prevent hepatitis caused by HBV reactivation.

Hepatitis B surface antigen titer is a good indicator of durable viral response after off-treatment of entecavir for chronic hepatitis B

HBsAg titer at off-treatment is closely related with HBV reactivation and CHB relapse. HBsAg titer is considered as an excellent indicator of durable viral response after off-treatment.

The level of HBV RNA in serum as a novel marker for the phase of chronic hepatitis B virus (HBV) infections

Serum levels of HBV DNA and HBV RNA show a high correlation in untreated patients with active chronic HBV infection. However, patients in inactive carrier state HBV RNA is mostly undetectable while HBV DNA can still be detected. It needs to be studied whether detection of HBV RNA in patients currently classified to the inactive carrier state may help to identify those patients at risk for disease progression.
Clinical patterns associated with the concurrent detection of anti-HBs and HBV DNA

The coexistence of anti-HBs and HBV DNA in patients with AHB and HBV reactivation was in most cases associated with HBsAg mutations. HBsAg remained negative in three of eight AHB patients, two of them with HBV mediated ALF. It could be important to consider HBV DNA testing during ALF, which is not generally recommended at the moment. The variability of the HBsAg might significantly contribute to the concurrent detection of anti-HBs/ HBV DNA during AHB and reactivation.

A novel method for accurate quantification of intra-hepatic HBV cccDNA in liver biopsy specimens and its application for predicting patient's response to interferon-α therapy

The ddPCR-based assay system is sensitive and accurate in quantification of intrahepatic HBV DNA and cccDNA from liver biopsy specimens. More importantly, transcriptional activity of intrahepatic cccDNA at baseline may be a good reference parameter for pre-selecting patients for IFN-based therapy in future clinical practice.