Reviews in Antiviral Therapy & INFECTIOUS DISEASES
6
2021
JOURNAL OF ABSTRACTS AND CONFERENCE REPORTS FROM INTERNATIONAL WORKSHOPS ON INFECTIOUS DISEASES & ANTIVIRAL THERAPY

Abstract Book

Conference on Liver Disease in Africa (COLDA)

9 – 11 September 2021, Virtual Meeting

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Presented at Conference on Liver Disease in Africa 2021
Abstract 1

Key Considerations for the Introduction of Hepatitis B Birth Dose Vaccine in Cameroon

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Background: Cameroon has one of the highest hepatitis B (HBV) national prevalence in sub-sahara Africa at 11% and up to 17% in some northern regions. The Cameroon Expanded Program on Immunization (EPI) introduced hepatitis B vaccine in 2001 with three doses at 6, 10, and 14 weeks. However, newborns remain unprotected prior to six weeks, thus the EPI is considering introducing the birth dose (HepB-BD) to be administered within 24 hours of birth according to WHO recommendations. Universal vaccination is widely recognized as a key strategy to prevent mother-to-child transmission with great potential even for mothers who are not able to access HBV testing. Successful administration of any birth doses relies on several system components, including integrated processes between delivery and immunization units, healthcare worker (HCW) awareness of birth dose administration guidelines, and demand from caregivers. These factors are further exacebated by home deliveries which constitute a third of births in Cameroon. To ensure the successful introduction of the HepB-BD, there was a need to understand the barriers that influence the timely adminstration of the current vaccine birth doses (Polio-OPV0 and Tuberuclosis-BCG). The overall aim of this work was to guide improvements to the current vaccine birth platform and prepare for HepB-BD introduction.

Methods: We conducted a cross-sectional mixed-methods assessment of 30 purposefully selected facilities across 3 distinct regions and vaccine coverage levels. This included 30 focus group discussions with caregivers and 30 key informant interviews with HCWs and community members. We also performed HCW surveys from 1-3 HCWs per site and a retrospective birth and vaccine registry extraction for one year worth of data. Quantitative analysis was performed in Stata version 15, and Dedoose software was used to facilitate coding, data organization and retrieval.

Results: We found health system and community factors that influence the timeliness of current vaccine birth doses. Vaccine administration was rare within 24 hours of birth. Existing vial handling policies, especially for BCG, hinders timely administration for birth vaccines. We found that maternity services are not equipped to administer vaccines. We also found that the current strategy for selective vaccination is ineffective and unsuitable for caregivers. We found that there was insufficient awareness of timely birth vaccines among caregivers.

Conclusion: Vaccine birth doses are not well integrated into newborn care. Policies and training need to be reviewed to ensure birth vaccines can be administered as soon as possible after birth. Specifically, maternity services would need appropriate training and tools or coordination with EPI for newborns to receive birth doses. Additionally, birth dose sensitization should start early and happen at all touchpoints throughout the delivery service cascade. We recommend strengthening community engagement and early sensitization of caregivers to birth doses to build demand for vaccines within 24 hours. We also found evidence of vaccine hesitancy associated with religious and cultural beliefs which requires that HCWs be prepared to respond to fears and concerns of caregivers and community members. These barriers though significant, are not insurmountable. By implementing comprehensive mitigative strategies the Cameroon EPI will strengthen its capacity to improve timeliness and coverage as well as prepare for a successful HepB-BD introduction.

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Abstract 2

A Community of Practice for the Introduction and Scale-up of Hepatitis B Birth Dose Vaccination in Africa: Challenges, Opportunities, and Lessons Learned

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Background: Despite the high burden of chronic hepatitis B virus (HBV) infection, < 10% of newborns in Africa receive hepatitis B birth dose (HepB-BD) vaccine. The U.S. Centers for Disease Control and Prevention (CDC) and the Coalition for Global Hepatitis Elimination (CGHE) initiated a series of online meetings to build a community of practice (CoP) for the introduction and scale up of HepB-BD in Africa. Based on responses to pre-meeting survey questions and discussions during these meetings, we report the status, challenges and opportunities for HepB-BD implementation in Africa.

Methods: Between March 17 and June 5, 2021, CGHE convened three online meetings of the CoP for: 1) partners to share research and technical assistance related to HepB-BD vaccination in Africa; 2) for Expanded Program on Immunization (EPI) managers to share experiences in implementing HepB-BD vaccination; and 3) members of the National Immunization Technical Advisory Groups (NITAGs) to share perspectives on the technical assistance that can assist development of national policies for HepB-BD vaccination. These meetings brought together Ministry of Health (MOH) officials, technical and research partners working on HBV related projects in Africa and members of NITAGs. Data were collected using pre-meeting survey questionnaires and abstracted from meeting presentations and discussions. Data collected included status of HepB-BD policy, HepB-BD introduction plans, NITAG status, and challenges and opportunities for HepB-BD implementation in Africa.

Results: A total of 235 participants attended the meetings including 63 MOH participants (hepatitis focal persons and the Expanded Program on Immunization (EPI) managers) from 24 African countries and 172 partner participants (representatives from WHO, CDC, Gavi, academic and technical assistance partners) representing 56 partner organizations. MOH participants representing 19 countries and partner participants representing 18 partner organizations completed the MoH and partner pre-meeting surveys, respectively. About a third (n=6) of the countries had a policy on universal HepB-BD, 58% (n=11) had active NITAGs of which seven had discussed HepB-BD introduction and four had passed a recommendation for introduction. Leading partner activities included HepB-BD planning 61% (n=11) and estimating HBV burden 44% (n=8). The main challenges facing HepB-BD implementation as reported by MOH and partner respondents included home births 64% (n=24), lack of funding 57% (n=21), lack of data systems for monitoring 43% (n=16) and poor collaboration between immunization and maternal and child health (MCH) programs 43% (n=16). NITAG representatives reported the need to have locally available data and access to published literature to support the evidence to recommendation process.

Conclusion: Collaboration between EPI and MCH is necessary to develop innovative strategies for reaching home and health facility births with timely HepB-BD. There is a need for funding to implement HepB-BD in Africa. Under its new Vaccine Investment Strategy post-2020, Gavi is expected to provide support to countries for the introduction of HepB-BD. Technical support for MCH and EPI staff is needed to improve data management and to support NITAGs in making a recommendation for HepB-BD introduction in order to introduce and scale up HepB-BD in Africa. The Coalition's web-based resources, NITAG toolkit, lessons learned from the CoP and technical support through collaboration with WHO and U.S. CDC will facilitate the uptake and timeliness of HepB-BD vaccine in Africa.

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Abstract 3

Hépatite Delta au Senegal

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Introduction: L'hépatite chronique delta est la plus sévère des hépatites virales du fait des difficultés thérapeutiques et de l'évolution rapide vers la cirrhose, la décompensation hépatique et le carcinome hépatocellulaire. Peu de données sont disponibles sur l'hépatite delta en Afrique sub-saharienne et plus particulièrement au Sénégal. Ainsi, l'objectif de cette étude était de décrire les aspects épidémiologiques, cliniques, thérapeutiques et évolutifs de l'hépatite chronique delta au Sénégal.

Patients et méthode: Il s'agit d'une étude multicentrique rétrospective et descriptive réalisée dans les services publics et cabinets privés d'Hépato-Gastroentérologie du Sénégal entre le 1er janvier 2014 et le 31 octobre 2018. Etaient inclus dans l'étude, tous les patients souffrant d'hépatite chronique B et ayant une sérologie delta positive avec une réplication virale détectable.

Résultats: La sérologie virale delta était réalisée chez 5587 patients porteurs chroniques du VHB. Au total, 152 patients avaient une sérologie positive soit une séroprévalence de 2,72 % et 26 patients avaient une charge virale delta détectable.
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L'âge moyen des patients était de 34,73 ans (22-57 ans), le sex-ratio de 2,25. L'hépatite delta était découverte lors de la recherche de co-infection VHB-VHD (18 cas), une décompensation cirrhotique sur le mode oedémato-ascitique (5 cas). Le délai diagnostique moyen était de 24,34 mois [1-108 mois].
Les principaux signes cliniques étaient une hépatomégalie (4 cas), une ascite (4 cas), une splénomégalie (3 cas). A la biologie une cytolyse > 3N aux dépens des ALAT dans 15 cas (57,7%) et aux dépens des ASAT dans 11 cas (42,3%). La charge virale moyenne était de 0,14 Log 10 copies /ml [6710-108 copies /ml]. Une cirrhose était diagnostiquée à l'examen histologique dans 3 cas (11,5%). Aucun cas de carcinome hépato-cellulaire n'était observé.
Le traitement par interféron Pegylé (Peg-IFN) était administré chez 10 patients (38,4 %) à la dose de 180 ug /semaine en injection sous cutanée pendant une durée moyenne de 35,2 semaines [1-96]. Une réponse virologique soutenue (RVS) était obtenue dans 2 cas (20 %) et une séroconversion HBs dans 1 cas.

Conclusion: Les résultats de notre étude ont montré une faible séroprévalence de l'hépatite delta au Sénégal (2,72 %). La principale circonstance de découverte était représentée par la recherche de co-infection chez les porteurs chroniques du VHB. Le diagnostic est souvent tardif, une cirrhose était présente dans un tiers des cas au moment du diagnostic. Peu de patients ont bénéficié du traitement par Peg-IFN et dans la majorité des cas, la durée du traitement était inférieure à la durée minimale recommandée de 48 semaines. L'évolution sous traitement était médiocre, une RVS était obtenue dans 2 cas seulement et une séroconversion HBs dans 1cas

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Abstract 5

Long Term Follow up of Chronic Hepatitis B Cohort in Africa; The Prolifica Gambia Experience

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Background: Chronic hepatitis B (CHB) infection is a major cause of morbidity and mortality worldwide, affecting 257 million people worldwide and accounting for 887,000 deaths annually. Patients with CHB require life-long monitoring for liver disease. In sub-Saharan Africa where resources are scarce, such monitoring may not be feasible. Therefore, follow-up strategies are crucial to shaping follow-up techniques for the retention of patients in care.

Method: The PROLIFICA (Prevention of Liver Fibrosis and Cancer in Africa) project is the first screen-and-treat programme for CHB in Africa. For each adult enrolled in the PROLIFICA project in The Gambia, contact information including telephone numbers, home address and phone numbers of next of kin was recorded. At enrolment, participants underwent a comprehensive clinical and virological assessment to determine antiviral treatment eligibility using the EASL 2012 treatment criteria. All patients were monitored routinely every 3 to 6 months between 2012–2016.

In a follow-up study in 2018–2020, we re-invited all PROLIFICA patients for reassessment using previously collected contact information. The initial invitation was by telephone calls, followed by a home visit if unsuccessful. Patient invitation outcomes were recorded as successful if patient was reached via telephone or home visit; or lost to follow-up if the patient was unreachable after at least 3 phone calls and one home visit.

Results: Between October 2018 and November 2019, we contacted 1,152 CHB patients enrolled in PROLIFICA since 2011. Of these, 950 (82.5%) patients were alive, 66 (5.7%) died and 136 (11.8%) were lost to follow-up.

Of those who were alive, 750 (78.9%) accepted the invitation for reassessment, 71 (7.4%) travelled outside The Gambia, 101 (10.6%) declined invitation for reassessment and 28 (0.03%) are due for home visit. 621 of 750 (82.8%) patients who accepted invitation attended the PROLIFICA clinic for reassessment. An additional 101 (13.5%) were reassessed at home during outreach CHB clinics and 28 (0.04%) did not attend clinic despite repeated follow-up attempts.

Among patients who refused reassessment (101), 23 (22.8%) were no longer interested in follow up, 16 (15.8%) had issues with blood sample collection (for viral load and liver function tests), 8 (7.9%) did not have time to attend, 34 (33.7%) did not give any reason, 7 (6.9%) individuals' husbands refused and 13 (12.9%) had other reasons. Cause of death was documented for 28 (42.4%) of the 66 patients who died. 22 (33.3%) died of CHB-related liver disease and 6 (9.0%) died of non-liver related diseases. Place of death was known for 40/66 (60.6%) patients of whom 16 (24.2%) died in a health facility, 23 (34.8%) at home and 1 died at traditional healer's home.

Conclusions: Long term follow-up of patients with CHB infection using telephone and home visit is feasible in resource limited settings. The strategy is however limited by frequent changing of telephone numbers, patient movements to new locations, and travels. Hepatitis B clinics and programs should collect as much contact information to effectively monitor patients' long term.

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Abstract 6

Assessment of Fibrosis Markers in HEPSANET: A Collaborative Network of Hepatitis B Cohorts in Sub-Saharan Africa

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Background and aims: The World Health Organization (WHO) advises the use of non-invasive tests to assess liver fibrosis in patients with chronic hepatitis B (CHB) in resource-limited settings. Specifically, APRI (aspartate aminotransferase to platelet ratio index) is set at a threshold of 2.0 to delineate cirrhosis, but the diagnostic performance is unknown in sub-Saharan Africa. To inform treatment guidelines we established the hepatitis B in sub-Saharan Africa collaborative network (HEPSANET). The aim of this study was to evaluate the diagnostic performance of APRI, FIB-4 and other simple fibrosis markers among HEPSANET participants.

Methods: HEPSANET comprises 3,645 CHB patients from 11 sites in 8 countries (Ethiopia, Gambia, Senegal, Burkina Faso, Nigeria, Zambia, Malawi and South Africa). In the present analysis, non-pregnant CHB patients aged 13 years or older with a valid liver fibrosis assessment by transient elastography were included. We excluded patients with acute hepatitis where ALT exceeded 5x the upper limit of normal and HIV, hepatitis C or D co-infection and those on CHB antiviral therapy in the last 6 months. Biomarkers were compared with transient elastography using >11.5 kPa as the reference test definition of cirrhosis. Bayesian bivariate random effects models were fitted to meta-analyse diagnostic performance characteristics based on proposed and optimized thresholds. Models considered study-level covariates of community or hospital location, and patient-level covariates of testing for screening or suspected liver disease, and hazardous alcohol consumption, with study level-random effects. We used Youden's J to identify optimal diagnostic thresholds.

Results: A total of 2945 CHB patients were included in the present analysis. Median age was 34 years (interquartile range [IQR] 28-41), 1138 (38.6%) patients were women, and median transient elastography value was 5.6 kPa (IQR 4.5-7.1). Overall, 554 (18.8%) patients had significant fibrosis (>7.9 kPa) and 272 (9.2%) had cirrhosis. The overall sensitivity of APRI at a threshold of 2.0 for detection of cirrhosis was 25.5% (95% credible interval 1.9- 52.7) and specificity was 99.2% (98.2-100.0). The optimised Youden index for cirrhosis was an APRI threshold of 0.45 where summary sensitivity and specificity were 70.5% (45.3-93.4) and 77.5% (72.8-82.2) respectively. Using ALT alone, the optimised threshold was 27 U/L, sensitivity was 67.9% (44.2-88.8) and specificity 77.4% (72.5-81.9). Assessing FIB-4, the optimised threshold was 1.4, with sensitivity 68.1% (40.5-92.1) and specificity 78.0% (72.7-83.0). Test sensitivity, for APRI at 0.45, was higher among patients with suspected liver disease relative to participants undergoing asymptomatic screening (posterior mean odds ratio 5.9 (95% credible interval 1.0-13.7)).

Conclusion: APRI at the WHO suggested threshold of 2.0 has a low sensitivity for the diagnosis of cirrhosis in CHB patients in sub-Saharan Africa, especially among asymptomatic patients. The use of this threshold will result in frequent missed opportunities for effective treatment. The best test performance for APRI to diagnose cirrhosis was at a threshold of 0.45; this outperformed both FIB-4 and ALT alone. WHO guidelines should be revised for the sub-Saharan African region to reflect these findings.

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Abstract 7

Age Cohort Screening for Hepatocellular Carcinoma in an African Population

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Background: Hepatocellular carcinoma(HCC) is a disease of global and public health significance and its figures are by no means complimentary: sixth most common cancer worldwide, third leading cause of cancer-related death and the second most lethal cancer (after pancreatic cancer) with a five year survival rate of 18%.
In Africa, HCC is the fourth most common cancer and sub-Saharan Africa is a hot bed for HCC particularly due to the high prevalence of Hepatitis B (HBV) and hepatitis C viruses (HCV) asides other risk factors. The late presentation in African patients has been well documented with attendant bad prognosis.
Early diagnosis of HCC is related to improved and favourable outcomes as the disease is at that stage amenable to curative therapies. This makes early diagnosis an attractive intervention and forms the basis for screening and surveillance. Different strategies have been adopted for identifying risk factors. In the United States, the task force on screening has found a benefit of screening for hepatitis C in people born between 1945-1965. Preliminary data in our HCC patients also supports a clustering of HBV and HCV in various age brackets. This provides the basis for an age cohort screening for risk factors.

Objective: The main objective of this study is to demonstrate a clustering of HCC based on aetiology within a birth cohort.

Methodology: This was a retrospective hospital based study from records of 425 adult patients(18 years and above) with triphasic CT confirmed HCC at the Jos university teaching hospital (JUTH), Jos, Nigeria. Relevant data was extracted from the database into an Excel spreadsheet with subsequent cleaning of data and grouping of patients based on age and risk factors of HCC.

Statistical analysis: Data was captured in Excel and analysed using Epi info version 7.

Results: A total of 425 patients were included in this study. Most were males 323(76%). The overall mean age for the studied population was 48.87+14.6years: 48.8+14.5years for females and 48.9+14.6 years for males. p =0.936. 44.7% had HBV and 28% had HCV. There was a significant difference in the mean age of those with hepatitis B as against hepatitis C (43.04+12.56 years vs 54.31+14.28 years; $p<0.001$). Among those who had HCV as a risk factor for HCC, the majority (31.95%)were in the age group of 51-60 while most of those with HBV (32.1%) were in the 31-40 age group.
There was a statistically significant difference between the cohorts of HCC ($p<0.001$). Overall 68.95% of all HCCs occurred between the age groups 31-60 years for both those with hepatitis B and hepatitis C.

Conclusion: In this African study, we were able to demonstrate the clustering of liver cancer based on the risk factor to certain age groups-with those from HCV in older age cohorts compared to those from HBV. Therefore, considering an age cohort based screening will be a feasible strategy to address the late presentation and diagnosis of HCC in Africa. This is worth by more researchers as it has been shown not only to be cost effective in other regions but also to improve survival among HCC patients. Thus, it could inform health policies and public health interventions that target this deadly menace ravaging our continent.

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Velpatasvir-Based Regimens in Treatment-Naïve and Treatment-Experienced Adults with Resistant Hepatitis C Virus Genotype 4 Subtypes Endemic to Sub-Saharan Africa: Findings from the SHARED-3 Study in Rwanda

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Background: Hepatitis C virus (HCV) genotype 4 (GT4) is predominant in sub-Saharan Africa (SSA) and in low-income settings worldwide. Recent data demonstrate high baseline resistance-associated substitutions (RAS) in several GT4 subtypes endemic in SSA, most notably GT4r and other non-4a/4d subtypes. These subtypes have been associated with higher treatment failure rates with NS5A inhibitor-based direct acting antiviral (DAA) regimens containing ledipasvir and daclatasvir. Although approximately half of HCV infections in SSA may be due to resistant subtypes, options for retreatment are extremely limited and poorly understood. The newer generation NS5A inhibitor velpatasvir has greater activity against isolates with such RAS in vitro; however, the efficacy of velpatasvir-based regimens in both DAA-naïve and DAA-experienced patients with these subtypes has not been assessed in clinical trials.

Methods: The SHARED-3 study consisted of two separate clinical trials conducted at Rwanda Military Hospital in Kigali from September 2019 to August 2020. Participants were referred from health facilities throughout Rwanda. The first trial evaluated efficacy and safety of 12 weeks of sofosbuvir-velpatasvir in DAA-naive adults with HCV GT4 infection. The second trial evaluated the efficacy and safety of sofosbuvir-velpatasvir-voxilaprevir in adults with HCV GT4 and a history of DAA failure. The primary outcome was SVR-12 as measured by plasma HCV RNA below the limit of quantification (15 IU/mL). Viral sequencing was conducted to determine subtype and RAS in the NS3/4A, NS5A and NS5B coding regions.

Findings: Sixty-one participants were enrolled in the DAA-naïve group and 40 in the DAA-experienced group. Predominant GT subtypes were 4k (n=28; 46%), 4r (n=11; 18%), and 4v (n=8, 13%) in the DAA-naïve group and 4r (n=18; 45%), 4k (n=6; 15%), 4b (n=5; 13%), and 4q (n=4; 10%) in the DAA-experienced group. Other subtypes identified included 3h, 4a, 4c, 4l, and 4m. Among the DAA-experienced patients, 37 (92.5%) had failed sofosbuvir-ledipasvir, 9 (22.5%) had failed sofosbuvir-daclatasvir, and 18 (45%) had failed multiple regimens. Among 88 participants with successful NS5A sequencing, all had at least two baseline NS5A RAS, and 38 (43%) had ≥3 NS5A RAS. Fifty-nine of 61 (96.7%) DAA-naïve participants treated with sofosbuvir-velpatasvir achieved SVR-12. Thirty-nine of 40 (97.5%) DAA-experienced participants retreated with sofosbuvir-velpatasvir-voxilapravir achieved SVR-12. Treatment adherence was >90% in both groups with no serious adverse events attributed to either study drug.

