SJ Public Health Africa
Vol. 1 No. 10 (2024): October 2024 Issue
https://doi.org/10.51168/fgyt3p58
Original Article

PREVALENCE OF HEPATITIS B VIRUS AMONG HIV PATIENTS BETWEEN 15 - 35 YEARS ATTENDING RUKUNYU HOSPITAL, KAMWENGE DISTRICT.A