Interpretation: Sofosbuvir-velpatasvir is highly effective in treating chronic HCV infection in highly diverse GT4 non-a/d subtypes endemic in Rwanda with high baseline NS5A resistance. SVR12 rates for sofosbuvir-velpatasvir were higher than that previously reported for sofosbuvir-ledipasvir, particularly in individuals with subtypes 4k, 4q, and 4r or multiple NS5A RAS. Sofosbuvir-velpatasvir-voxilaprevir was highly effective in the treatment of patients with GT4 non-a/d subtypes with high baseline NS5A RAS with previous NS5A treatment failure. Velpatasvir-based DAA combinations should be the preferred treatment options in regions with these subtypes rather than ledipasvir- or daclatasvir-based regimens. All efforts to ensure appropriate access and cost of velpatasvir-based DAA combinations are required to equip HCV treatment programs in SSA with the optimal evidence-based treatment appropriate for local genotypes.

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Values and Preferences for Hepatitis C Self-Testing Among the General Population and Healthcare Workers in Rwanda

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Background: Over 58 million people worldwide are infected with hepatitis C virus (HCV) and majority of them remain undiagnosed. With the global WHO targets to eliminate HCV infection by 2030, there is a need to increase access to testing and new testing approaches are necessary to raise populations' knowledge of their HCV status. In 2018, Rwanda launched a 5-year HCV elimination plan to screen 4 million people and treat confirmed positive cases. To accelerate the implementation of this plan, increased access to HCV testing is needed to expand testing services in the community. HCV self-testing (HCVST) is among the innovative strategies that could empower people that remain unreached by current conventional facility-based HCV testing approaches as it holds the potential to further increase uptake of HCV testing services by giving people the opportunity to test discreetly and conveniently. A qualitative study has been undertaken to assess acceptability, values and preferences on HCVST among the general population and healthcare providers, to provide recommendations for future implementation of HCVST program in Rwanda.

Materials and Methods: The study was conducted in Masaka District Hospital, Kigali, Rwanda. It comprised of individual interviews, group interviews and participatory action research (PAR) activities. All activities were guided by interview and PAR tools. Informed consent was attained for all participants. A thematic analysis approach was used to analyze findings.

Results: A total of 72 individuals participated. Relating to values towards HCVST, majority of informants appreciated the test as an innovative way that could allow people to test in private, know their status, with no need to travel to a health facility; reduce time and cost to the health facility as well as waiting time and workload at the health facility; increase accessibility to HCV testing; allow people to keep results confidential, reduce stigma and take an autonomous decision on seeking further HCV care; and contribute to early treatment initiation and reduction of transmission. Preferences towards HCVST included the need for a full-time and easy geographical access of HCVST at the distribution point; the need to offer HCVST free of charge or at a very low price; the need for a confirmatory test following a positive HCVST; and the need to have visual, easy-to-read and understand instructions for the use of HCVST as well as the need to support illiterate people and people with visual or cognitive disabilities to prevent their exclusion from the innovation. Disadvantages identified for the use of HCVST included the possibility for errors while testing alone, lack of pre/post-counselling, as well as the potential for psychosocial harm which may follow a positive HCVST. Strategies to prevent or reduce negative consequences of HCVST included the support by a healthcare worker or via a free hotline.

Conclusion: HCVST is perceived as a valuable tool which could increase HCV testing uptake. Future research on acceptability and feasibility of different service delivery models is needed to ensure that people using HCVST have accelerated paths to demand and access to HCV confirmatory testing and treatment.

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Abstract 10

Genedrive® Point of Care Qualitative Testing in a Pilot Hepatitis C Treatment Program

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Background: Globally, 9% of people who inject drugs (PWID), a key hepatitis C virus (HCV) population, reside in sub-Saharan Africa. In South Africa, HCV seroprevalence in PWID is high, being almost 84% in Pretoria, with HCV genotypes 1 and 3 prevalent. Traditional care models do not address this populations care needs; hence, we piloted a simplified first of its kind in the sub-region, point of service care model and used the Genedrive® point of care (POC) molecular HCV RNA technology as part of the care model and evaluated its performance, uniquely as both a diagnostic and monitoring tool.

Methods: The WHO pre-qualified POC Genedrive® real-time PCR technology was used to confirm HCV viraemic in HCV antibody screen positive participants. Per protocol, on and post treatment testing was also tested. With Genedrive®, HCV RNA 'detected' confirms viraemia. Treatment monitoring at week 4, end of treatment (EOT) and confirmed a sustained virological response (SVR) at 12 weeks post EOT was performed accepting an HCV RNA 'undetected' as HCV RNA undetectability. Genedrive® SVR, 'control failed' and 'system error' samples were measured against the Abbott RealTimeR HCV quantification at a central laboratory (LLOQ <12IU/ml) as a validation assessment and standard.

Results: Overall, 314 HCV assays were performed. For initial HCV viraemic confirmation in HCV screen positives, n=105 assays were performed; 41% (n=43) were 'detected', 10% (n=11) 'undetected', the remainder 'indeterminate' or 'control failed'. A sample dilution protocol was initiated for the high number of 'control failed' outcomes as well as improved phlebotomy techniques to avoid hemolyzed specimens effected a respective 10% and 5% reduction in 'control failed' and 'indeterminate' results. Overall, the 'control failed' and 'indeterminate' samples were 18% (n=57) and 9% (n=29), respectively, which could be attributed to phlebotomy techniques and participant factors. In total, of the 74 samples sent for formal laboratory analysis, on control failed samples, 58% (n=21) had detectable HCV RNA. A validation analysis of POC SVR undetected samples (n=32) found a negative predictive value of 97%, 95% CI [83.7%,99.9%], and specificity of 100%, 95% CI [88.7%,100%], when compared to the central laboratory reference.

Conclusion: Our pilot HCV care model for PWID using a rapid, real–time POC Genedrive® HCV qualitative assay demonstrated acceptable results for baseline HCV viraemia, treatment monitoring and SVR confirmation in a decentralized, primary health care setting. We have demonstrated the feasibility for a holistic point of service application. Crucially, we have identified key factors influencing the performance of Genedrive® in the PWID population including difficult phlebotomy techniques and inherent participant factors. These factors do not limit its use but rather need to be factored in when using this technology. A full POC model is key to rapid linkage to care and HCV elimination in the PWID population.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 11

EILF-Italian Migrants Study: an HCV and HBV Micro Elimination Pilot Project

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Background: Migrants represent a key target population for viral hepatitis micro-elimination programs and thus are important targets for specific prevention, screening and treatment programs.
Aims To raise awareness on viral hepatitis among migrants and key stakeholders, assess the prevalence of HCV and HBV among migrants and determine an optimal and scalable viral hepatitis screening and treatment protocol.

Material and methods: Migrants referred from the Sicilian ports of entry to the Fondazione ARCA for registration and application for refugee status are screened for HBV, HDV, HCV and HIV markers. Anagraphic and anamnestic information are used to identify viral hepatitis endemic hotspots in the countries of birth or transit. Personal data, including the migration route, test results and treatment, are collected in a dedicated, database with protected, individual downloadable reports.

Results: To date 358 patients have been recruited with a median age of 28 years (19-70), 71% male. Most of patients are of African (54%) and Asian (40%) ethnicity. 49% of the population was positive for at least one HBV markers; 2.2% HBsAg (asymptomatic carriers with low viremia), 10.6% anti-HBs alone, 28.5% anti-HBs, anti-HBc and anti-HBe, 4.4% anti-HBc, 3.3% anti-HBc and anti-HBe. Anti-HCV and anti-HIV positivity rate was 1.7 and 0.6%, respectively, with no detectable viral load. The analysis of the migration routes seems to indicate Libya at the crossroad of most of positive, reactive case. Interestingly, HCV and HIV markers were found only in migrants already resident in Italy for more than 6-12 months.

Conclusion: Low-moderate prevalence of hepatitis B markers in African and Asian first arrival migrants. The few migrants positive for HCV and HIV were those who probably acquired the infection after their arrival in Italy, suggesting migrants are at risk of contracting viral infections once in Italy if not properly integrated.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 12

"Have a Heart, Save My Liver! Who Has Access to the Cure in Africa?"

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Background: Eight years after the breakthrough of sofosbuvir, which effectively cures the hepatitis C virus (HCV), new direct-acting antivirals (DAAs) have been approved and a variety of treatment access strategies have been deployed to increase countries' access. Yet access to sofosbuvir-based treatment and glecaprevir/pibrentasvir (G/P) remain poorly available in Africa–even though all but Algeria can access generics based on voluntary licensing agreements from Gilead, and between the Medicines Patent Pool (MPP) and AbbVie. Africa has an estimated 10 million people living with HCV, with another 5.5 million people estimated to have difficult-to-treat genotype subtypes. Minimizing steps to diagnosis and treatment, removing genotype testing, and prioritizing pangenotypic DAAs could address the challenges with HCV subtypes and cure more people.

Among the many barriers to treatment initiation include the high cost of diagnostics; failure of national hepatitis plans to scale-up diagnostics and secure DAA price reductions to generate demand; neglect of stigmatized key populations with disproportionate HCV burdens by national plans; outdated treatment guidelines that do not yet list DAAs; limited capacity of national drug regulatory authorities to review drug registration dossiers; and treatment restrictions. The absence of industry to facilitate DAA registration in several African countries has delayed generic access, based on this data analysis.

Methods: Crowd-sourced data from 83 high-burden HCV and PEPFAR countries, including 33 African countries, highlighted DAA registration status and treatment restrictions based on sobriety, liver disease stage, and prescriber status. Data were collected and analyzed from the free public mapCrowd platform from 19 November 2020 to 30 April 2021. In-country contributors and partner organizations provided the data. We focused on seven pangenotypic DAA regimens most commonly prescribed in countries: originator and generic sofosbuvir and daclatasvir, sofosbuvir/velpatasvir, sofosbuvir/ledipasvir, G/P, and fixed-dose combinations (FDC) of sofosbuvir/daclatasvir.

Results: Of the 33 African countries analyzed, the originator Sovaldi (sofosbuvir) is registered in 9 (27.3%) countries; Daklinza (daclatasvir) is registered in 3 countries (9%); Epclusa (sofosbuvir/velpatasvir) is registered in 6 countries (18.2%); Harvoni (sofosbuvir/ledipasvir) is registered in 12 countries (36.4%); and Mavyret (G/P) is registered in no country (0%). For generics, of the 33 African countries analyzed, sofosbuvir and daclatasvir are both registered separately in 17 (51.5%) countries; FDC sofosbuvir/daclatasvir is registered in 10 countries (30.3%); sofosbuvir/velpatasvir is registered in 9 countries (27.3%); sofosbuvir/ledipasvir is registered in 14 countries (42.4%); and G/P is registered in no country (0%). This data informs
community leaders to develop strategies, tactics, and recommendations for overcoming
DAA registration barriers and lifting treatment restrictions in national guidelines as part of community engagement efforts towards HCV elimination.

Conclusion: Accelerating treatment uptake across Africa is urgently needed to meet WHO hepatitis C targets by 2030. This can be achieved by supporting and funding community engagement efforts; optimizing the WHO Collaborative Registration Procedure to circumvent national registration hurdles; pooling procurement for diagnostics and treatments; and committing to data transparency and access.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 13

Challenges Facing Hepatitis B Infected Population During the COVID-19 Crisis: An Egyptian Survey-Based Questionnaire Study Research

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Background: Egypt is considered a country of intermediate endemicity of HBV infection. HBV is one of chronic viral hepatitis requiring long-term management and closes follow-up. Unfortunately, with the emergence of the COVID-19 crisis, the regular follow-up strategy faced many obstacles.
This survey aims to assess the impact of the COVID-19 pandemic on people living with HBV in this region regarding the awareness of preventive measures and their availability, HBV services accessibility, and their needs for mental health support.

Methods: We used a questionnaire composed of two parts, the PHQ-9 tool, and a part adapted from a published questionnaire by the University of Antwerp in Belgium. It was administered online from May 1st via social media tools and as a printout distributed to all patients above 18 years visiting the viral hepatitis center located in five university hospitals using a snowball sampling technique.

Results: Out of a total of 225 responses collected by June 1st, 173 (76.9%) were females, 126 (56%) were in the age group of (26-35), and 82(36.4%) received high education.
Regarding COVID-19 health awareness information, most 209 (92.9%) being educated about COVID-19 preventive measures wearing facemasks, 206 (91.6%), physical distancing, 3 (1.3%) and hand sanitizers, 15 (6.7 %) were the most followed precautions, 215 (95.6%) knows whom to ask for advice if they have any suspected symptoms and 171 (76%) seeking advice from the attending physician at the Hepatitis Virus Center. Only 15 (6.7%) received the influenza vaccine. During the last three months, 155 (68.9%) experienced flu-like symptoms, fever 120 (77.4%) being the most common presenting symptom, 113 (72.9%) were tested for COVID-19-PCR with only 2 (1.8%) were positive. 4 (2.6%) were hospitalized with only 2 of them required oxygen therapy.
Regarding the follow-up schedule in the treatment center among 183 (81.3%) patients on antiviral therapy (16.9% Entecavir, 63.1%Tenofovir, 0.4% Lamivudine, 18.2% Adefovir), 119 (52.9%) missed their follow up last month, over the previous six months 148 (65.8%) had their liver enzymes, 161 (71.6%) had tested for tumor markers, 168 (74.7%) had HBV-PCR analysis performed. 122 (54.2%) reported stopping taking their medication regularly during the start of the COVID-19 pandemic; however, 192 (85.3%) reported no changes in the medical service or medication supply since COVID-19 emergence.
According to the Patient Health Questionnaire (PHQ-9) for depression
scoring, 123(54.7%) experienced Mild depression. About 154 (68.4%), 141 (62.7%) were anxious to be infected or transmit the infection to their relatives.

Conclusion: COVID-19 pandemic has negatively impacted patients with chronic HBV infection in Egypt; Efforts should be dedicated to psychological support, health education, and better access to medications.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 14

Reduced Hepatitis Screening During Lockdown, a Threat to Global Hepatitis Elimination Target

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Background: COVID19, having been declared as pandemic by World Health Organization (WHO) on 11th of March, 2020 made most nations respond with strict lockdowns and movement restriction that spanned for weeks and months in most countries, particularly in Africa. Apparently, the focus of healthcare and other sectors shifted to the fight against the virus with little or insignificant attention on other diseases that have been a perpetual threat to mankind before COVID19. With WHO 2030 Hepatitis elimination objective, and targets of diagnosing 90% and treating 80% of chronic HCV infections, the effect of the global economic and social lockdown on these goals is, in this study, looked into, based on available, documented Hepatitis Screening data across many countries, with a special interest in Africa.

Method: Advanced search was done on PubMed for articles published between March 2020 to March 2021. Original articles reporting hepatitis screening activities carried out during lockdown were noted, assessed and reviewed.

Results: Eleven studies relating to Hepatitis elimination programs and COVID19 lockdown were assessed. Two of them were studies originating from United States of America (18.18%), two of them were studies carried out in Africa (18.18%) while the remaining seven were studies focused in Europe (63.64%). All the studies (100%) observed a decrease in HCV testing and identification due to systematic emergency response of each clime to the pandemic against the compromised response to other infectious diseases. One of the studies gathered a survey from 98 centres (NGOs, Secondary and tertiary health centres) across 34 European countries and the results showed a >50% reduction in testing volumes in the first months of lockdown (March – May 2020). A survey of civil society organisations and frontline hepatitis service providers was carried out by World Hepatitis Alliance (WHA) in 32 countries between March and May 2020, just 36% of the 132 respondents reported that people had access to Hepatitis testing service. With a decline in rates of out-patient visits to health facilities, most reported that screening was largely done in emergency conditions leaving early diagnosis and access to care almost impossible. It was, however, noted that there was significant increase in hospital visits and health programs after May 2020, due to relaxed lockdown measures in many developed countries. As pointed out in the studies, telemedicine was readily instrumental to augment the disruption in the health systems of countries in Europe and America unlike in Africa with low-middle income class countries where telemedicine isn't optimally utilized. Also coupled with the already burdened healthcare, there was more decline in hepatitis programs – testing, diagnosis, monitoring and treatment – in Africa.

Conclusion: Pandemic has necessitated the need to birth new approaches to meet the needs and demands of healthcare without having to disrupt set health targets. Integrating testing procedures for infectious diseases, telehealth and employing swift response approach devised for COVID19 raise the hope of actualizing the 2030 WHO Hepatitis elimination goal, despite the slow pace that came with the months-long lockdown.

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Abstract 15

Impacts de la COVID-19 sur la Prévention, les Soins et le Traitement de L'Hépatite, du VIH et de la Syphilis Chez les Femmes Enceintes dans le District Sanitaire de Baskuy à Ouagadougou

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Impacts de la COVID-19 sur la prévention, les soins et le traitement de l'hépatite, du VIH et de la syphilis chez les femmes enceintes dans le district sanitaire de Baskuy à Ouagadougou

Introduction: La lutte contre la COVI-19 par ses répercussions sur la production et la distribution des produits essentiels, menace d'entraver les progrès obtenus dans la lutte contre le VIH, les hépatites et la syphilis. Les objectifs précis de l'OMS pour l'élimination de la transmission mère-enfant du VIH à l'horizon 2020, de l'hépatite B et de la syphilis à l'horizon 2030 semblent compromis. Néanmoins, il est maintenant possible de continuer à progresser vers l'élimination en faisant une place plus grande à la prévention de la transmission de la mère à l'enfant de ces trois infections. L'objectif de ce travail était d'évaluer l'impact de la COVID-19 sur les soins de prévention et de prise en charge des cas de VIH, d' hépatites et de syphilis au district sanitaire de Baskuy.

Méthodologie: il s'est agi d'une étude transversale dans 9 CSPS du district sanitaire de Baskuy. Tous les agents de santé impliqués dans la prise en charge des femmes enceintes ont été enquêtés grâce à un questionnaire électronique. L'enquête a porté sur quatre domaines : (1) le niveau d'exposition des agents de santé, (2) les difficultés rencontrées pour la poursuite normale des activités, (3) la description des activités des centres avant (2019) et après (2020) la première vague de COVID-19 ce sont les consultations prénatales, la vaccination contre le VHB à la naissance ou pour les 3 doses du PEV, la mise sous traitement pour le VIH, VHB et Syphilis. (4) les stratégies locales mises en place pour réduire l'impact de la covid-19 sur la qualité de la prise en charge des patients.

Résultats: Au total 116 agents de santé ont été enquêtés parmi lesquels 42 (36,2%) d'infirmiers, 32 (27,6%) de sages-femmes/maïeuticiens, 11 (9,5%) agents de dépôts pharmaceutiques avec une prédominance féminine 81 (69,8%). Quatre formations sanitaires offraient une activité de dépistage COVID-19 in situ et 3 une activité de prise en charge au moment de l'enquête. Malgré le fait que 110 (94,8%) agents de santé se sentaient exposés par l'infection à COVID-19, une majorité 76 (65,5%) d'entre eux estimaient que la covid-19 n'avait pas eu d'impact sur l'activité de soin des différents centres. Lorsqu'un impact était signalé il était majoritairement de 1-25% de réduction pour les différentes activités comparativement aux années avant la pandémie. Seulement 43 (37,1%) déclaraient l'existence de mesures nouvelles liée à la pandémie dans les structures telles que le report de consultations et de vaccination 12 cas (10,3%) voire même l'arrêt de la vaccination 3 (2,6) cas. Les plus retrouvée étaient la réduction du nombre de cas de consultation 110 (94,8%) et le renforcement des mesures barrières individuelles 115 (99,1%) pendant la crise.

Conclusion: La COVID-19 crée rapidement de grandes inquiétudes dans les pays africains où les systèmes de santé ne sont pas assez préparés pour faire face à des crises sanitaires de cette ampleur. Cependant pour des raisons non encore élucidées l'Afrique ne semble pas être le continent le plus touché en termes de nombre de décès. Par contre l'impact est plutôt économique, logistique et donc sanitaire. Dans cette étude l'impact semble faible dans le district de Baskuy.

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Abstract 16

COVID-19 Resilience at Livewell Initiative LWI

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Introduction: LiveWell Initiative LWI, and its subsidiary Women in Hepatitis Africa WIHA, were both able to adjust during the pandemic by sustaining the organisation's Wellness Programmes and at the same time engaged in TELEHEALTH, Study Protyocols for COVID-19 Response in Africa, and COVID RESILIENCE Programmes.A Global Webinar 3was organised by LWI in the wake of the pandemic, involving developmental partners – WHO, FIP, EMROPHARM and the academic excellence of May Clinic, Rochester USA.
Hypothesis testing:
The organisation was able to test the hypothesis of its study protocols on COVID-19 Response in Africa.
Initially, there was a hold on all hepatitis programmes.
PMTCT in hepatitis:
However, far into the pandemic, after the lockdowns, the organisation llaunched its PMTCT Programme4 in Viral Hepatitis, and commenced the free screening of pregnant women for viral hepatitis B and C, with fawcilitation of linkages to care, for women tested positive.
LWI and WIHA, both active members of the World Hepatitis Alliance WHA, are promoting the new Global Health Sector Strategies for eliminating viral hepatitis.
Womens wellness center for hepatitis:
While still hunting for prospective partners to scale this programme, the WWC-H, reopened in February 2021, has attended to an average of 500 women monthly and at least 300 babie4s, cfhecking that Birth Dose Vaccination of Hepatitis B Vaccine has been procured at the4 health centre, and screening the pregnant women and lactating mothers for Hepatitis B and C.

Mitigation strategy: LWI STUDY PROTOCOLS FOR COVID-19 RESPONSE – A Realistic, Replicable, Scalable, and Tiimely intervention for COVID-19 Worldwide and especially for low income economies in Africa and Asia
COVID-19 POSITIVE TESTED – Our Officers were at the Frontline, impacting lives
NON-COVID 19 CLIENTS – Telehealth Services inaugurated in April 2020, being expanded to national level of operations by Early August 2020 and still ongoing
OUR PATIENTS AND CLIENTS – Ensuring and updating their medical supplies
OUR LOW INCOME COMMUNITIES AND THE INDIGENOUS PEOPLE: A recent assessment visit; we reinstated Immunization, Antenatal, Womens Health and Family Planning Services in February 2021 after months of closure due to the Lockdown
Now offering FREE HEALTH To All, at the Clinic
PMTCT – VIRAL HEPATITIS- Every Pregnant woman is screened fr Viral Hepatitis. Positively Screened pregnant women are immediately linked to care within the Healthcare system.
Our Hepatologists were on hand to assist the care process

LWI TELEHEALTH SERVICES introduced during CVID-19, still ongoing

Conclusion: PMTCT in Hepatitis has been a key intervention at LWI during COVID-19. Missed vaccinations in Hepatitis yet unresolved due to lack of donor funding. A lot of our vaccines expired! COVID-19 Resilience is therefore essential especially by Global partners. Communities need to be assisted healthwise, economically, psychologically and socially. LWI continues to respond to COVID-19 on All fronts. The Developmental Partners should engage CSOs and thereby do more especially in Africa and other emerging economies.

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Abstract 17

Nonalcoholic Fatty Liver Disease and Severity of COVID-19 Disease Depending on the Plasminogen Activator Inhibitor -1-675 Gene Polymorphism

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Background/aims: The severity of COVID-19 was found to be higher in patients with nonalcoholic fatty liver disease (NAFLD) with a high fibrosis score. Identifying specific genetic factors can help to determine the prognosis and management of such patients. The aim of this study was to determine the effect of PAI-1-675 gene polymorphism on the severity of Covid-19 disease course in NAFLD patients.

Methods: We examined 48 patients (ps) with NAFLD and laboratory-confirmed Covid-19 (27 females/21 males; age, 45.8±5.7 yr; body mass index, 35.1±3.2 kg/m2): 26 ps with F1-F2 stages of fibrosis, 22 ps with F3-F4 stages of fibrosis. Plasminogen activator inhibitor (PAI)-1-675 gene polymorphism were analysed by PCR. Circulating tumor necrosis factor alpha (TNF), C-reactive protein (CRP) and PAI-1 were measured by the immuno-assay method. FIB-4 score was calculated.

Results: Depending on the severity of Covid-19 disease ps were divided into groups: 9 (18,8%) ps with mild Covid-19 disease who were treated on an outpatient basis (group I), 17 (35,4%) ps with moderate of Covid-19 disease who were hospitalized for bilateral pneumonia (group II) and 22 (45,8%) ps with severe Covid-19 disease who were treated in intensive care for acute respiratory distress syndrome and required oxygen therapy (group III). Among representatives with NAFLD F1-F2 stages 7 (26,9%), 9 (34,6%) and 10 (38,5%) ps; F3-F4 stages – 2 (9,1%), 8 (36,4%) and 12 (54,5%) ps belonged to groups I, II and III, respectively. PAI-1-675 5G/4G and PAI-1-675 4G/4G gene polymorphisms were revealed in 14 (53,8%) and 5 (19,2%) ps with NAFLD F1-F2 stages; 12 (54,5%) and 8 (36,4%) ps with NAFLD F3-F4 stages. In patients of group I 5G/5G gene polymorphism (100,0%) and in group II 5G/4G gene polymorphism (88,2%), was common; requencies of 5G/4G and 4G/4G gene polymorphisms in group III were 40,9% and 59,1%, respectively. The median RAI-1 levels for the 5G/5G, 5G/4G, and 4G/4G genotypes of this gene were 35.7, 81.9, and 176.2 ng / ml, respectively ($p = 0.002$). The direct correlations between PAI-1 and TNF , CRP, FIB-4 ($r=0,7305$; $r=0,6914$; $r=0,6209$; accordantly; $p<0,001$) were detected.

Conclusions: In NAFLD ps PAI-1-675 5G/4G, and especially 4G/4G gene polymorphism may be a predictor of severe Covid-19 disease.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 18

A Cross-Sectional Study of Gastrointestinal Manifestations in COVID-19 Egyptian Patients.

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Background: The pandemic of the latest novel coronavirus (COVID-19) showed a significant health concern. Aim: we studied the prevalence of gastrointestinal symptoms inbetween COVID-19 Egyptian patients.

Methods: A cross-sectional study was carried out on 860 patients with COVID-19 infection classified according to ministry of health program (MOHP) into three groups (280 patients with mild disease, 258 patients with moderate disease and 322 patients with severe disease). All patients were subjected to medical history, clinical examination, laboratory investigations, chest HRCT and other investigations when needed in some patients such as, upper gastro-intestinal endoscopy, abdomino-pelvic ultrasound and ECHO.

Results: Gastro-intestinal symptoms were 27.20% of the studied patients. The most common reported GIT symptoms were vomiting, diarrhea, abdominal/gastric pain, followed by nausea.GIT symptoms presence was significantly higher in severe cases in comparison to mild or moderate cases.CRP, serum ferritin, AST, bilirubin and creatinine were significantly associated with the presence of the GIT symptoms.

Conclusions: GIT symptoms are prevalent in COVID-19 patients, moreover, the most common GIT symptoms were vomiting and diarrhea, GIT symptoms were associated with the severity of COVID-19 condition .

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 19

Acceptability of the Plasma Separation Card for Sample Collection to Screen for Viral Hepatitis Among People Attending an HIV Clinic in Kampala, Uganda

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Background: Hepatitis B virus (HBV) infection is a public health problem in Uganda. The prevalence is estimated to be 4.3% but varies across the country, with estimates reaching as high as 15% in northern Uganda. The prevalence of hepatitis C virus (HCV) is not well reported. Limited diagnostic capacity and lack of consistent availability of material across the country is a major barrier to accessing adequate screening, linkage to care, and treatment for viral hepatitis. The aim of this study was to evaluate the feasibility and acceptability of utilizing the plasma separation card (PSC) for viral hepatitis testing in an urban HIV clinic in Kampala the capital of Uganda.

Material & methods: From 21 May to 4 June 2021, patients attending an HIV clinic in Kampala for regular care were invited to participate in this study and were offered screening for HBV (HBsAg and HBV-DNA) and HCV (anti-HCV Ab and HCV-RNA) utilizing a sample (420µL) collected via capillary whole blood by trained nurses with the plasma separation card (Roche Diagnostics, California). Participants were asked about the acceptability of this testing method, the level of pain experienced, the preferred sample collection duration, and their likelihood to recommend this sample collection method to others on a 5-point Likert scale and with open-ended questions. Sociodemographic variables were also collected and analyzed using STATA v.16.0. Prevalence is not reported here due to delays in processing the samples given the ongoing COVID-19 situation in the country.

Results: Forty-four HIV positive participants were offered testing and included in this ongoing study; twenty-five (56.8%) were female and the mean age was 42.6 years (SD 10.2) with the majority of participants belonging to the Ganda (22; 50%) and Nyoro (10; 22.7%) ethnic groups. One participant did not have a sample collected. The mean sample collection duration was 11.8 minutes (range 3-40 minutes) and the majority of respondents believe sample collection utilizing the PSC should take less than 15 minutes (30; 69.8%). Pain was reported as "not at all" (n=28) or "somewhat painful" (n=13) by most and almost everyone (n=42) would recommend the PSC for viral hepatitis testing to family and friends except two who would not due to the method "taking too long" and "taking too long to collect the required blood." Ease of the PSC method varied among participants and 68.2% (n=30) reported the PSC method as being "very acceptable" or "acceptable" (n=8; 18.2%).

Conclusions: The PSC was found to be a very acceptable sample collection method for viral hepatitis screening in a resource-limited setting with high acceptability and low levels of pain reported by the participants. Overall, participants were satisfied with the method and would recommend it to others. This sample collection tool could help increase viral hepatitis testing in Uganda, which currently does not have routine HBV and HCV testing.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 20

A Correlation Study of Liver Biopsy Appearances, Serum HBV DNA and HBSAG Quantification Levels of Chronic Liver Disease Patients at Oauthc, ILE-IFE

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Background: Infection with the hepatitis B virus is highly endemic in much of sub-Saharan Africa and Nigeria is among the countries with the highest burden of the disease in the region, where chronic hepatitis B (CHB) infection remains an important cause of chronic ill-health and liver cancer. Quantitative assay of HBV DNA and HBsAg are emerging as useful tools in the management of chronic HBV infection and they are being used to determine the timing of therapy, monitoring of response and prognostication. However, it is not yet clear how well each of these might accurately correlate with the extent and stage of liver damage during the course of the disease. On the other hand, liver biopsy, albeit an invasive test, affords a superior direct assessment of the state of the liver.

Objective: Thus, since liver biopsy is the 'gold standard' test, using selected CHB patients attending the Gastroenterology and Liver Clinic at the OAUTHC, Ile-Ife, we set out to determine how well-correlated serum levels of HBV-DNA and/or HBsAg might be with each other and with the liver biopsy appearances were these to be carried out at each clinic visit, as means of non-invasive evaluation of the state of the liver.

Methodology: This study was in two parts: we retrospectively enrolled 39 patients who were on the files of the Gastroenterology Clinic and, prospectively, 83 new treatment-naïve patients, who met the study criteria. Each patient had liver biopsy assessments of the grade of necroinflammation (A) and stage of fibrosis (F) according to the METAVIR Scoring System. In addition, quantitative measurement were made for HBsAg levels by immunoassay and HBV DNA by real-time quantitative PCR. The Spearman's and Kruska-Wallis statistical tests were employed to determine the correlations between the serum HBsAg and HBV DNA levels separately and with the histological grades and stage of liver biopsy. The level of statistical significance was set at $P< 0.05$.

Results: The greatest number of the patients were within the 21-40 year- age group, both for the retrospective and prospective cohorts. Using the Spearman rho's statistical correlation test for, a negative but weak correlation was found between the serum HBsAg and HBV-DNA levels (($p=0.860$; $r = -0.029$)) among the retrospective cohort of patients. However, we found a positive but weak correlation between these parameters among the prospective cohort ($p=0.075$, $r=0.198$). The Kruskal-Wallis analysis revealed no correlations between the serum HBsAg and HBV-DNA levels and liver biopsy appearances, among the retrospective cohorts. The reverse held for the prospective cohort where we found a statistically significant correlation between HBV-DNA and the grade of necroinflammation (P-value = 0.023) but not with the stage of fibrosis.

Conclusions: We found no statistically reliable concordance between HBsAg and HBV DNA among our patients. This study found that HBsAg levels were not reliably correlated with necroinflammation but it was correlated with the stage of fibrosis, albeit not statistically significantly. On the other hand, the serum levels of the HBV DNA correlated positively and significantly with the grade of necroinflammation but not with the stage of fibrosis, especially among the prospective group of patients. Thus, serum HBV DNA was the only statistically significant correlation with the liver histological disease in our study. This relationship needs to be further examined in larger studies in the future, perhaps it could be of any clinical application.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 21

Optimization of Hepatitis B Virus Surface Antibody Titres in Dried Blood Spots Assay

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Background: There were 1.5 million new chronic hepatitis B infections (CHB) globally in 2019. Mother to child transmission (MTCT) of hepatitis B virus (HBV) accounts for most of the CHB because 90% of HBV infected infants develop CHB. Progress has been made to reduce HBV MTCT through vaccination of infants. This has reduced the incidence rate of HBV in children between the ages of 1 to 5 years however there is need to monitor the effectiveness of HBV vaccination. Current assays are designed for plasma/serum use which poses a problem of insufficient sample volumes for infants. Hence there is a need to optimize assays for other sample types such as dried blood spots (DBS). The aim of this study was to optimize DBS protocol to measure hepatitis B surface antibody (anti-HBs) titers in order to measure HBV vaccine response in infants.

Materials and methods: This was a retrospective cross-sectional study performed at Botswana Harvard AIDS Institute Partnership utilizing a total of 135 archived DBS cards and 135 corresponding plasma samples. The DBS cards were prepared using residual blood samples collected for CD4 testing in 2018 and were stored for a period of 26 months (November 2018 to January 2021). Anti-HBs testing on DBS samples and corresponding plasma samples was carried out using the Monolisa Anti-HBs Plus ELISA kit. The 135 DBS cards used were stored at different temperatures (room temperature, -20oC and -80oC), with 45 cards at each temperature. Elution was done using three different volumes, 500µl, 450 µl and 300 µl of phosphate based saline buffer (PBS). Samples were eluted for either 1hr, 2hrs, 3hrs, 4hrs or overnight, then tested to obtain anti-HBs titres with good concordance when compared to their corresponding plasma aliquots. Data analysis was performed by calculating the Pearson's correlation co-efficiency (R-value) and the p-value using Microsoft Excel 2016. R-values closest to 1 showed good correlation, meaning good concordance between plasma and DBS samples and p-values less than 0.05 showed statistical significance, meaning that the condition affects the outcome of results.

Results: The optimization process showed good correlation and statistical significance between plasma and DBS samples. This was achieved by eluting samples for 4hrs with 500µl of PBS especially DBS cards stored at a temperature of -20°C. DBS samples eluted using 500µl of PBS for 4hrs gave an R-value of 0.749 and a p-value of 0.0321, DBS cards stored at -20°C gave an R-value of 0.822 and a p-value of 0.0235 while those stored at room temperature the R value was 0.749 and the p-value was 0.0321. These conditions resulted in good concordance between DBS and plasma samples.

Conclusion: DBS optimization gave concordant results with plasma samples when eluted for 4hrs using 500µl of PBS and when DBS cards are stored at -20℃ and at room temperature. These conditions can be used to store DBS and monitor HBV vaccine effectiveness in infants. The conditions can also be used to check the impact in other HBV markers.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 22

The Intervention For the Avoidance of Neonatal Transmission of Hepatitis B (INFANT-B) in Africa – Integrating HepB Testing within Antenatal Services in the Gambia

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Background: Sub-Saharan Africa has the highest rates of chronic hepatitis B virus (HBV) prevalence in both adults (8%) and children under 5 years (2.53%). Mother-to-child transmission (MTCT) of HBV remains a major driver of infection in infants but data to support strong adapted recommendations for the region is limited. In this study, we aimed to generate key missing data on HBV MTCT in West Africa.

Material and methods: We sensitized all pregnant women attending antenatal clinics in two major urban health facilities on HBV infection. Women attending their first antenatal visit were screened for hepatitis B surface antigen (HBsAg) using rapid HBsAg point-of-care kits. HBsAg test was done at the same time as the antenatal HIV screening. A sub-set of randomly selected pregnant women were interviewed using a simple questionnaire to assess knowledge on HBV infection and birth dose vaccination, and their perception on use of a prefilled uniject device to administer HBV birth dose vaccination. Whole blood sample was then collected from HBsAg-positive women for HBV DNA viral load and hepatitis B e antigen (HBeAg), and women were linked to care through the PROLIFICA (Prevention of Liver Fibrosis and Cancer in Africa) program.

Results: Between 1st December 2020 and 19th June 2021, 3171 pregnant women were screened for HBsAg at the Bundung Maternal and Child Health Hospital (BMCHH) and Serrekunda Health Centre (SKHC). Median age of women was 27. Of these, 133/3171 were HBsAg positive, giving a prevalence rate of 4.19%. HBsAg positivity was higher in SKHC (6.00%) compared to BMCHH (3.87%). 7 of 133 (5.26%) HBsAg-positive women were HBeAg positive.
1950/3171 women were interviewed of whom 1833/1950 (94.0%) had no prior HBsAg test. Higher gravida (number of previous pregnancies) was associated with higher chance of a previous HBsAg test ($p = 0.0312$). Only 5/1950 women (0.26%) knew that babies born in The Gambia, an HBV endemic country, need to receive an HBV birth dose vaccine within 24 hours of birth. Knowledge on HBV and birth dose vaccination was poor irrespective of mother's level of education ($p = 0.1463$).
1423/1950 women (72.9%) said they will be happy to administer their baby's HBV birth dose vaccine themselves using the prefilled uniject device if trained. Acceptance of the uniject device was not associated with gravida or number of children ($p = 0.7060$).

Conclusion: Our preliminary findings show that incorporating HBsAg testing within antenatal services is feasible. HBeAg positivity in our cohort is low, suggesting HBeAg may not be a reliable biomarker to identify highly viremic women. Uniject deviced pre-filled with HBV vaccine and administered by mothers within 24 hours of delivery could present an opportunity to scale up HBV birth dose vaccination.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 23

Faible Couverture Vaccinale Contre L'Infection par le Virus de L'Hépatite B et autres Facteurs Influençant la Transmission de la Mère à L'Enfant au Cameroun

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Contexte: L'hépatite virale B (VHB) reste un problème de santé publique dans le monde surtout en Afrique subsaharienne et ce malgré l'existence d'un vaccin efficace contre l'infection. Sa prévalence au Cameroun est de 11,2 %, mais le taux de transmission verticale reste mal connu. Toutefois, la vaccination contre l'hépatite B qui est un pilier de la prévention, n'est malheureusement pas une routine chez les femmes en âge de procréer. Le but de cette étude était de déterminer les facteurs de risque de transmission verticale de l'hépatite B.

Matériels et Méthodes: cette étude transversale, descriptive et analytique s'est déroulée de Janvier 2019 à Décembre 2020. La population de l'étude était constituée de femmes enceintes suivies dans 8 structures hospitalières localisées dans les zones urbaines, semi-urbaines et rurales du Cameroun. 1507 femmes enceintes ont été incluses après signature du consentement. Un questionnaire a permis de collecter les données sociodémographiques. La caractérisation sérologique du VHB s'est faite par la technique ELISA. Les femmes dépistées étaient orientées en consultation hépato-gastroentérologie (cas positifs), ou vers un service de vaccination contre l'hépatite B (cas négatifs). Les données ont été saisies avec Microsoft Office Exel 2019, puis analysées à l'aide du logiciel Epi-Info 7.1.14.

Résultats: L'âge moyen des femmes était de 27,53 ± 5,68 ans. L'âge gestationnel moyen était de 17± 6 semaines. Le premier trimestre de grossesse était le moins présenté (515/1507 ; 34,18%) Parmi les femmes recrutées, 77,78% passaient le test a AgHBs pour la première fois. Quarante-quatre (2.92%) avaient reçu les trois doses du vaccin contre le VHB et près des 2 /3 des femmes ne connaissent pas l'existence de ce vaccin.
Sur les 1507 femmes enceintes enquêtées, 86 (5.71%) ont été positives à l'AgHBs. Parmi les cas positifs, 56,06% étaient à leur deuxième grossesse, 44,61% étaient mariées, 18,60% connaissaient le statut pour l'hépatite B de leur partenaire et 2 (2,33%) avaient déjà reçu leur vaccin. Sept (8,13%) des femmes positives à l'AgHBs étaient positive pour l'AgHBe. Les taux de coïnfections VHB/VHD, VHB/VIH et VHB/VHC étaient respectivement de 26,82% ; 10,75% et 1,16%. Par ailleurs il a été noté que 13,15% des patientes négatives à l'AgHBs présentaient des anticorps anti HBc positifs.

Conclusion: Cette étude a révélé une prévalence de l'AgHBs de 5.71% chez les femmes enceintes, une faible couverture vaccinale et la présence isolée de l'anticorps anti HBc chez les femmes AgHBs négatif. Ce qui soulignerait l'importance de l'implémentation d'une vaccination à la naissance des nouveaux nés indépendamment du statut sérologique AgHBs des mères.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 24

Antenatal Consultation as an Entry Point for Screening of Hepatitis B Virus in Husbands and Children in Burkina Faso

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Introduction: Antenatal consultation may provide an unique opportunity to identify additional cases of hepatitis B virus (HBV) infection in family members of infected pregnant women. We evaluated the feasibility of HBV screening in spouses and children, and identifed factors associated with a successful screening uptake and a positive hepatitis B surface antigen (HBsAg) in Ouagadougou, Burkina Faso.

Methodology: Pregnant women who were identified to carry HBsAg at antenatal screening received a post-test counselling at the Yalgado Ouédraogo University Hospital Center. Women were advised to disclose their status to spouses and to encourage their spouses and children to be screened for HBsAg. Factors associated with an uptake of family screening and with the a risk of HBV infection in children and parteners were explored using a multivariable logistic regression.

Results: Thousand pregnant women tested positive for HBsAg accepted to participate in this study. Of 2,281 spouses and children, 662 (29.0%) were successfully screened, including 436/1000 (43.6%) spouses and 226/1281 (17.6%) children. HBsAg was positive in 55 (12.6%) spouses (median age [IQR]: 33 years [29-38]) and 27 (11.9%) children (median age [IQR]: 7 years [4 -12]). Eighty-nine percent of women (n = 886) said during the consultation that they disclosed their HBV status to their parteners. In spouses, the uptake of screening was associated with a marital status (OR for non-married couple: 0.21 [95% CI: 0.09-0.53]; p=0.001), attendance to the women's partner during the first consultation (1.61 [1.18-2.20]; p=0.002), and women's disclosure of HBV status to the partner (2.86 [1.68-4.88]; p=0.0001). Child HBsAg positivity was associated with birth before the introduction of hepatitis B vaccination (???), maternal hepatitis B e antigen (HBeAg) positivity (11.47 [4.41-29.81]; p=0.0001), and high maternal HBV DNA levels (14.04 [4.89-40.28]; p=0.001).

Conclusion: Focused testing of HBV in family members of HBsAg-positive pregnant women is feasible, particularly to identify HBsAg-positive spouses and children in a highly affected population. Our study also confirms the importance of disclosing women's HBV status to their spouses, to increase their screening uptake. Children born before the introduction of infant hepatitis B vaccination and those born to women tested positive for HBeAg and high viral load were at a greater risk of HBV infection, and requiere special attention for their testing and linkage to care.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 25

Unmet Need for Treatment in Adults with HBV Monoinfection in South Africa

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Background: Hepatitis B virus (HBV) infection is endemic in many populations in Africa, but has been neglected as a clinical problem. In order to make steps towards international elimination goals for 2030, there is an urgent need for better characterisation of chronic infection, to inform improved surveillance, stratification, and deployment of treatment.

Materials and Methods: We recruited a cross-sectional cohort of adults with chronic HBV infection from secondary/tertiary care services in two centres in South Africa (Cape Town and Bloemfontein) between July 2018 and May 2021. Ethics approval was granted by Oxford University (Oxford Tropical Research Ethics Committee (ref. 1-18), Stellenbosch University (ref. N17/01/013) and The University of the Free State (UFS-HSD2018/0193-0001). We collected routine demographic, laboratory and clinical data where available. We documented HBV therapy (including tenofovir, lamivudine, entecavir and emtricitabine, alone or in combination), and retrospectively benchmarked treatment against South African guidelines. Elastography scores were not routinely available, but we calculated laboratory fibrosis scores using APRI (AST to platelet ratio index).

Results: We recruited 265 participants, median age 43 years (IQR 26-53, range 20-72), 151 male (57%). HBeAg status was available in 168 cases, of whom 41 (24%) were HBeAg-positive. HIV status was available in 261, of whom 141 (54%) were positive. HCV coinfection was present in one patient, and other co-morbidities included diabetes mellitus (4.5%) and chronic kidney disease (6.4%). Diagnosed complications of HBV infection included cirrhosis in 22 (8.3%), and hepatocellular carcinoma in 4 patients (1.5%); these outcomes were not significantly associated with HIV status ($p=0.11$ and $p=0.62$, respectively). HBV therapy was prescribed in 162 patients (61%); 81 (31%) were not on treatment. Treatment data were unavailable in 22 (8%) cases. As expected, receipt of antiviral therapy was strongly associated with HIV positivity ($p<0.0001$). Among 81 untreated HBV mono-infected individuals, 12 (15%) met thresholds for HBV treatment based on current national guidelines, 6 of whom were HBeAg-positive and 6 HBeAg-negative. APRI scores in this group were significantly higher than in treated individuals ($p=0.004$), and in those untreated but not meeting thresholds for therapy ($p<0.0001$).

Conclusions: Adults receiving clinical care for HBV in two urban centres in South Africa had a high prevalence of HIV coinfection, reflecting a bias in recruitment from hospital infection services, and routine HBV screening in HIV clinics. Better diagnosis is needed for HBV monoinfected adults. The HBV/HIV coinfected group benefits from routine antiviral therapy that includes agents active against both pathogens. Among those not receiving therapy, 15% were eligible for HBV treatment, demonstrating an unmet need among adults who are at high risk of developing complications of long-term liver disease, evidenced by elevated APRI scores. These may represent late diagnosis of long-term infection, adults under care who have not been correctly stratified for treatment, and/or individuals who are unable to engage with long-term therapy. Infant birth immunisation, enhanced screening and case finding, education of healthcare workers, and wider deployment of antiviral therapy are essential to optimise individual care and to tackle HBV infection as a public health problem in South Africa.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 26

Seroprevalence of Hepatitis B and C and Other Transfusion-Transmissible Infections in Blood Donors From Cubal, Angola

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Background and objective: Chronic viral hepatitis are endemic in several sub-Saharan countries. There is scarce data on the prevalence of hepatitis B virus (HBV) and hepatitis C virus (HCV) infection in Angola. Our aim was to investigate the prevalence of hepatitis B and C, and other transfusion-transmissible infections (TTIs) in blood donors of western Angola.

Material and methods: A retrospective study including consecutive adult blood donors who were attended at Hospital Nossa Senhora da Paz in Cubal, Angola from July 2019 to May 2021. Blood type was determined by agglutination and rapid diagnostic tests (RDTs) were used to determine HBsAg, anti-HCV, antibodies against HIV 1-2, syphilis antibodies (TPPA), dengue antibodies and malaria antigen for Plasmodium falciparum and P. vivax. A statistical analysis was carried out using IBM SPSS v. 20 (SPSS Inc.).

Results: In total 1265 blood donors were attended at the blood department during this period. The majority were men (80%), mean age of 31 years (±11) body weight of 59.5 Kg (±7.6). 579 (45.8%) were first-time donors, 667 (52.7%) repeat donors and in 19 (1.5%) no data about previous donation was available. HBsAg tested positive in 93 (7.4%) out of 1251 donors tested and anti-HCV in 11 (1%) out of 1112 (1%) of the blood donors tested. HIV was positive in 14/1243 (1.1%) and Syphilis serology in 36/1085 (3.3%) individuals. Malaria antigens were positive in 56/844 (6.6%) and dengue antibodies in 18/232 (7.7%). Regarding Hepatitis B, there were 81 (8.2%) positive HBsAg cases among 998 men tested and 12 (4.7%) among 253 women (p=0.06) with an overall mean age of 34.1(±10.9) years. HBsAg was positive in 60 (10.5%) of the 573 first-time donors tested and in 29 (4.4%) out of 660 repeat donors (p=0.00003). There were 5 (0.6%) out of 882 men who tested positive for anti-HCV and 6 (2.6%) out of 230 women (p=0.005). Seven (1.4%) were first-time donors, 3 (0.5%) repeat donors (p=0.14) and the remaining one had no available data about previous blood donation. HBV-HCV coinfection was present in only 3 (0.3%) donors, HIV-HBV in 1 (0.1%) and no HIV-HCV coinfection was detected. 1042 (82.4%) out of the 1265 potential blood donors were accepted for donation. TTI diseases were not tested in blood donations in 4 (0.4%) cases for HBsAg, in 127 (12.2%) for HCV, 158 for Syphilis (15.2%), 362 (34.7%) for Malaria and 837 (80.3%) for Dengue due to Rapid diagnostic tests (RDTs) stock rupture. Finally, most donations were made by family members whereas only 49 (3.9%) were volunteer blood donors of whom 3 (6.1%) were HBsAg+ and none tested positive for anti-HCV.

Conclusion: The results show a high prevalence of hepatitis B infection, particularly in young males and first-time blood donors. Hepatitis C prevalence is lower, approximately 1%. Additional data on the prevalence of viremic hepatitis B and C is needed. Approximately 20% of the potential blood donors were rejected due to TTIs positivity. Rapid diagnostic test stock ruptures represent a threat for blood donation safety in this region.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 27

A Global Scoping Review of Community-Engaged Viral Hepatitis Interventions: Implications for Hepatitis Intervention Campaigns in Africa

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Background: Community-engaged intervention involve input or feedback from people living with hepatitis and/or other hepatitis stakeholders. Community-engaged interventions provide a mechanism for community input, increase relevance to people living with the disease, and enhance accountability. Few studies have examined community-engaged viral hepatitis intervention, especially in Africa. This global scoping review aims to identify and assess community-engaged viral hepatitis interventions with a focus on African countries.

Material and Methods: We searched six databases in June 2021: PubMed, Web of Science, Scopus, OvidSP Embase and Wiley Cochrane Library. Studies were included if they reported on at least one outcome in the viral hepatitis care continuum, had community-engaged intervention and comparator group, and were written in English. Studies were screened by title, abstract and full text using these criteria. We described major findings related to types and levels of community-engaged interventions as well as intervention outcomes. We categorized interventions into five levels of engagement, which are “inform", “consult", “involve", “collaborate", and "shared leadership”, from low to high.

Results: Our search strategy yielded 10,155 citations, and 19 full articles met the inclusion criteria. One of them was a protocol paper and excluded from analysis. Among the 18 studies, 10 were in North America (United States), 2 in Europe (United Kingdom), 4 in Asia (3 in China and 1 in Pakistan), and 3 in Africa (1 in Cameroon and 2 Gambia). We found various engagement levels among these studies: 3 “informed” (including the Cameroon and Gambia studies), 3 “consulted”, 10 “involved”, 2 “collaborated” but none shared leadership with their participants. The study in Cameroon used a telephone "beep" system that increased participant initiated adverse events following immunization (AEFI) reporting rate at affordable cost. However, this study has a broad coverage of routine vaccination programs that was inclusive of HBV vaccine and did not focus on HBV vaccine services. The two publications from Gambia were the same study assessing a community-based point-of-care screening and treatment for HBV which found greater cost-effectiveness versus standard-of-care.
Community-engaged interventions used in non-African studies included the use of peers with the same illness or lay health workers, community-based HCV Group Evaluation and Treatment Uptake intervention, interactive group discussion or education, self-management workshop, PsychoEducation Responsive to Families, and crowdsourced interventions. These studies respectively found that corresponding interventions improved delivery of care and benefited patients, improved the knowledge level of viral hepatitis, increased the rate of hepatitis screening and compliance and completion of hepatitis vaccine, health-related quality of life, engagement with healthcare services for viral hepatitis, mental health status, and also decreased stigma.

Conclusions: This scoping review demonstrated that community-engaged viral hepatitis interventions focused on American countries, and essentially only one such study had a focus on viral hepatitis in Gambia, Africa. There is a missed opportunity to engage key communities in viral hepatitis elimination campaigns in Africa. Researchers, physicians, policy makers, public health leaders, and civil society leaders need to amplify community voices and community-engaged interventions in Africa.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 29

Barriers to Recruitment of Adults with HBV for Participation in Clinical Research Studies

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Background: In order to move towards global elimination goals for hepatitis b virus (HBV) infection research advances are needed to provide a solid evidence base for improvements in diagnosis, stratification, treatment and prevention in different settings and to underpin new insights into disease pathophysiology. Reflections on the experience of healthcare workers (HCW) involved in recruitment of patients with HBV infection in South Africa for clinical research provide insights which could inform approaches to engaging potential participants.

Materials and Methods: We are recruiting adults with chronic HBV infection into a cohort study via two centres in South Africa, Cape Town (University of Stellenbosch) and Bloemfontein (University of the Free State). We record demographic, clinical and laboratory data and collect additional blood samples for research. We gathered reflections provided by HCW in the study team on the challenges and barriers to engagement and recruitment into the study.

Results: We grouped the HCW reflections into six domains which present challenges for participant recruitment into our research cohort.

1. Awareness and information: many potential participants have no prior knowledge or awareness of HBV infection, and have not been previously offered information by HCW. HBV has a low profile compared to other public health threats such as HIV and TB.
2. Trust, confidence and communication: patients may not trust a research nurse approaching them for the first time for participation in a project, in comparison to their routine clinical teams with whom they have had time to develop relationships. Participants may expect direct feedback of results from clinical research studies, but this is often not possible.
3. Governance: providing valid informed consent in line with ethical approvals is onerous. Patients say consent forms are too long and repetitive, and feel irritated about signing many times. Others are unable to read and write, and cannot access the material. Many feel that being left with a large pack of study paperwork is irrelevant or burdensome.
4. Information linkage: accessing clinical results depends on consistent patient identifiers. However, different services use varied approaches, making it difficult or impossible to link records. This administrative challenge is a large burden for research staff. Incorrect contact details for patients arise frequently, making follow-up time consuming and challenging.
5. Barriers to follow-up: patients sometimes wait many hours for appointments, which means time away from work or domestic responsibilities. Clinics can be far from home, making travel to appointments costly. Many patients use traditional medicines before seeking clinic or hospital treatment, and some drink excess alcohol.
6. Burden of morbidity: Patients who are hospitalized may report painful arms due to blood tests being taken daily. Others are too physically unwell to give informed consent, or have mental health concerns.

Conclusions: We have identified a number of complex, overlapping barriers to recruiting patients into clinical research studies. Awareness of these challenges can inform practical solutions that include provision of better information and education, management of expectations, appropriate accessible consent forms, and a holistic approach to parallel clinical and research interventions

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Presented at Conference on Liver Disease in Africa 2021
Abstract 30

Seroprevalence and Factors Associated with HBsAg Carriage in Guinean Prisons

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Introduction: Hepatitis B is a public health problem, and the prison environment is considered a high-risk environment for HBV transmission. The objective of our study was to determine the prevalence and factors associated with HBsAg carriage in Guinean prisons.

Materials and methods: This was a cross-sectional, multicentre, descriptive and analytical observational study that took place over a period of six months in the central prisons of the different administrative regions of Guinea. We included prisoners of all ages, sexes and origins who agreed to participate in the study and in whom serology for hepatitis B screening had been carried out, regardless of the result obtained. Sociodemographic, clinical and biological information was collected. HBsAg was tested on venous blood samples using the CYPRESS HBsAg BANDELETTES® rapid test. Factors associated with HBsAg carriage were analysed using multivariate logistic regression.

Results: Out of 873 inmates, 153 or a prevalence of 17.5 95% CI [15.1 - 19.8] were HBsAg positive. The mean age was 29.70±10.08 years with a male predominance of 96.9%. The proportions of HBsAg were higher in the administrative regions of Boké and Kindia with 21.7 and 20.5% respectively.
Multivariate logistic analysis revealed that the length of detention was 5 - 10 years (OR = 2.20, 95% CI = 1.05 - 4.63, p = 0.03), over 10 years (OR = 4.08, 95% CI = 1.49 - 11.18, p < 0.01), blade sharing between prisoners (OR = 4.08, 95% CI = 2.07 - 4.38, p < 0.01), cocaine use (OR = 7.75, 95% CI = 1.66 - 36.09, p < 0.01) were independently associated with HBsAg carriage.

Conclusion: The prevalence of HBV infection among prisoners remains high. Factors independently associated with HBsAg carriage were being older than 5 years, blade sharing and cocaine use. Controlling this condition in prisons requires screening, awareness raising and reform of the provision of care within the prison population. Further studies on viral circulation and the impact of the prison environment on HBV infection seem necessary.
Key words: Seroprevalence, HBsAg, prison environment, Guinea

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Abstract 31

A Seat at the Table: How Intentional Community Engagement Strengthens Hepatitis Outreach in the United States with West African Communities

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Background: Approximately 850,000 individuals in the United States (US) are living with hepatitis B virus (HBV) and 67% of them unaware that they are infected [1]. HBV disproportionately affects immigrant populations in the US, including West Africans. The B Informed viral hepatitis community collaborative has evolved along the community engagement continuum over 10 years and aims to reduce the gap in HBV testing and care for the West African immigrants in New York City (NYC).

Methods: With engagement from community leaders, African Service Committee and Hepatitis Outreach NEtwork, from 2018 to 2019, 610 Africans living in NYC were tested for HBV at community events and a free walk-in clinic. Those identified as living with HBV infection were linked to follow-up care with an HBV specialist. Binary logistic regression was conducted to explore the relationship of the variables with HBV sero-status.

Results: Of those tested (89% West African), 55 (9%) were identified as living with HBV (HBsAg positive). More than 18% (n=112) of those tested were isolated HBcAb positive indicating past infection; 14.2% (n= 26) isolated HBsAb positive, reflecting immunity from prior HBV vaccine. Persons identified as living with HBV were on average 10 ± 11.5 years younger than those without ($p<.05$) and they had also lived in the US for a shorter period of time compared to those who tested negative (9.8 ± 10.9 years vs 12.8 ± 10.8, $p<.01$).

Conclusions: Integration of West African community leaders has enhanced outreach efforts by reaching people not previously tested and increasing follow up rates. Our observations suggest West Africans in the US are at high- risk for living with HBV infection and have evolved over a 10-year period towards younger age, more recent immigration and less overall prior HBV infection. Replicating this collaborative community-based model may help reach more people in the US living with HBV not yet diagnosed.

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Abstract 32

Hepatitis B Infection among Commercial Sex Workers in Lyantonde Town, Central Uganda: Prevalence, Knowledge and Practices

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Background: The study was conducted to determine the prevalence, knowledge and practices associated with hepatitis B infection among female commercial sex workers in Lyantonde town, to guide targeted preventive measures by the district health authorities. A cross sectional study was conducted in Lyantonde town, Lyantonde district, central Uganda, from November 2019 to January 2020.

Methodology: Included were 207 consented commercial sex workers operating in Lyantonde town at the time of the study. A structured questionnaire was administered to collect information on bio-data, knowledge on hepatitis B infection and practices. Blood samples were then collected and transported to Mbarara Regional Referral Hospital Laboratory for analysis.

Results: Hepatitis B prevalence of 12.6% was established among the commercial sex workers. 207 participants with a mean age of 26±3.801 were studied. 28.0% were married, 30.4% cohabiting, 12.1% single and 29.5% divorced. 15.0% had no formal education, 28.5% had primary level education and 56.5% had secondary level education. 60.4% lived on less than one dollar a day.
All the participants had ever heard of hepatitis B infection. 95.6% had awareness of its sexual transmission, 44.9% knew it spreads through sharing sharps, 4.8% had awareness of mother to child transmission during child birth and 38.6% thought the disease is unpreventable.
Thirty-five-point seven percent (35.7%) had ever tested for the disease but none vaccinated. All the participants reported irregular condom use during sex and non-confessed to intravenous or illicit drug use. 61.8% expressed desire to giving birth at home and not a hospital.

Conclusion: Hepatitis B infection at 12.6% is highly prevalent among female commercial sex workers in Lyantonde town majority of whom are unaware of their status and do not consistently practice safe sex e.g., condom use. A targeted testing and vaccination program including prevention awareness campaigns could go a long way in keeping this marginalized population safe.

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Abstract 33

Access to Care Among People Living with Hepatitis B in Sub-Saharan Africa

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Background: An estimated 292 million people live with chronic hepatitis B (CHB) worldwide, with (80%) of the global burden carried by people living in sub-Saharan Africa, Southeast Asia, and Western Pacific regions. For many of those living with CHB, the burden of managing their disease is considerable, especially in low-income countries, where access to care is a major challenge. Due to less-than-optimal implementation of screening strategies in many parts of the world, CHB has been under-reported, and due to lack of resources, access to CHB care is inadequate. In 2016, the World Health Organization (WHO) set a new goal to eliminate viral hepatitis by 2030. This is an achievable goal if bottlenecks are identified and resolved in the prevention, diagnosis, and treatment cascade.

Methods: Between February and June of 2020, using an online survey, people living with CHB worldwide anonymously answered questions about lived experiences with CHB, challenges managing CHB, experiences with - and perceived value of - current CHB medications, and perceived ideal treatment for CHB. People living with CHB >18 years old were eligible to participate. Participant recruitment was conducted through online advertising using social media and e-newsletters. This presentation will report on patient experiences with current CHB medications, and their perceived value. The survey responses of participants who self-identified to be from the African continent are described. This study was IRB- approved.

Results: Most respondents were male (75%), younger than 45 years old (92%), and had college or higher education (80%). The top three countries of residence were Nigeria (61%), Ghana (22%) and Uganda (5%), with 53% reported living in urban areas. Most respondents (66%) were diagnosed within the past 5 years, and 14% said that they were tested because they were having symptoms.

Only 35% of respondents were under the care of a medical provider. When asked to clarify, location, cost, and preference of a traditional healer were cited as reasons. Respondents identified several challenges to managing CHB, finding a doctor with knowledge of how to manage CHB (50%), cost of laboratory tests and ultrasound (62%), and cost of medication to control CHB (69%). The majority of respondents (60%) said they were either taking medication at the time of the survey or had taken medication in the past, but only 28% were on treatment at the time of the survey. Interestingly, 22% of those who have had experience with CHB medication said they took herbal and/or supplemental products (with or without prescribed antivirals).

Conclusions: From this research, access to care, access to treatment, medical knowledge of providers, and costs are significant barriers for individuals living with CHB. To achieve the WHO elimination goals for viral hepatitis, a thorough assessment of health systems' capacity to support this effort, and a global collaborative effort to fill in the gaps in the care cascade is needed.

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Abstract 34

Characterization of Occult Hepatitis B Virus Infection Among Patients With Chronic Liver Disease of Unidentified Cause, Addis Ababa Ethiopia

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Background: Globally two billion people had hepatitis B virus (HBV) infection with nearly a quarter of a billion cases of chronic HBV. A subset of HBV cases includes those with detectable HBV DNA in the serum and/or liver tissue called occult hepatitis B (OHB). OHB prevalence varies in different settings and could be associated with ranging from asymptomatic cases up to chronic liver disease (CLD) and hepatocellular carcinoma (HCC).

Objective: The objective of this study was to assess the prevalence and characteristics of OHB among patients with CLD of unidentified cause in Addis Ababa, Ethiopia.

Methods: The study was mainly conducted at the gastroenterology & hepatology referral clinic of Tikur Anbassa Specialized Hospital (TASH). Two private, as well as two government hospitals, were also included in the study. Patients who fulfilled the eligibility criteria for the study and seen during the study period from September 2020 to January 2021 were included in the study. Data analysis was done using SPSS version 20.

Results: Thirty-nine patients with HBV surface antigen (HBsAg) test negative at clinical care site by rapid test kit were included in the study. None had an identified cause for their liver disease. All the patients had evidence of CLD by clinical and imaging criteria. Three (7.69%) of the 39 patients tested positive for the HBsAg test done by ELISA making the negative predictive value of the rapid test kit 92.3% compared to ELISA. The remaining 36 patients had serology test for HBV and 16(44.4%) had positive anti-HBV core antibody. Two (6%) of the 33 patients who had HBV viral load determined from plasma by RT-PCR had detectable HBV DNA suggesting presence of an occult hepatitis B infection.

Conclusion: Occult hepatitis B infection is a likely etiology of CLD of no identified cause in a subset of patients in Ethiopia. A significant proportion of CLD patients with no identified cause in this study; including HBsAg negative have evidence of past HBV infection possibly suggesting a more widespread risk of HBV as a risk for liver diseases in Ethiopia.

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Abstract 35

Treatment Penetration and Correlates of Diagnostic Parameters Among Hepatitis B Sero-Positive Individuals in Ondo State, Nigeria

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Objectives: to determine treatment penetration among Hepatitis B Virus (HBV) infected individuals and levels of correlation between serologic, biochemical and molecular testings for HBV so as to evaluate individual relevance of these tests to disease management in an endemic population.

Methods: In this retrospective study, data of patients who attended viral hepatitis clinics in University of Medical Sciences Teaching Hospital Complex, Ondo, Nigeria from 2014 to 2019 were extracted. In the serologic profiles were: Hepatitis B surface Antigen (HBsAg), Hepatitis B surface Antibody (HBsAb), Hepatitis B 'e' Antigen (HBeAg), Hepatitis B core Antibody (HBcAb) and Hepatitis B 'e' Antibody (HBeAb); biochemical tests included alanine transaminase (ALT) and the molecular test was HBV viral DNA loads. Analysis for serological markers for HBV was by means of the Enzyme Linked Immunosorbent Assay (ELISA) (DiaPro Diagnostic Bioprobes; Milano, Italy and Biokit, Spain) in accordance with the manufacturer's instructions. Alanine aminotransferase (ALT) was quantitatively measured using Pars Azmoon kit (Tehran, Iran) based on the kit instruction. HBV DNA was extracted from serum samples followng manufacturer's instructions using QIAmp DNA mini-extraction kit (Qiagen, Hilden, Germany and quantification of HBV DNA were done by real-time PCR using the Artus Light Cycler HBV DNA kit (Qiagen; Hilden, Germany); as per kit instructions and Light Cycler 2.0 instrument Real-Time PCR (Roche, Germany). Data collected were manually inputted into the computer system and checked for data consistency manually by double entry; and analyzed using the SPSS version 23.0. Univariate data were represented in tables and charts. P-values <0.05 was considered significant at 95.0% confidence level for all inferential analysis.

Results: Among a total of 630 HBsAg sero-positive patients, 48 completed the three series of tests and commenced treatment; giving a treatment penetration rate of 7.6%. Cost of investigation was a major factor in treatment penetration. Among investigated individuals, 28 were males and 30 were females (1:1) with mean age of 34years. All (48) had detectable viral load above 20 IU/mL. The distribution of viral loads (<2000 and >2000 copies/ml) according to age range of subjects (Fig1) showed that the peak age group (47.8%) was 30-39 years while the least (2.3%) was 19 years and below. All were HBcAb positive; 26 (54.2%) had viral load below 2,000 iu/mL. Among the 46 patients in which HBeAg was negative 43.5% (20/46) had viral load above 2,000 iu/mL. HBeAg was detected in 2 (4.2%) which had viral load above 20,000 iu/mL and these 2 were also positive for HBeAb. Among the 19 (39.6%) which had ALT values greater than 20iu/L, nine (47.4%) had viral load above 2,000 iu/mL, while among 29 (60.4%) with ALT below 20 iu/L, 13 (44.8%) had viral load greater than 2,000iu/L.

Conclusion: Wide gaps exist between HBsAg sero-positivity and treatment penetration in our environment. Neither serology profile, ALT nor viral loads can single handedly predict needs for patients' treatment. The presence of HBeAb was not protective against HBeAg. The need for special national hepatitis programs for adequate provision of treatment and follow-up services is needed to enhance treatment penetrations.

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Abstract 36

Les Hépatites Virales B sous Ténofovir à Ouagadougou (Burkina Faso)

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Contexte: Le traitement de l'hépatite virale B repose sur les analogues nucléoti(si)diques ; ceux à haute barrière de résistance doivent être priorisés. Au Burkina Faso, le ténofovir est le plus utilisé du fait de son efficacité et de son coût. Le but de notre travail était d'étudier les hépatites virales B sous ténofovir à Ouagadougou.

Materiel et methode: Il s'est agi d'une étude longitudinale, réalisée dans le service de consultations externes du Centre Hospitalier Universitaire de Tengandogo du 1er mai 2013 au 31septembre 2020 soit une durée de sept (07) ans et cinq (05) mois. Etaient inclus dans l'étude, tous les patients porteurs chroniques du virus de l'hépatite B sous ténofovir depuis au moins un an. Nous avons exclu de l'étude les cas de carcinome hépatocellulaire et de coïnfections avec les virus des hépatites D, C et de l'immunodéficience humaine.

Resultats: Sur 321 patients porteurs d'une hépatite B, 120 étaient sous ténofovir et 34 ont été inclus dans notre étude. Il s'agissait de 24 hommes et 10 femmes avec un âge moyen de 39 ans. L'hépatite B était découverte le plus souvent à la suite d'un dépistage systématique ou volontaire (44,1%) ou d'une douleur à l'hypochondre droit (23, 5%). La charge virale initiale moyenne était de 7,9 log. Dix patients avaient une observance modérée et quatre étaient non observants. Aucun effet secondaire n'a été signalé dans 91, 3% des cas. La réponse virologique était complète chez 72,7% des patients au bout de six mois. On notait une réponse biochimique chez neuf patients sur dix au bout de 16 mois. Une réponse histologique était observée chez 19 /27 patients dans un délai moyen de 26,7 mois. Une séroconversion HBs était retrouvée chez 2/24 patients.

Conclusion: Le ténofovir est efficace dans le traitement de l'hépatite virale B, mais la séroconversion HBs est rarement obtenue. La majeure partie de nos patients étaient antigène HBe négatif, si des chances de séroconversion HBs existent, elles restent très faibles. Plus d'un patient sur 4 étaient perdus de vue au bout de 26,7 mois, il serait intéressant de mener de plus amples investigations pour mieux comprendre les raisons et tenter d'y remédier.

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Abstract 37

Antiviral Medication Adherence Among Patient With HBV Attending Ibn Sina Hospital

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Background: Antiviral treatment is efficient at prohibiting advancement liver destruction, liver cirrhosis and hepatocellular carcinoma in people living with chronic hepatitis B virus.
Objective: To assess antiviral medication adherence among patients with HBV

Methodology: This was a hospital based cross sectional study. Individuals with CHB were recruited from Ibn-Sina hospital. A questionnaire was used to evaluate socio-demographic, HBV knowledge, Medication knowledge, DNA viral load and also included hill-bone scale. Data were analyzed using SPSS software.

Results: one hundred and forty six were include in the study 71.9% were male with mean age of 41.1±13.9. Patients with perfect Adherence score was reported by (49%), (51%) reported imperfect adherence score. There was statistically significant association between the perfect adherence score and medication knowledge score (P<0.039), Duration of the disease (P<0.022) and the viral outcome category (0.001). The most common reason for imperfect adherence was the cost of the medication reported by (57%)
Binary logistic regression showed that those with well- informed medication knowledge were more likely having perfect adherence score compared to those are not well informed(OR .665 CI (0.127-0.941) (P<0.038)) . Favourable outcome with reduction of > 1 log in HBV DNA was associated with perfect adherence score (OR: 0.772, CI: 0.102-0.507, P < 0.001).

Conclusion: patients with Favourable outcome with reduction of > 1 log in HBV DNA and well-informed medication knowledge are associated with perfect adherence using hill-bone scale

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Abstract 38

Seroprevalence and Risk Factors of Hepatitis B Virus Among School Children in FCT, Abuja

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Introduction: Hepatitis B infection remains an important public health problem affecting over 364 million people globally with about 600,000 deaths annually. Sub- Saharan Africa constitutes a significant global burden with Nigeria having a high prevalence of 12.2%. Hepatitis B Vaccine was introduced into the National Immunization Program in Nigeria in 2004, with a view to reducing the prevalence of Hepatitis B Virus (HBV). This study was carried out to determine the sero-prevalence, and risk factors associated with HBV infection among schoolchildren in Federal Capital Territory, Abuja (FCT).

Methods: Descriptive cross-sectional study was conducted between March to May 2019 among 220 school children in FCT, Abuja. A pretested structured interviewer administered questionnaire was administered to participants to obtain information on social demographic characteristics, risk factors and hepatitis B vaccination history. Blood samples were collected from all participants after ethical approval and parental consent was obtained, and was analyzed using rapid lateral chromatographic immunoassay kit. HBsAg positive samples were confirmed using Enzyme Linked Immunosorbent Assay. Epi info version 7.2.1.7 was used for univariate and bivariate analysis at 5% level of significance.

Results: The mean age of the participants was 12.5 ±1.6 years. Of the total respondents' majority were females 149(67.7%), Christians 184 (83.6%) and of Igbo tribe 50(22.7%). 85(38.6%) have not received hepatitis B vaccine. More than half of the respondents were born in the hospital and belonged to high socioeconomic class 171(77.7%) and 188(85.5%) respectively. HBV sero-prevalence was found to be 1.8%. Factors found to be associated with HBV infection include having tribal mark (OR=4.0; 95% CI=0.6-29.3) and traditional circumcision (OR=1.9; 95% CI=0.1-31.3).

Conclusion: There was low sero-prevalence of HBV infection among school children in FCT. Some cultural practices were found to be risk factors of HBV infection. This study shows that there was low prevalence of hepatitis B virus among the study group, although more effort is needed to protect the susceptible ones. We recommended implementation of school-based HBV intervention programs such as health education, voluntary testing and immunization of susceptible children.

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Abstract 39

Assessment of Hepatitis B Knowledge and Awareness Among the Sudanese Population in Khartoum State

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Introduction: Globally it is estimated that majority of the burden of Hepatitis B virus infection is in Sub-Saharan African countries (SSA). Africa is also hit by a dreadful complication of Hepatocellular carcinoma and sequalae of end-stage liver disease. Despite this, the knowledge and awareness of the population to this silent killer is largely unknown.

Objectives: The aim of this study was to assess the knowledge and awareness of hepatitis B virus among the general population within Sudan to understand the misconceptions and provide a better direction toward the disease elimination goals.

Methods: A community-based study was carried out in three locations in Khartoum state during a community hepatitis awareness campaign, where participants were provided education, screening, and vaccine. Data were collected after proper consent was obtained from the respective IRB office. Basic demographic characteristics, knowledge assessment questions, and awareness were used, which are derived from standard questionnaire. Finally, basic descriptive statistics were undergone to assess the knowledge and awareness of the participants.

Results: The study has shown that self-reported hepatitis B among the participants was 9.6%. There are areas of hepatitis B misconception in knowledge and awareness related to transmission, modes of prevention and disease state. We have also noticed that prior vaccine coverage was low among the groups which is also another major concern.

Conclusion: The prevalence of Hepatitis B from these randomly selected population groups is high. There is also lower vaccine coverage and many misconceptions in knowledge and awareness of hepatitis B. Policy makers should consider these issues seriously to improve the gaps in hepatitis B.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 40

Prevalence of Viral Hepatitis B and C Markers in Tunisian Patients Undergoing Immunosuppressive Therapy

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Introduction: The use of immunosuppressants (IS) expose to a risk of viral reactivation. Although rare, reactivation under immunosuppressive treatment can be a life-threatening complication. The aim of our work was to assess viral screening practices of HBV and HCV in Tunisian patients under IS and to determine viral markers prevalence.

Methods: We performed a retrospective monocentric study including patients on immunosuppressive therapy who consulted during 2019. We investigated the screening rates and modalities for viral infections B and C and collected the epidemiological, clinical and virological data as well as the prevention modalities adopted.

Results: A total of 56 patients were included. The mean age was 43 ± 13.9 years with a sex ratio M/F of 1.7. Among our patients, 37 were followed for inflammatory bowel disease; 9 were followed for systemic disease: systemic lupus (N=3), Sjogren's syndrome (N=2), scleroderma (N=2), Takayashu's disease (N=1), Behçet's disease (N=1); 7 had chronic inflammatory rheumatism; 2 patients were followed for autoimmune hepatitis and one patient had eosinophilic gastroenteritis. The IS prescribed were: azathioprine, methotrexate, cyclophosphamide and mycophenolic acid in 80%, 14%, 5% and 1% of patients respectively. Screening for HBV was done in 84% of cases. Complete VHB serology was performed in 40%. Viral load was requested in case of positive HBs Ag or isolated anti-HBc. The prevalence of viral B infection was 12.7%: 6% occult hepatitis and 6.7% with immunity marker. Vaccination was performed in 9.7% of cases. No viral B reactivation was noticed during follow-up. Anti-HCV antibodies were tested in 76.7% of cases. None of our patients had a viral C infection.

Conclusion: Although viral reactivation under immunosuppressive therapy is infrequent, screening must be systematic. The low rate of HBV vaccination in patients on IS highlights the need of clear information among physicians about the importance of HBV vaccination in the management of patients undergoing immunosuppressive therapy.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 41

Perceived Supportive Care Needs of Adolescents with Chronic Hepatitis B in a Resource-limited Setting

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Background: Adolescents are disproportionately affected by hepatitis B in Ghana. Yet, studies that seek to explore adolescents supportive care needs are limited. We, therefore, sought to explore the supportive care needs of adolescents with chronic hepatitis B accessing care in a tertiary hospital in Ghana.

Study Design: Exploratory qualitative design was used. Overall, 12 individuals participated in a face-to-face interview. Data were processed with QSR Nvivo version 11 and analysed by following Braun and Clarke (2006) procedure for thematic data analyses.

Results: The findings showed that adolescents with chronic hepatitis B have unmet supportive care needs. These needs spanned from psychological support following diagnosis, informational need, financial support for clinical monitoring and treatment, and social support. Explicitly, pregnant adolescents were found to have a dilemma as to whether to keep or terminate their pregnancy to prevent transmission of the infection to their newborns. Physicians and nurses were seen to be mostly occupied with prescription of medications and writing of laboratory request instead of providing key services including, post-test counselling.

Conclusions: This study highlights the need to integrate hepatitis B services into the HIV structures in the formal health care system such that pre-test and post-test counselling can be a part of the routine care for PWHB. Also, we recommend tailor-made liver care for adolescents taking into consideration their unique needs and expectations.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 42

Dual SOF/DCV Therapy for Chronic HCV: Lessons From Our Studies on Pediatric Age Groups

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Background: Dual sofosbuvir/daclatasvir (SOF/DCV) therapy is being extensively used in our busy Pediatric Hepatology centers though it has not been endorsed in pediatric guidelines. We designed a series of clinical studies to answer 5 research questions: Is dual SOF/DCV therapy safe and effective in pediatric age groups as proved in adults? Can the treatment duration be shortened to 8 weeks based on an on-treatment early response qualifier Does SOF/DCV treatment negatively affect growth in pediatric age as the case with Interferon-based therapy? Does SOF/DCV therapy affect the complete remission in survivors of childhood malignancy? Is the risk of Hepatitis B reactivation significant, in chronic HCV & HBV co-infected adolescents, when treated with DAAs?

Methods: Consecutive eligible patients presenting to our clinical centers from each target population were included in our clinical study program. All included patients were treated with dual SOF/DCV therapy but doses, durations, and endpoints were adapted according to each studied age group, body weight, and the research question.
The efficacy results were the same in pediatric patients as previously proved in studies on adults. All studies on adolescents as well as on adults showed sustained virologic response at week 12 after the end of treatment (SVR12) of more than 96% in the intent-to-treat population (ITT) and approaching 100% in the per-protocol population. No observed serious adverse effects or negative impact on linear growth or weight. The shortened duration of therapy of 8 weeks proved non-inferior to the recommended 12 weeks duration. Neither survivors of childhood hematologic malignancy (leukemia/lymphoma) nor survivors of 5 studied solid tumors reported relapse/recurrence for the HCV virus infection or the malignant disease throughout a follow-up period of 48 weeks; No reactivation of HBV was observed in our HCV/HBV Co-infected adolescents during or after DAA drug treatment.

Conclusion: Safety, efficacy, and tolerability of dual SOF/DCV therapy for chronic HCV in our studies on pediatric age groups were as high as the case in adults. We detected no serious adverse effects, no negative effects on growth, no negative impact on the state of complete remission in survivors of hematologic/solid malignancies, and no reactivation/flare of hepatitis B virus infection in adolescents co-infected with chronic HCV and HBV with low viremia or undetectable HBV-DNA levels. Shortened 8 weeks duration of therapy was non-inferior to 12 weeks in those who achieved very rapid virologic response at week 2.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 43

Evaluation of FIB-4 Score as a Cheap Method of Pretreatment Assessment for Egyptian Patients With Chronic HCV

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Background and aims: There is a great need to minimize the cost of pretreatment assessment for patients with chronic HCV as it imposes a huge economic burden in developing countries. The aim of this study was to evaluate the application of FIB-4 score as a cheap and accurate method of pretreatment assessment for Egyptian patients with chronic HCV.

Methods: This study was conducted on 935 subjects with chronic HCV infection, seen at the center of Excellency for treatment of HCV at Thabet - Thabet hospital, Giza, Egypt (as a part of pharmaceutical knowledge and technology alliance project, sponsored by the Academy of Scientific Research and Technology). A comparative cost analysis study was done between the current Egyptian model of care and the proposed model of care using FIB-4.

Results: Patients with Fib4 less than 3.25 were younger, with lower INR, bilirubin, ALT, AST and higher Albumin and platelet count. In assessment of concordance between the model of care (base case) and Fib-4 score as alternative; absolute and relative concordance rates for FIB4 model were 75%, and 77% respectively. The average cost effectiveness ratio (ACER) was estimated to be 135 LE/ patient for FIB-4 based model. In this cohort, as regard the total cost FIB-4 model would save around 319,203 L.E.

Conclusion: FIB4 based model of care would save an accepted amount of money in both the pretreatment and treatment phases. Although studies on larger scale are needed to validate cost minimization on a national level.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 44

A Pilot Study on the Usability and Acceptability of Hcv Self-Testing Among the General Population in Rwanda

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Background: An estimated 58 million people worldwide are infected with hepatitis C virus (HCV) and majority of them are unaware of their infection. With the global WHO targets to eliminate HCV infection by 2030, there is a need to increase access to testing as part of national elimination programs and further testing approaches are necessary. HCV self-testing (HCVST) is among the innovative strategies that could empower people that remain unreached by current conventional facility-based HCV testing approaches. HCVST holds the potential to further increase uptake of HCV testing services by giving people the opportunity to test discreetly and conveniently. A cross-sectional study has been undertaken to assess the usability and acceptability of HCVST among the general population in Rwanda.

Materials and Methods: This study was conducted at Rwamagana Provincial Hospital, among the general population of Rwamagana District, Eastern Province, Rwanda. After enrolment, participants were provided with verbal instructions from a health care worker on how to perform either an oral or blood HCVST and were requested to perform tests and interpret results. Participants were silently observed by a study staff using a checklist to systematically document any errors in testing procedure and provide assistance if needed. Inter-reader and inter-operator agreements for participants reported results versus Health Care Worker (HCW) reported results were measured. A brief post-testing interview was conducted to document acceptability and preferences of HCVST. After undergoing the self-test, participants were tested using the facility-based HCV rapid test as per the national algorithm and results were communicated to the participants. Positive individuals were linked to HCV confirmatory test (PCR) and further treatment.

Results: A total of 200 individuals participated, 100 for oral HCVST and 100 for blood HCVST. The median (IQR) age of participants was 34 (24 to 44) years and the male to female sex ratio was 1.03. Regarding the usability of oral HCVST, 90% of participants completed all testing steps correctly without assistance and interpreted results correctly; 2% interpreted results wrongly and 8% needed assistance. For blood HCVST, 82% of participants completed all testing steps correctly without assistance and interpreted results correctly; 2% interpreted results wrongly and 16% required assistance. Considering the concordance of test results between oral or blood HCVST and the professional test, discordant results were respectively 3 (3%) and 5 (5%). For oral and blood HCVST, 86% versus 83 % respectively, perceived testing steps as very easy to perform and 99.5% were generally satisfied of both HCVST. Overall, all participants (100%) confirmed that they would reuse HCVST and recommend it to the family and friends.

Conclusion: Overall there was a high degree of usability and acceptability of HCVST for both oral fluid and blood-based test, with a high percentage of participants interpreting correctly the results in both groups. Participants were satisfied with the use of HCVST perceiving it being easy to perform at any time, and would recommend it to others. Further studies are needed to evaluate the use of HCVST with attention on impact on linkage to care and treatment.

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Abstract 45

The Prevalence and Trends of Type 2 Diabetes Mellitus in Patients Infected With Hepatitis C Virus at the Global Perspective: A Systematic Review and Meta-Analysis

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Background: The ever-increasing global hepatitis C infection is fueling the burden of diabetes mellitus, which exaggerates various complications and may be a cause of death for millions. Several studies have reported that hepatitis C virus infection is an important risk factor for the development of diabetes mellitus. However, the results of fragmented studies reported variable and inconsistent finding on the prevalence of type two diabetes mellitus among hepatitis C virus-infected patients. Therefore, this meta-analysis aimed to estimate the overall prevalence of type two diabetes mellitus in patients infected with hepatitis C virus.

Methods: This systematic review and meta-analysis included original articles of cohort and cross-sectional studies. A systematic search was performed in PubMed, Science Direct, and Google Scholar. A Random-effect meta-analysis model was used to estimate the global pooled prevalence of type two diabetes mellitus among hepatitis C infected patients. Sensitivity analysis was conducted to check the stability of summary estimate. Heterogeneity was assessed using I^2 statistic. Sub-group analysis was also conducted based on geographical region. Funnel plots were used to see publication bias.

Results: A total of 40 eligible articles reported data from 14765 study participants were included in this meta-analysis. The pooled prevalence of type two diabetes mellitus among hepatitis C virus-infected patients was 19.67% (95% CI: 17.25, 22.09). The subgroup analysis showed, pooled prevalence of 27.72% (95% CI: 20.79, 34.65) in Africa, 20.73% (95% CI: 17.57, 23.90) in Asia, and 16.64% (95% CI: 6.79, 26.49) in North America, and 15.02% (95% CI: 10.66, 19.38) in Europe.

Conclusion: The overall prevalence of type two diabetes mellitus among hepatitis C virus-infected patients was considerably high in a global perspective. The highest prevalence was noted in Africa and Asia, followed by North America and Europe. Therefore, policymakers, researchers, and stakeholders should consider effective strategy and preventive measures of hepatitis C virus infection to diminish the co-existence of hepatitis C virus infection and the development of type two diabetes, and exacerbated complications

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Abstract 46

Diversité Génétique du Virus de L'Hépatite C Chez Les Patients Reçu AU Laboratoire Louis Pasteur, Douala-Cameroun

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Le VHC reste un problème de santé publique dans le monde et au Cameroun en particulier. Une meilleure prise en charge passe par la détermination du génotype mais malheureusement très peu de travaux sont disponibles dans ce sens au Cameroun. L'objectif de ce travail était donc de déterminer les différents génotypes du VHC chez les patients venu effectuer leur examens de charge virale et ou de génotypage au laboratoire LOUIS PASTEUR. En effet, la venue des nouvelles molécules (molécules pangénotypiques) a eu pour conséquence la baisse de la prescription du génotypage du VHC aux patients. Hors le VHC est un virus dont l'ARN polymérase est dépourvu d'activité 3'-5' exonucléase de ce fait des souches résistantes pourraient apparaitre d'où la nécessité du génotypage avant la mise sur traitement.
Nous avons conduit une étude descriptive, rétrospectif (Septembre 2018 à Avril 2020) et transversal de mai à juin 2020 au laboratoire LOUIS PASTEUR, Douala Cameroun. Apres obtention d'une clairance éthique délivrée par le comité éthique de l'université de Douala N0 2406 CEI-Udo/09/2020/M et autorisation du Directeur General de ce laboratoire, nous avons travaillé sur 133 patients. Apres prélèvement du sang sur tube EDTA, le plasma a été obtenu par centrifugation, puis analysé pour la détermination du génotype du VHC par RT-PCR en temps réel sur l'automate système Cobas 48800 et 8800. Celui-ci st composé du X 480 qui permet l'extraction et la purification du génome viral en utilisant le principe d'extraction à l'aide des billes magnétiques. Du Z 480 qui permet l'amplification, un moniteur et un boitier de commande. Pour analyses statistique, nous avons éventuellement calculer le test de Khi-2 et la probabilité P comparé au seuil 5% grâce au logiciel Jamovi. de version 1.1.9.0. Aucun lien statistiquement significatif a été établit entre les caractères sociodémographique et la répartition des différents génotypes.
Sur les 133 patients 73 étaient de sexe féminin soit 55% et 60 de sexe masculin soit 45%. les tranches d'âges les plus représentées étaient de 60-79 ans (54,54%) et 40-59 ans (29,54%). 4 génotypes ont été identifiés . le génotype 1 (35%), 2 (26%), 4 (26%), 5 (1%) et 3 recombinants 1a/1b (1%) 2a/2c (8%), 4a/4c/4d (3%).
Plusieurs génotypes circulent dans la population camerounaise donc 3 recombinants détectés ici pour la première fois d'où l'intérêt de ce génotypage avant toute prescription médicale.
Mots clés : Génotypes ; recombinants ; Cameroun ; hépatite C

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Presented at Conference on Liver Disease in Africa 2021
Abstract 47

Comparaison de la Performance d'un Protocole de Séquençage et la PCR en Temps Réel Pour Le Génotypage du Virus de L'Hépatite C.

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Contexte: L'infection par le virus de l'hépatite C (VHC) est un problème de santé publique dans le monde, notamment dans les pays à revenus faibles et intermédiaires. Selon l'OMS, la prévalence de la maladie dans ces pays représente 78,5 % de la prévalence mondiale. Au Cameroun la prévalence de l'hépatite C est inférieure à 2 % répartie entre les génotypes 1, 2 et 4. Les protocoles thérapeutiques pan-génomique récemment introduit au Cameroun en 2016 permettent d'initier le traitement des patients sans identifier les génotypes et/ou les sous-types du VHC. Néanmoins, l'identification du génotype du virus est nécessaire dans le cadre d'une surveillance épidémiologique des souches résistantes, en cas d'échec thérapeutique ou en cas de difficulté d'accès au traitement pan-génomique. Malheureusement, les techniques de séquençage sont encore difficilement accessibles au Cameroun. Cette étude visait à savoir si le génotypage par PCR en temps réel du VHC fourni des résultats concordant à ceux obtenus par la technique de séquençage du gène NS5B.

Matériel et méthode: Il s'agit d'une étude comparative menée de novembre 2020 à janvier 2021 sur les échantillons de patients porteurs d'hépatite C et naïfs au traitement antiviral a action directe (AAD), à Yaoundé et à Douala (Cameroun). Après extraction de l'ARN à partir du plasma, l'amplification et le génotypage étaient faits d'une part par PCR en temps réel (rt-PCR, kit commercial), d'autre part, par transcription inverse-PCR de la région NS5B suivie du séquençage (protocole fait maison) et de l'analyse phylogénétique par le logiciel MEGA 7.0.

Résultats: Sur un total de 68 échantillons génotypés par rt-PCR, nous avons obtenu 23 séquences de la région NS5B. L'analyse phylogénique a montré que 9 étaient du génotypes 1 (38,89 %), 6 de génotypes 2 (22,22 %) et 8 du génotype 4 (38,89 %). Le taux de discordance entre le séquençage et le génotypage par PCR en temps réel était de 23,81%, répartit en 5 cas de discordance de génotype et 2 cas de discordance de sous type.

Conclusion: Cette étude révèle que la PCR en temps réel fourni des résultats de génotypage discordant avec le séquençage dans 23,81 % des cas, ce qui peut avoir des conséquences cliniques et épidémiologiques. Par ailleurs, le séquençage et la phylogénie permettent de déterminer le génotype et les mutations liées à la résistance aux inhibiteurs de l'ARN polymérase ARN dépendante comme le sofosbuvir, un AAD pan-génomique utilisé au Cameroun.

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Abstract 48

Does Directly Acting Antiviral Drug Therapy for Chronic Hcv Affect the Remission in Survivors of Childhood Malignancy?

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Background: The effects of direct-acting antiviral drug therapy (DAA) for chronic hepatitis c infected survivors of childhood cancer and the state of cancer remission have not been well investigated in pediatric age groups.

Methods: We conducted a prospective multicenter study to investigate the effect of dual sofosbuvir/daclatasvir therapy on both the hepatitis C virus clearance and state of cancer remission in survivors of childhood cancer infected with chronic HCV.

Results: We included a total of 49 chronic HCV infected pediatric patients; 29 survivors of malignant solid tumors, and 20 survivors of hematologic malignancies (leukemia/lymphoma). Their age ranged from 6 to 17 years (mean ± SD = 10.5 ± 3). All were treated with SOF/DCV for 12 weeks and were thoroughly monitored for virus load, liver and kidney functions, and hematologic indices in addition for any clinical/imaging or laboratory manifestation of relapse/recurrence or de novo occurrence of malignant disease throughout a period of 48 weeks. All patients achieved SVR12 (100% ITT). No relapse or recurrence detected for the original malignant disease or the HCV infection. No de novo occurrence of malignancy was also observed throughout the follow-up period of 48 weeks.

Conclusion: SOF/DCV combined therapy might be used safely and effectively in the treatment of chronic HCV infected survivors of solid tumors or hematologic malignancy (leukemia/lymphoma) in pediatric age groups. No relapses were detected during treatment and throughout the follow-up period for either the original malignant disease or the HCV infection.

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Abstract 49

Direct-Acting Antiviral Effect on Platelet Count In Patients With Chronic Hepatitis C Infection

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Introduction: Thrombocytopenia is the most common hematologic disorder during hepatitis C virus (HCV) infection. It is a multifactorial disorder due to several mechanisms in patients with HCV: hypersplenism by portal hypertension, autoimmunity, decreased hepatic thrombopoietin production or direct bone marrow suppression secondary to HCV effect on megakaryocytes.

Materials: The aim of our work was to assess the effect of direct antivirals (DAAs) drugs on platelet count after sustained viral response (SVR) in patients infected with HCV. A retrospective monocentric study was conducted including patients with HVC infection treated by DAAs between December 2016 and January 2019. Patients with co-infection HCV-HVB, co-infection HVC-HIV or associated auto-immune disorder were excluded. Biological and virological data were collected before and after the treatment.

Results: Overall, forty-nine patients were included with a sex ratio M/F = 0.95. The mean age was 62.3 years old (range 29-85). Most patients (70%) were infected by hepatitis C virus Genotype 1b, common type in Tunisia. The average viral load was 201305228.11 IU/l. Cirrhosis was present in half of patients. The choice of treatment regimen depended on genotype's type and the degree of hepatic fibrosis. All patients were treated with the combination of Sofosbuvir + Ledipasvir ± ribavirin for 12 or 24 weeks. SVR was obtained in all patients regardless of the degree of fibrosis. In cirrhotic patients the mean platelet count before starting the treatment with DAAs was 93 × 109/L versus 130 × 109/L after SVR (p = 0.024). In patients with chronic hepatitis C, the mean pre-therapeutic platelet count was 175 × 109/L versus 210 × 109/L after SVR (p = 0.044).

Conclusion: In our study, DAAs was associated with a significant increase in platelet count after SVR in both cirrhotic and non-cirrhotic patients. This could be explained by the improvements in portal hypertension, liver function and the suppression of the effect of HCV on the bone marrow after virus eradication. Further prospective and larger studies are needed to confirm these results and to better investigate the involved mechanisms.

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Abstract 50

The Prevalence of Hepatitis C Virus in the Republic of Guinea

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In the world, an estimated 71 million people are chronically infected by the hepatitis C virus (HCV). Based on the meta-analysis, in sub-Saharan Africa HCV seroprevalence among the 15-59 years old population reach 2.98%, in the Republic of Guinea - 1.5 % (95%, CI 0.5-9.5). To achieve the WHO goal of eliminating the burden of viral hepatitis by 2030 and to develop the relevant activities it is necessary to assess the epidemic situation in each region based on the screening data. This study was performed to evaluate the occurrence of serological and molecular markers of HCV among the residents of the Republic of Guinea

Materials and methods. A total of 515 adults were enrolled in this study in 2016-2017: 248 apparently healthy adults; 267 patients with various diseases (one of whose syndromes was fever) from two regional hospitals (211 patients from Mamou regional hospital, 56 – from Kindia regional hospital). Age characteristics were known for 356 of 515 people, the average age was 40.64 years (95%, CI 39.25 - 42.03). The presence of anti-HCV and the specific antibodies to the core, NS3, NS4, NS5 HCV proteins were analyzed using the “DS-EIA-ANTI-HCV” and the “DS-EIA-ANTI-HCV-SPECTRUM-GM” kits (Diagnostic Test Systems LLC, Russia), respectively. The presence of HCV RNA in the serum samples was determined by real-time PCR using the “AmpliSens HCV-FL” kit (FBIS “CRIE”, Russia). The confidence interval (95% CI) was calculated by the Wilson method.

Results. Overall, antibodies to HCV were detected in 29 (5.63% 95%, CI 3.95 - 7.97) of 515 residents. Herewith, among hospital patients anti-HCV was found in 20 (7.49%, 95% CI 4.90-11.29) of 267 ones; among apparently healthy adults – in 9 (3.63%; 95% CI 1.92-6.75) of 248 ones. At the same time, overall uncertain results of the anti-HCV were obtained in 27 (5.24%, 95%, CI 3.63-7.52) of 515 residents: in 21 (7.86%, 95% CI 5.20-11.72) of 267 hospital patients and only in 6 (2.42%, 95% CI 1.11-5.18) of 248 apparently healthy adults. HCV RNA was detected in 4 (0.78%, 95%, CI 0.30 - 1.98) of 515 residents and only in the hospital patients.

Conclusions. In our study, the anti-HCV prevalence was equal to 5.63% (95%, CI 3.95-7.97), the viremia - 0.78% (95%, CI 0.30-1, 98) in the adult population of the Republic of Guinea. The possible cause of a large number of uncertain results may be significant infectious pressure on the host’s immune system," due to the huge diversity of pathogens widespread in Africa.

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Hepatitis Delta Virus Epidemiology Across Six Geopolitical Regions of Nigeria

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Introduction: Nigeria is hyperendemic region for Hepatitis B virus (HBV) infection. With HBsAg carriage rates ranging between 9%-25%. One of the highest in sub-Saharan Africa. However, hepatitis Delta virus (HDV), a satellite of HBV and responsible for the most severe forms of liver disease in humans is not routinely screened for in patients with HBV infection. In an initial study carried out in 2016 in Nigeria's federal capital city, on 300 HBV positive samples, we found a prevalence of 5.32% of anti-HDV. We therefore explored other regions of the country to provide an overview of HDV prevalence in these regions.

Methods: From October 2017 to Jan 2019, we assessed HDV molecular epidemiology using on 1281 (F: 575; M :554, age ranged 2-73yrs; median age 34.7yrs) HBsAg positive samples from across the six geopolitical regions of the country (2 states per region). Statistical analysis was done using Graph pad prism 7.

Results: An overall prevalence of 4.6% was recorded. We noted regional disparity (HDV microepidemiology) as some regions (Southeast) showed a prevalence of <1% while Northeast showed a prevalence as high as 9.6%. HDV seropositivity showed no statistical differences for both age and sex. Molecularly there were 8 strains of HDV-1 (both African (7) and non-african (1) and one HDV-6. Three of the HDV-1 strains belonging to patients of the same siblings are identical, indicating an intra-familial transmission . Eleven patients (18.03%) were viraemic with a mean viral load of 4.95 Log IU / ml. Thus, nearly 80% of patients in the absence of any treatment do not respond to the virus.

Conclusion: There is low overall prevalence of HDV antibodies with regional disparity typical of HDV microepidemiology. More study involving larger number of patients is advocated in order to consolidate findings on HDV epidemiology in Nigeria.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 52

HIV Co-Infection With Viral Hepatitis B and C in Patients Hospitalized the Department of Infectious Diseases in Bamako: Frequency and Difficulties

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Objective/Methods: With the objective to determine the frequency of HIV-viral hepatitis B and C co-infection among inpatients hospitalized in the Infectious and Tropical Diseases Department (SMIT) at the Point G Hospital and to describe difficulties in diagnostic, treatment, and follow up in these coinfected patients, we have conducted a 1-year prospective, descriptive and analytical study (March 2020 to February 2021). Hepatitis B and C test was performed in all HIV infected hospitalized patients and the clinical, laboratory and therapeutic data were computed using SPSS v 20.0 software

Results: We identified 39 patients with HIV and HBV co-infection out of 203 hospitalizations representing a frequency of 16.7%; five cases of HIV-HCV co-infection and one (1) case of triple HIV-HBV and HCV co-infection that represent respectively a frequency of 3% and 0,5%. The age group [31-45] was the most represented with 44.1% for HIV-HBV co-infection, 50% for HIV-HCV co-infection, respectively. Average age: 42.05± 12.81 with extremes of 15 and 75 years. Males were most represented in HIV-HBV co-infection with 64.7% of cases while in HIV-HCV co-infection females were most frequent (66.7% of cases). CNS toxoplasmosis was the most associated opportunistic disease, with 35.3% and 33.3% of cases in HIV-HBV, HIV-HCV co-infections, respectively. The clinical description of hepatitis B and or C in HIV-infected patients is the same as in HIV. Type 1 HIV was the most found and the majority of patients had CD4 levels below 200 cells/mm3 and a detectable viral load. However any one of the 39 HIV-HBV coinfected and the 5 HIV-HCV coinfected patients could afford viral load for HBV or HCV and Liver elastometry because these tests are very expensive in Mali (ranged from 72.6$ to 127$ for a minimum wage of 72.6$). Thus all HIV-HBV coinfected patients have benefited from combined antiretroviral therapies (CART) that cover both HIV and HBV, No patient with HIV-HCV coinfection has benefited from direct antivirals therapies (DAVT). It is known these coinfections may promote the on-the-off of hepatitis complications including cirrhosis and or hepatocellular carcinoma.

Conclusion: HIV coinfection with Hepatitis B and C are frequent in hospital settings in Mali. Diagnosis tools and DAVT are clearly needed in Mali for HIV, HBV, and HCV coinfected patients.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
Abstract 53

Statistical Analysis of Diabetes Mellitus and Viral Hepatitis B And/or C Among Asymptomatic Subjects in Taraba State Nigeria

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Background: Hepatotropic viruses (HBV and HCV) and glucose metabolism disorder (Prediabetes Mellitus (Pre-DM) or Diabetes mellitus (DM)) are serious public health challenge. The triple are reported to be among the fastest growing diseases around the world. Little studies have been carried on the coinfections of these diseases. This study sought to determine the prevalence of hepatotropic viruses and glucose metabolism disorder and coinfections between the diseases.

Methods: This was a cross-sectional analysis performed among 138 randomly selected asymptomatic subjects in Taraba State using Cohcran's formular for determining sample size. Descriptive statistics, Chi-square test of association were used with the help of Microsoft excel 2016, SPSS version 25 and Minitab version 17. Specimen collection and labouratory analysis were carried out inline with WHO guidelines by well trained and qualified labouratory staff of CFID.

Results: The overall prevalence of HBV, HCV and glucose metabolism disorder recorded in the study were 8.7%, 15.2% and 4.3%. However, 9.4% of the subjects screened were prediabetic, 0.7% of the subjects were coinfected with HBV and DM, 0.7% were also coinfected with HCV and DM. None of the subjects were coinfected with the triple infections (HBV+HCV+DM). No statistically significant association was observed between glucose metabolism disorder and hepatotropic viruses. The demographic variables tested (gender and age) were not significantly associated with glucose metabolism disorder. However, age was statistically associated with one of the hepatotropic viruses (HCV).

Conclusion: This study recorded high prevalence of hepatotropic viruses (HBV = 8.7% and HCV = 15.2%) and glucose metabolism disorder (Pre-DM = 9.7% and DM = 4.3%).
A bracket of 0.7% asymptomatic subjects were both coinfected with (HBV + DM) and (HCV+DM). None of the subjects had all the triple infections (HBV+HCV+DM) and no statistical association was observed between glucose metabolism disorder and hepatotropic viruses. Statistical association was observed between some demographic variables (age and HCV) but none of such association was observed between hepatotropic viruses and DM or demographic variables (Age and gender) and glucose metabolism disorder. Findings from this study indicates an immediate need for intervention due to the increase of the diseases (HBV,HCV and pre-DM).

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Presented at Conference on Liver Disease in Africa 2021
Abstract 54

Decentralized HBV Vaccination in West African Community Centres in Greater Barcelona, Spain, to Accelerate Viral Hepatitis Elimination: Preliminary Data From the HBV-Comsava Model of Care

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Background: It is estimated that two billion people worldwide have evidence of past or present hepatitis B virus (HBV) infection. More than 90% of HBV-infected people live in low and middle-income countries and sub-Saharan African countries have some of the highest prevalence rates globally. Systematic childhood vaccination against HBV is not well implemented in many of these countries. In turn, chronic HBV infection is a major public health threat for African migrant populations living in Spain. The Hepatitis B Virus Community Screening and Vaccination in Africans (HBV-COMSAVA) study aims to use point-of-care testing and simplified diagnostic tools, such as rapid tests and plasma separation cards (PSC), in community settings in order to identify and link to care or vaccinate African migrants in the greater Barcelona area during the ongoing COVID-19 pandemic.

Materials and Methods: 294 study participants were offered HBV screening in a "pop-up" clinic in a community setting from 21 Nov 2020 to 20 June 2021. Rapid tests for surface antigen of the HBV (HBsAg) screening were used and a blood sample was collected using a PSC and analyzed in a hospital laboratory. HBsAg+ patients received a referral on the same day to specialist care (at the Hospital Clínic de Barcelona or Hospital Universitari Vall d'Hebron). The others received their results during a second visit and were offered: a) post-test counselling; or b) vaccination of the first dose of the HBV vaccine in situ. Sociodemographic and clinical history were collected and basic standard descriptive statistics were utilized using STATA software. Participants who did not already have Catalonia's CatSalut health card were offered an expedited process to acquire one.

Results: Those without second visit information (n=14) were excluded. 271 were included for analysis. The overall HBsAg prevalence was 11.0% (n=30) and past resolved infection was detected in 33.7% (n=92). The majority of participants reported not being vaccinated against HBV (71.2%, n=193). Of those that were offered the first dose of the HBV vaccine in situ (n=132), 107 were not previously vaccinated and were anti-HBc-; 22 were unsure about their vaccination status and anti-HBc-; 5 had an incomplete vaccination of which 2 were anti-HBc+. The overall return rate for those requiring vaccination was 70.4% (93/132) and 87.0% (n=81) of this group accepted vaccination when offered.

Conclusions: By employing a community-based model of care utilizing novel simplified and decentralized diagnostic tools, the HBV-COMSAVA study was able to vaccinate a high-risk migrant population against HBV and offer referrals to subsequent vaccination and care as needed. Decentralizing screening and vaccination for migrants who may otherwise not have received care was possible during the ongoing COVID-19 pandemic and the vaccination acceptance rate was high.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 55

Hepatitis B Virus Vaccine Coverage and Prevalence of Seroconversion in Health Science Students at the University of the Witwatersrand, 2021

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Despite an effective vaccine being available, hepatitis B virus (HBV) infection continues to be a global health problem, with over 296million people chronically infected. HBV is endemic in Sub-Saharan Africa. Occupational exposure to infectious blood and bodily fluids poses a high risk to health care workers, particularly to medical students because of their inexperience and lack of training. Therefore, it is important that medical students are immunized before commencement of clinical training. There is a paucity of data on the level of vaccination and immunization in young adults born after 1995, when HBV vaccination was introduced in South Africa as part of the Expanded Programme on Immunization. The aim of this study was to determine the level of immunity to HBV in Faculty of Health Sciences' (FHS) first-year undergraduate students at the University of the Witwatersrand, before and after they received their mandatory single-dose HBV vaccine.

All first-year FHS students were invited to participate via e-mail or in-person recruitment. Informed consent was obtained from all participants who were 18 years or older. A questionnaire detailing demographic data and vaccination practices was completed and blood drawn to measure baseline anti-hepatitis B surface antibody (anti-HBs) levels. Participants were invited to return 1 to 2 months later to determine post-vaccination anti-HBs levels. A total of 102 students have been recruited, 68% females, median age 19 years (range: 18 – 27 years). Only two participants were born outside South Africa. Pre-vaccination, 59 participants (58%) were anti-HBs-negative, 37 (36%) had low-intermediate levels (10–99 mIU/mL), with only 6 (6%) having titres >100 mIU/mL. For the anti-HBs-positive participants the median was 33 mIU/ml (range: 10–1000 mIU/ml). Antibody titres were unaffected by sex (p=0.33), race (p=0.29) or rural versus urban household environment (p=0.52). Previous vaccination could only be determined using participant responses to the questionnaire because very few students had health documentation. Approximately 50% (n=48) were unsure and 41% (n=39) certain that they had received their vaccination, with one third (n=30) claiming that they had received all 3 doses. No significant difference was noted amongst their knowledge of vaccination status and pre-vaccination anti-HBs levels (p=0.879). Post-vaccination anti-HBs revealed all 20 participants who returned for follow-up had significantly boosted levels (median anti-HBs change 781 mIU/mL; range: 25 – 1000 mIU/mL) (p<0.001).

The findings of this ongoing study provide valuable insights. A lack of adequately documented health records and a central database prevent students from knowing their vaccination status and leads to the false assumption that all individuals born in South Africa after 1995 have received a complete 3-dose primary HBV series. Of concern, is the 58% who tested negative for anti-HBs. From the information at our disposal it is difficult to discern whether this is a consequence of lack of vaccination or of waning anti-HBs titres with time. Thus vaccination of first year FHS students should remain mandatory because 86% of anti-HBs-positive participants had titres below 100 mIU/mL, the levels recommended for health care workers. It will be important to determine whether the high frequency (~60%) of lack of immunity to HBV applies to young people born after 1995 in the general population. Absence of immunity to HBV will require catch up vaccination to ensure adequate prevention of HBV infection and its associated clinical consequences, including hepatocellular carcinoma, which continues to have a high incidence on the African subcontinent.

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Abstract 56

DRESS Syndrome Presenting as A Case of Acute Hepatitis

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Drug reaction with eosinophilia and systemic symptoms, otherwise known as DRESS syndrome is a potentially life-threatening condition usually occurring 2 to 8 weeks after exposure to certain triggers. Common triggers are antibiotics as vancomycin, aspirin, allopurinol and sulphonamides.

I am presenting a case of a 66 year old, diabetic and hypertensive hospital porter. He developed transient ischemic attack and was prescribed aspirin, clopidogrel and cerebrolysin. Two weeks later he presented with generalized maculopapular erythematous rash, generalized edema, jaundice and high-grade fever. He also had few subcentimetric inguinal and axillary lymphadenopathy.

On hospital admission he showed the following labs: WBC 16.7x 10^3/UL (N:13), Hemoglobin was 9.4 g/dl, platelets 35 x 10^3/UL. ALT 5142 IU/L, AST 4615 IU/L. Total Bilirubin 10.3 mg/dl, Albumin: 2.5 g/dl, creatinine 1.2, INR 1.54. Pelvi-abdominal ultrasound showed hepatomegaly (19 cm) with bright homogenous echopattern with no focal lesions, splenomegaly (14.5 cm), moderate clear free ascites, bilateral moderate pleural effusion. Portal vein duplex showed patent portal vein, hepatic veins and IVC with normal flow.

Over the following 10 days, TLC and platelet counts improved but CBC showed absolute eosinophilia. His PT was doubled and total bilirubin rose to 26 mg/dl with a direct of 13 mg/dl and ALT and AST decreased gradually, s.creatinine reached 2.5 mg/dl. He developed recurrence of high-grade fever and generalized maculopapular erythematous rash. A blood culture revealed enterococci sensitive to vancomycin and linezolid. Vancomycin was started. Steroids were given for possible DILI and drug induced skin eruption. Liver transplantation was discussed due to worsening of rash, jaundice and fever and vancomycin was replaced by linezolid.

A skin biopsy was taken. PCR for COVID19, HBV, HCV, CMV were negative but CMV IgM and HBcAb IgM were positive and EBV IgM equivocal. Auto immune hepatitis markers and cryoglobulins were negative. Skin biopsy revealed secondary infected lichenoid reaction (showing hyperkeratosis, acanthosis and perivascular lymphocytic infiltrate).

The patient was diagnosed as a case of DRESS syndrome. All suspected medications were stopped. The patient was started on prednisolone and entecavir, and later on cellcept (MMF) was added. Steroids were tapered gradually after resolution of all symptoms. All laboratory markers and liver functions and enzymes were back to normal levels. He stopped all medications over the next 6 months.

DRESS is primarily a strong, drug-specific immune reaction that acts as a trigger of viral reactivation. Reactivation of several viruses of the herpes group, Epstein-Barr virus and cytomegalovirus is frequent in DRESS. Histopathologic examination of a skin biopsy reveals a variable combination of acanthosis, interface vacuolization, a lymphocytic infiltrate in the superficial dermis. Involvement of at least one internal organ occurs in approximately 90 percent of patients; in 50 to 60 percent of patients, two or more organs are involved, most frequently liver, kidneys, and lungs. The mainstay of treatment is stopping the offending drug and the use of systemic corticosteroids, but other options such as intravenous immunoglobulin, cyclosporine, mycophenolate mofetil, rituximab, and cyclophosphamide have been described.

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Abstract 57

Incidence et Facteurs Associés aux Patients Perdus de Vue sous Thérapie Antirétrovirale au Centre de Santé de Gbessia Port1 à Conakry

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Introduction: La thérapie antirétrovirale (TAR) tout au long de la vie améliore les résultats de santé des personnes séropositives, mais elle est compromise par une fréquentation irrégulière des structures de santé et par conséquent une mauvaise observance. Cette étude avait pour objectifs de déterminer l'incidence cumulée des PDV, d'estimer le taux de survie des patients suivis et d'identifier les facteurs associés au PDV des patients sous ARV.

Méthodes: Il s'est agi d'une étude de cohorte rétrospective réalisée à partir des patients sous ARV dans le site de prise en charge du centre de santé urbain de Gbessia Port1 à Conakry couvrant la période Mars 2014 à Janvier 2020. Les patients âgés (≥ 15 ans) inscrits de mars 2014 et janvier 2020, ayant été au moins initié le TAR il y a 6 mois, avec un suivi jusqu'en juin 2020 ont été inclus dans l'étude. Le statut perdu de vue était défini comme > 90 jours de retard pour un rendez-vous prévu. Le logiciel SPSS a été utilisé pour analyse de nos données. Les proportions avec les intervalles de confiance ont été utilisées pour résumer les variables catégorielles et les courbes de Kaplan Meier ont été utilisées pour estimer la probabilité de rétention ou la survie dans le programme. Les facteurs associés ont été identifiés à l'aide des risques professionnels spécifiques à la cause (uni et multivariés).

Résultats: Sur les 1435 patients (63,2% de femmes, 34% de ≥ 39 ans, 90% de stade 3/4 de l'OMS et 52,2% de taux de CD4 50-200 cellules / mm 3) et 78,5 % étaient non scolarisés, 5,6% avaient un IMC < 18,5kg/m2 (maigreur) et près de 45% avaient une charge virale de base >100000 copies/ml. 60,60% étaient suivis dans la cohorte contre 39,4% d'attrition (16,72% de PDV, 15,92% de décédés et 6,76% de transférés sortants). L'incidence cumulée des perdus de vue était à 16,5% en 24 mois (2 ans). La probabilité pour qu'un patient soit perdu de vue était respectivement de 5% à 6 mois, 25% à 12 mois, 40% à 24 mois, 59 % à 36 mois et 70% à 48 mois. Le taux de survie des patients sous ARV suivis dans notre cohorte variait d'une période à une autre ; étaient respectivement de 94,3% à 6 mois avec un IC% de (93,8 – 96,1) ; 86,7% à 12 mois avec un IC% de (76,7 – 90,7) ; 73,3% à 24 mois avec un IC% de (69,8 – 84,8) et 62,1% à 48 mois (4 ans) avec un IC% (53,9 – 71,4). Le niveau d'instruction, l'indice de masse corporelle, la classification de l'OMS au stade I et la charge virale de base < 1000 copies/ml étaient associées au PDV chez les patients sous TAR.

Conclusion: L'incidence des PDV des patients après le début du TAR est élevée dans notre étude, bien que la rétention des patients dans les soins deux ans après le début du TAR semble être plus élevée que dans certains programmes de TAR en Afrique subsaharienne. Le taux d'incidence de PDV augmente avec le nombre d'années suivant un TAR, et la rétention des patients à 4 ans est bien inférieure à l'objectif d'au moins 70% fixé dans le CSN sur le VIH, les IST (2018-2022).

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Abstract 58

Increased Blood Ammonia and Portohepatic Hemodinamic Disorders At the Nonalcoholic Steatohepatitis With Initial Liver Fibrosis

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Objectives: Ammonia is new therapeutic target for chronic liver diseases. Some experimental studies demonstrated effect of hypoammoniemic drugs for decrease of activity of hepatic stellate cells, improvement of endothelial function, liver microcirculation and prevention of liver fibrogenesis. Aims of our study: are to estimate blood level of ammonia, intrahepatic microcirculation and efficacy of ornithine (Hepa-Merz) for correction of such disorders at the chronic liver diseases.

Methods: We investigated 36 nonalcoholic steatohepatitis (NASH) and 35 HCV patients with initial fibrosis 0 - 2 stages. Level of ammonia was estimated by biochemical method (PocketChem BA, Arcray, Japan) in capillary blood at the patients and 29 healthy individuals (control).Intrahepatic hemodinamics are determined by polyhepatography (PHG) - modificated hepatic impedansometry, non-invasive method for integral estimation of intrahepatic blood flow by checking of tissue resistance to weak electric current. PHG registers a blood flow in projection of zone of hepatic right, left lobes and spleen, integral body impedansography. For correction of blood flow disorders we used hypoammoniemic drug ornithine (Hepa-Merz) in dosage 3 grams 2 times daily 4 weeks. Efficacy of LOLA we looked in 2 and 4 weeks via the control PHG and control of ammonia.

Results: Analysis of PHG demonstrated, that at all patients we revealed a liver microcirculation disorders - increased blood resistance, abnormal forms and amplitude of waves in sinusoidal level (out flow zone) at NASH patients and presinusoidal level (inflow zone) at viral patients. Level of ammonia in the NASH patients was 137.2 umol/L, in control group - 39.2 umol/L ($p < 0.001$). Hyperammoniemia was higher at the NASH patients, compared with viral patients higher (102.3 umol) ($p < 0.01$). Analysis of efficacy of Hepa-Merz showed, that it was effective for correction of hepatic hemodinamic disorders at all patients, in 2 weeks of the treatment we observed normalization or improvement of the wave form, in 4 weeks – wave amplitude. Level of ammonia was decreased in 2 weeks.

Conclusion: NASH patients with initial stages of liver fibrosis are characterized by hyperammoniemia, which is more pronounced in comparison with viral hepatitis. NASH is accompanied by disorders of intrahepatic microcirculation disorders in out flow zone. LOLA improved liver microcirculation and decreases of blood ammonia level at the NASH and HCV patients.

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Impact of the Carrying of Anti-HCV Antibodies in Diabetic Subjects and Associated Factors: Case of the Diabetology Unit of Laquintinie Hospital, Douala, Cameroon

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Background: Diabetes and hepatitis C virus infection are real public health problems. Many authors worldwide have reported a relationship between these two pathologies. However, the epidemiological data in Cameroun are scarce. This study was to ascertain the carriage rate of hepatitis C antibodies among diabetic subjects at Laquintinie Hospital, Douala, Cameroon.

Methodology: A cross sectional study was carried out from 61 patients at Laquintinie Hospital. The HCVAb detection was performed by Rapids diagnosis tests based on immunochromatographic principle (Diaspot-HCVAb) to each participant after consent. The results were then analyzed using SPSS version 16.0 software and for $p<0.05$, the difference was statistically significant.

Results: We noted a predominance of the male sex with a percentage of 52% (n = 32) against 48% (n = 29) for the female sex is a sex ratio of 1.1. The age group most represented in our study was that of 60 to 70 years or 34.4% (n = 21), with an average age of 61.13 ± 12.23 years (standard deviation). The overall incidence was 13.1% (n = 8). The slice with the highest positivity was that of [30-40 [(n = 03). The incidence was 8.6% for males (n = 05) compared to 6.1% for females with a sex ratio of 1.6. The incidence in transfused persons was 67.7% (n = 4). 9.8% (n = 6) of patients with AcHCV had jaundice and 3.2% (n = 2) of patients with AcHCV had tattoos.

Conclusion: The overall incidence was 13.1% (n = 8) or 8.6% (n = 05) for males compared to 6.2% for females with a sex ratio of 1.6. The incidence in patients who consumed alcohol was 20%. 100% incidence in patients with tattoos. Screening for HCV in diabetics should be systematic and preventive measures such as prophylaxis, to reduce the risk of HCV infection.
Keys words: Anti-HCV antibodies, factors, diabetics, Douala Laquintinie Hospital

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Abstract 60

Chronic Hepatobiliary Complications in Nigerian Children with Sickle Cell Anaemia

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Introduction: Hepatobiliary abnormalities occur commonly in sickle cell anaemia and these have been extensively reported in the adult patients. However, chronic complications has been sparsely reported in children especially in the sub-Saharan African continent. This study aims to highlight the chronic hepatobiliary complications in this group of children identified with clinical examination, laboratory testing and abdominal ultrasonography. The challenges in a resource limited country are also highlighted.

Methods: One hundred and thirty four children (134) aged 1-18years with sickle cell anaemia were recruited into this crossectional study. Clinical history and thorough physical examination obtained were documented. Relevant basic haematologic and biochemical indices (Full blood count, liver enzymes and viral markers for hepatitis B and C) and abdominal ultrasonographic parameters were documented for all the children. The relationship between the complications and possible risk factors (age, frequency of crisis and blood transfusions) were also documented.

Result: Fifty three (39.6%) of the children had hepatobiliary abnormalities. Chronic hepatitis B infection was the most prevalent complication (14.9%) seen followed by cholelithiasis (12.7%) and Hepatitis C infection (4.5%). Other complications identified were cholecystitis (3.0%), biliary sludge (1.5%), liver cirrhosis (0.7%). Age was significantly associated with viral hepatitis (p=0.003) and cholelithiasis (p=0.0007) and the conditions were more prevalent in the older age group. The hepatobilary complications were also more prevalent in the males. Frequent blood transfusions was significantly related to viral hepatitis (p=0.03). The use of hydroxyurea was not significantly related to any of the complications

Conclusion: Chronic hepatobiliary abnormalities are prevalent in paediatric sickle cell anaemia. Clinical screening and the use of ultrasonography would aid early diagnosis and appropriate therapeutic intervention in this group of children.

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Presented at Conference on Liver Disease in Africa 2021
Abstract 61

Expression of Beclin1 in Pediatric Liver Biopsies With Steatosis :An Immunohistochemical Study

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Background & objectives: Steatosis is in alarming increase among pediatric liver biopsies. Identifying the exact etiology for steatosis is challenging. Recently autophagy has been implicated in pathogenesis of non alcoholic fatty liver diseases (NAFLD) and thus regulation of autophagy may has a therapeutic potential. Beclin1 has a central role in autophagy and it is increased during periods of cell stress. The aim of this study was to evaluate immunohistochemical expression of Becin 1 in pediatric liver diseases with steatosis and to correlate the results with the available clinicopathological data.

Materials and methods: Paraffin blocks from pediatric liver biopsies with steatosis were retrieved from Pathology archieves, National Liver Institute, Egypt. Study was done on 33 cases with metabolic liver disease and 40 cases of chronic liver disease (CLD) with steatosis. Semi thin sections were cut on positive charged slides and applied for beclin1 immunohistochemistry. Scoring of steatosis and Beclin 1 expression were determined.

Results: Chronic liver disease (CLD) with steatosis group was associated with older age group (p=0.07).
There was no statistical significant difference between both studied groups regarding steatosis (p=0.154).
Beclin1 showed strong and diffuse expression in chronic liver disease(CLD) with steatosis group rather than metabolic group (p=0.016 and p=0.005, respectively).

Conclusion: In view of strong and diffuse expression of Beclin1 in the group of chronic liver disease (CLD) with steatosis, it might has a role in pathogenesis and diagnosis of the etiology of steatosis in pediatric liver biopsy. Also it might has a role as a potential therapeutic target.

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Presented at Conference on Liver Disease in Africa 2021
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Screening for Liver fibrosis in children and adolescents with sickle cell disease with the use of the APRI and FIB4 score in a resource limited setting: A comparative study.

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Background: Liver fibrosis may develop in children with sickle cell disease due to recurrent hemolysis and multiple infarctions in the liver. Additionally, infection by the hepatotrophic viruses, and iron overload from multiple blood transfusions may contribute to liver fibrosis. Liver biopsy remains the gold standard for the diagnosis of fibrosis. Recently, non-invasive markers, such as transient elastography, have been found to be accurate in the assessment of liver fibrosis. Liver biopsy is fraught with many difficulties, while the cost of transient elastography using the Fibroscan ® machine is prohibitive in a resource-poor setting like Nigeria. It is for these reasons that the WHO has advocated the use of non-invasive tests (NITs), such as aspartate aminotransferase to platelet ratio index (APRI) and fibrosis index (FIB-4), to assess liver fibrosis in these settings. The aims of this study were to determine the prevalence of liver fibrosis in children with sickle cell anaemia (SCA) using APRI and FIB-4 scores, compare the APRI and FIB-4 scores in these children, and to determine the association of fibrosis with viral hepatitis status.

Methods: This cross-sectional pilot study was part of an ongoing study of a cohort of children with sickle cell anaemia who were evaluated for chronic hepatobiliary complications. Of the total cohort, 112 children were eligible for this study. The children in the cohort were consecutively recruited from the Gastroenterology and Haematology clinics of the paediatrics department of the Lagos University Teaching Hospital over a 3-month period. Full blood count, Liver function test, and viral markers (Hepatitis B surface antigen, Anti C viral antibodies) were documented for each study participant. Retroviral status was also documented.

Results: Three (2.7%) of the study participants had APRI and Fib-4 scores suggestive of advanced fibrosis. Five (4.5%) children had scores in the cirrhotic range according to APRI but the fib-4 score only identified 1(0.9%) participant in the cirrhotic range. Both scores were significantly related to the BMI and the use of hydroxyurea. The scores were not significantly related to age, gender, HepB status or anti HCV antibody status. The FIB-4 score and APRI score had significant inverse correlation with the serum albumin (p=0.034, p=0.006 respectively).

Conclusions: The FIB-4 score and APRI scores are useful in screening for fibrosis in children and adolescents with SCA in low to middle income countries where techniques such as fibroscan and liver biopsy are not readily available. There is still the need for further validation of these scores in this group of children with larger longitudinal studies in the sub-Saharan Africa continent.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
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Assessment of Hepatocellular Carcinoma Surveillance Practices in Africa

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Background: Hepatocellular carcinoma (HCC) represents a significant burden with high mortality in Africa. An important factor associated to HCC-related death is late diagnosis due to lack of surveillance. Despite the relative ubiquity of HCC in Africa there is a lack of a continental body to provide surveillance recommendations in high-risk groups. We conducted a survey of medical practitioners in Africa to evaluate the knowledge and practice of HCC surveillance in patients at risk.

Material and methods: We designed and implemented a 20-question survey inquiring about approach to HCC surveillance including, among other questions, which international guidelines providers followed. The survey was anonymous and distributed via email and phone messaging to 15 countries in Africa. Distribution was performed by contacting all African gastroenterology societies that participate in the World Gastroenterology Association via email with request to distribute the survey to their members. The survey was open for 5 weeks on May-June 2021.

Results: We received 114 responses from 7 countries. 94 (82%) respondents were male and the median age was 32 years (IQR 29–36). Respondents from Uganda comprised 43% of the entire cohort, followed by Nigeria (32%) and Ethiopia (13%). Gastroenterology consultants and hepatologists made 17% of respondents, while 35% were general practitioners or medical officers, and 34% were registrars, residents, or house officers. Half of respondents had less than five years of medical practice, while 76% had internal medicine training, with gastroenterology training in 42%. The number of HCC cases seen by respondents in a month was less than 1 (41%), 1 – 5 (40%), and greater than 10 (11%). 73% of respondents indicated they perform surveillance for HCC in individuals with HBV or cirrhosis. Among those that do not, lack of resources (57%) and lack of patient follow up (23%) were cited as primary reasons for not conducting surveillance of HCC, and 10% reported not knowing to screen. The most common modality for HCC surveillance was a combination of ultrasound and alpha-fetoprotein (71%), but surveillance was only carried out every 6 months by 46% of respondents, and 26% of respondents reported carrying out one-time surveillance. Interestingly, 1% of all practitioners relied on clinical signs and symptoms to detect HCC. Guidelines for HCC surveillance from the AASLD were more commonly followed in East Africa compared to all countries (73% vs 67%), and overall 26% followed EASL recommendations, with only 2.3% followed APASL guidelines and 4% other (i.e. hospital protocol).

Conclusion: Our study sheds light on the practices of HCC surveillance among medical providers in Africa. The majority of participants conducted some form of HCC surveillance on patients at risk with most following AASLD guidelines. Creation of appropriate surveillance guidelines specifically tailored to the continent's risk factors and resources is critical to aid in the reduction of poor outcomes associated with HCC in Africa.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
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Immunohistochemical Expression of Icos in Hepatocellular Carcinoma in Egypt and How It Would Affect the Prognosis

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Objectives: To study the expression of Inducible T-cell CO Stimulator (ICOS) in HCC cases and non-neoplastic liver as a control group in Egypt and its correlation with different clinicopathological and prognostic factors.

Introduction: Hepatocellular carcinoma (HCC) is a malignant neoplasm of hepatocytes. HCC is the sixth most common cancer worldwide, fifth in men and seventh in women. Worldwide, liver cancer is the second cause of cancer mortality, after lung cancer. In Egypt, it represents the fourth common cancer and forms 1.68% of the total malignancies. HCC is the most common cancer in males and the second in females. Various treatment modalities have been applied, but it's still challenging especially for those who are inoperable, hence the desperate need for more information about tumor immunity and tumor infiltrating lymphocytes, which are a class of cells that shape the tumor microenvironment and therefore affect carcinogenesis, and how to benefit from it.
ICOS is a T-cell specific molecule that is a member of the extended CD28/B7/CTLA-4 immunoglobulin superfamily. The CD28/B7/CTLA-4 costimulatory pathway has a crucial role in regulating T-cell activation and tolerance. It is related to T cells and recent studies have shown that ICOS may have certain functions involving the proliferation and invasion of tumors.

Materials and methods: This retrospective study included 114 hepatocellular carcinoma cases and 54 non neoplastic liver tissue. All specimens were obtained from Egyptian patients either by partial hepatectomy or total hepatectomy procedures and retrieved from the archival material of Pathology Department, National Liver Institute, Menoufia University, during the period between 2010 and 2020. Immunohistochemistry was performed according to published protocols and using ICOS as the primary antibody with human tonsil as positive control.

Results: revealed that most of the studied cases were in their fifties with median age (58 years old), 78% (89/114) were male and 22% (25/114) were female. 95.6% (109/114) were positive HCV and 4.4% (5/114) were positive HBV. Immunohistochemistry using ICOS antibody was done on both tumor and non-tumor liver tissue and the infiltrating lymphocytes. Assessment of ICOS expression was done and revealed that 100% (54/54) of the non-tumor liver tissue cases (non-neoplastic hepatocytes) showed low ICOS expression, about 21.05% (24/114) of the HCC cases (malignant hepatocytes) showed high expression. ICOS expression was high in normal infiltrating lymphocytes in 20.37% (11/54) of non-tumor cases, while it was high in tumor infiltrating lymphocytes in about 36.84% (42/114) of HCC cases.

Conclusion: On the basis of 114 Egyptian cases with hepatocellular carcinoma and 54 cases with non-tumor liver, ICOS was highly expressed in 21.05% (24/114) malignant hepatocytes and 36.84% (42/114) in tumor infiltrating lymphocytes. While in non-tumorous cases, ICOS was highly expressed in 20% (11/54) in normal infiltrating lymphocytes and low expression in non-neoplastic hepatocytes in 100% (54/54) all non- tumorous cases. And that would definitely affect the prognosis and help introducing immune modulating treatment for Egyptian HCC patients as it showed promising results with different tumors in clinical trials and clinical practice.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
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Hepatitis B, C and D Virus Infections and Risk of Hepatocellular Carcinoma in Africa: A Meta-Analysis Including Sensitivity Analyses for Studies Comparable for Confounders

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Background: Africa denotes unique facies for hepatocellular carcinoma (HCC) characterized by a conjunction of low sensitization, restricted access to diagnosis and treatment, and associated with the highest incidence and mortality in the world. We investigated whether hepatitis B (HBV), C (HCV) and D (VHD) viruses were etiological agents of HCC in Africa.

Material and Methods: Relevant articles were searched in PubMed, Web of Science, African Index Medicus, and African Journal Online databases, until March 2021, as well as manual searches in relevant reviews and included articles. Analytical studies from Africa evaluating the association between HCC development and HBV, HCV, and HDV were included. Relevant studies were selected, data extracted, and the risk of bias assessed independently by at least 2 investigators. The association was estimated using odds ratios (OR) and their 95% confidence interval (95% CI) determined by a random-effects model. Sources of heterogeneity were determined by subgroup analyses.

Results: A total of 36 case-control studies were included. With controls having non-hepatic disease, the overall results suggested a significantly increased risk of HCC in patients with HBV (HBeAg (OR= 19.9; 95% CI= [3.7-105.2]), HBsAg (OR= 9.9; 95%) CI= [6.2-15.6]) and DNA (OR= 8.9; 95% CI= [5.9-13.4]); HCV (Anti-HCV (OR= 9.4; 95% CI= [6.3-14.0]) and RNA (OR= 16.5; 95% CI= [7.8-34.6]); HDV (Anti-VHD, (OR= 25.8; 95% CI= [5.9-112.2]); and HBV/HCV coinfections (HBV DNA/HCV RNA (OR= 22.5 ; 95% CI= [1.3-387.8]). With apparently healthy controls, the overall results suggested a significantly increased risk of HCC in patients with HBV (HBsAg, (OR= 8.9; 95% CI= [6.0-13.0]); HCV (Anti-HCV, (OR= 7.7; 95% CI= [5.6-10.6]); HDV (Anti-HDV, (OR= 4.7; 95% CI= [1.1-20.3]); and HBV/HCV coinfections (HBsAg/Anti-HCV (OR= 7.8; 95% CI= [4.4-13.6]) Substantial heterogeneity and the absence of publication bias were recorded for these results.

Conclusions: Taking into account a wide range of confounders, the findings of this review suggest that HBV/HCV coinfections and HBV, HCV, and HDV infections are associated with a high risk of the occurrence of HCC in Africa. The implementation of large-scale longitudinal and prospective studies including healthy participants to search for early biomarkers of the risk of progression to HCC is urgently needed.
Funding: Dr Sebastien Kenmoe has received a Fellowship from AREF/EDCTP (VARIAFRICA-TMA2019PF-2705) to gain on-the-job training in conducting systematic reviews and meta-analysis in the Centre for Global Health, Usher Institute, University of Edinburgh, United Kingdom and to develop an investigator group in Africa
Keywords: Hepatocellular carcinoma; Hepatitis B Virus; Hepatitis C Virus; Hepatitis D Virus; Africa

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
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Prevalence and Associated Factors of Ascitic Decompensation in Tunisian Patients With Acute Variceal Bleeding

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Introduction: Variceal bleeding is an acute event disturbing the course of cirrhosis and can trigger others complications. Among them, ascitic decompensation is a frequent issue in variceal hemorrhage and may complicate the management of the patient. However, associated factors are not well studied.

Aims & Methods: The aim of our study was to determine the prevalence of decompensation in patients presenting with variceal bleeding and to investigate the associated factors. A retrospective, monocentric study was conducted including cirrhotic patient hospitalized for variceal bleeding over nine years (2010-2018). Patients with history of ascites or having non-cirrhotic portal hypertension were excluded. Clinical, biological, morphologic data and outcomes were collected. For each patient we have calculated the following non-invasive scores: Meld, Fib-4, APRI, King's score, platelet to spleen diameter and PALBI score. Patients who had developed ascites were compared to those without ascites.

Results: Sixty-six inpatients hospitalized for acute variceal bleeding were included. The mean age was 55.23 ± 14.30 years with a sex ratio (M/F) of 0.9. The main etiologies of cirrhosis were: hepatitis C (27.3%), hepatitis B (16.7%), non-alcoholic steatopathy (10%). Mean Blatchford score was 11.22 ± 14.17. All patients were treated with endoscopic band ligation with successful primary hemostasis obtained in 95% of patients. Ascitic decompensation was observed by abdominal ultrasound in 26% (N=24) of cases. Patients developing ascites had significantly higher APRI (mean 2.22 versus 1.34, p= 0.033), Meld (mean 13.63 versus 10.22, p=0.018), King's score (mean 55.64 versus 31.26, p= 0.039) and PALBI (mean -2.349 versus -1.973, p <0.001). Also, transfusion (p=0.04) and body mass index > 25 kg/m2 (p=0.05) were significantly associated with the presence of ascites. On multivariate analysis, only PALBI was a predictor of decompensation (p=0.002), with an area under the ROC curve of 0.762 (p=0.001, 95% CI: 0.634–0.890).

Conclusion: In our study, ascitic decompensation occurred in nearly one-quarter of patients with acute variceal bleeding. Abdominal ultrasound should be performed in patients with risk factors in order to detect timely any ascitic decompensation.

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Presented at Conference on Liver Disease in Africa 2021
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Prevalence and Risk Factors of Bacterial Infection Recurrence in Cirrhotic Patients After the First Episode

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Background: Spontaneous bacterial infections are a common cause of morbidity and mortality in cirrhosis. Pathogenesis is based on the association of an immunosuppressive state and excessive pro-inflammatory response. Infectious complications occur in patients with advanced disease, most often when decompensated. As a marker of severity, these infections contribute to the deterioration of an already very precarious situation. Prevention is therefore a major challenge. However, recurrent infections are not uncommon in cirrhotic patients due to immunocompromised condition, and are particularly associated with poor outcomes.

Methods: The aim of our study was to determine the recurrence rate after a first infection and to identify risk factors for subsequent bacterial infections in cirrhotic patients hospitalized for a first episode.
We have conducted a retrospective study including patients with cirrhosis at first hospitalization for bacterials infections. Patients with hepatocellular carcinoma or under immunosuppressive therapy were excluded. Demographic, clinical, laboratory, bacteriological and liver-specific data were collected during hospitalization. Patients then were followed over a mean period of 17 months. Prevalence of infection recurrence was determined and risk factors were investigated.

Results: Overall, eighty patients were included. The mean age was 63 years with a M/F sex ratio of 1. Viral hepatitis was the most frequent etiology, diagnosed in 35 patients (44%), with a predominance of viral hepatitis C (29% of cases). Severity of cirrhosis was classified as Child-Pugh A in 5% of cases, Child-Pugh B in 45% and Child-Pugh C in 50%. At the first episode, urinary and ascites sites predominated (31% and 24%). The germ was isolated in 37 patients (46%) with predominance of Gram negative bacilli and multi-sensitive bacteria. In our study, 10 patients (12%) died after the first infectious episode and 10 others were lost to follow-up. Of the 60 patients who were subsequently followed up regularly, 28 (35%) had a recurrence of bacterial infection which was at the same site in nine cases. Urinary tract infection was the main site of recurrence. One or more complications occurred in 20 patients. Septic shock was the most frequent complication, occurring in 13% of cases, followed by hepatic encephalopathy in 11% of cases. The factors associated with recurrence of bacterial infection after a first episode were the advanced Child-Pugh stage B (p=0.04), stage C (p=0.02) and grade III esophageal varices (p=0.046).

Conclusion: Recurrence of spontaneous bacterial infection is not rare in cirrhosis with a prevalence of 35%. Patients with advanced liver disease and large varices should have close bacteriological monitoring after a first infection in order to detect and manage timely any recurrence.

Reviews in Antiviral Therapy & Infectious Diseases 6, 2021
Presented at Conference on Liver Disease in Africa 2021
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AFP as a Weak Marker for the Diagnosis of Atypical Hepatocellular Carcinoma (HCC) Case

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Introduction: HCC is a leading cancer in sub-Saharan Africa and the second leading cause of death from malignancy in the world, with a higher incidence in patients with chronic liver disease, greater epidemiological impact on viral causes. Mozambique is considered endemic for HBV, being responsible for 80% of the CHC in Sub-Saharan Africa. AFP assay (Abelev, et al.1963), is used for tracking and follow up HCC worldwide. It is particularly indicative at concentrations > 200 U/mL [1-2 U/mL], although 20% of HCCs do not show elevated AFP values and moderate increases can be found under other conditions.

Case report: 82-year-old man, black, hypertensive and controlled diabetic, BPH with tamsulosin. History of right popliteal DVT (70% obstruction) in 2015, stroke in 2009, with cognitive sequelae. No history of alcoholism, smoking and family cancer. In February/2021, he presented with low back pain, difficulty in walking, lower limbs edema and hepatomegaly on physical examination.
Studies: WBC: 4.5x103; HGB: 12.2g/dL; PLT: 257x103; VS: 60mm/H; normal ionogram and renal function; Glyc: 4.34mmol/L [3.5-5.6]; Cholesterol: 5.60mmol/L [0.0-5.20]; AST: 79.0U/L [<35]; ALT: 69U/L [<35]; ALP: 214U/L [30-120]; GGT: 1366.6U/L [<38]; DHL: 194U/L [<247]; ALB: 44g/L [35-50]; INR: 1.17; HIV, Hepatitis B and C: negatives. AFP: 16.19U/ml [0.0-2.0]; CA19-9, CA15-3, CEA and PSA: normal. Child Pugh: Score 5, class A. Abdominal US: Hepatomegaly with solid mass in the right lobe, heterogeneous ecostructure and apparent central necrosis, measuring 13.3x11.6 cm, suggestive of Sarcoma/atypical HCC. Contrasted abdominal CT: large expansive liver mass, encapsulated, circumscribed aspect, with benign aspect, but malignancy is not ruled out. Liver Biopsy: Well-differentiated Hepatocellular Carcinoma.
BCLC: Stage C, started sorafenib.

Conclusion: AFP assay has been shown to be a precarious marker and new tumor biomarkers should be investigated and biopsy is more useful for the confirmation of HCC, especially in atypical cases with clinical presentation.

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Presented at Conference on Liver Disease in Africa 2021
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The Hepatocellular Carcinoma's Risk Factors Among in-Hospital Patients at the University-Teaching Hospital Yalgado OUédraogo in Ouagadougou, Burkina Faso: A Case-Control Study

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Introduction: Our objective was to identify the risk factors of the primary liver cancer occurrence among hospitalized patients in the gastro-enterology unit of the university teaching hospital Yalgado Ouédraogo.

Methods: We implemented a case-control study and collected data from 1st January 2012 to 31st December 2015. Controls were recruited among blood donors. Cases were selected among patients visiting the gastro-enterology unit of the Yalgado Ouédraogo Hospital. Cases were matched to the controls using age and sex variables. In our multivariate logistic regression model, the outcome variable was the occurrence of the liver cancer. The main independent variable was the chronic carriage of the hepatitis B surface Antigen (HbsAg) .

Results: We included 92 cases and 92 controls. The sex ratio was 3. Chronic carriage of HBsAg was diagnosed among 14.13% and 76% of controls and cases, respectively. The anti-HCV Ab test was positive in 15.22% of the cases and 4.35% of the controls. Being 50 years or older, HbsAg chronic carrier, farmer or working in the informal sector or living in a provincial capital were the main statistically significant risk factors to develop primary liver cancer.

Conclusion: In Burkina-Faso, liver cancer patients reached out to hospital very late. Our best tools to reduce the incidence and the mortality due to the primary liver cancer include immunizing largely against the HBV infection taking into account the birth dose; and managing adequately the cases of HBV and HCV infections.

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Presented at Conference on Liver Disease in Africa 2021
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Risk Factors for Liver Cirrhosis in Jos University Teaching Hospital, Jos, Nigeria

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Background: Liver cirrhosis is the end result of hepatic injury from various aetiologies. Cirrhosis is defined histologically as a diffuse hepatic process characterized by fibrosis and the conversion of normal liver architecture into structurally abnormal nodules.(1) It is associated with significant mortality and morbidity. According to the Global Burden of Disease (GBD), liver cirrhosis caused more than 1.32million deaths in 2017 out of which Sub-Saharan Africa had the highest age-standardised death rates.(2) Because causes of liver cirrhosis may vary in different regions, it is important that hepatologists identify specific risk factors for liver cirrhosis prevalent in their areas of practice.

Aim: To identify the common risk factors for liver cirrhosis in Jos University Teaching Hospital.
Methodology: This was a retrospective hospital based study in which patients with liver cirrhosis attending the medical out-patient department were recruited. Liver cirrhosis was defined by liver fibroscan stiffness >12.5kpa and/or ultrasound features of liver cirrhosis (shrunken liver <12cm, coarse echotexture and irregular outline). Biodata and other relevant information was obtained using a structured questionnaire. Patient's blood samples were analyzed for hepatitis B and C, liver function test and clotting profile.

Results: 230 patients were recruited into the study. 191 (83%) were males and 39 (17%) were females with a male-female ratio of about 5:1. Most subjects had tertiary level of education (134 (58.4%)) and resided in Urban areas (134 (58.4%)). The mean age of the subjects was 41.9±11.0 years. Thirty (13%) of the subjects had positive family history of liver disease. One hundred and five (45.7%) subjects had stigmata of chronic liver disease (CLD), while 125(54.3%) had no stigmata of CLD. 44.3% had ascites. A total of 161 (70%) had HBV infection: 54.5% having only HBV infection, 2.6% had HBV and HCV co-infection and 11.7% had HBV infection and significant alcohol use. About 16% had HCV infection and 30.4% had significant alcohol consumption. Interestingly, 6.5% had no recognizable risk factor.

Conclusion: HBV infection, although a preventable disease still remains the most important risk factor for liver cirrhosis in our environment. There is therefore a clear need for stakeholders to review current strategies and make concerted efforts to improve HBV infection prevention and treatment.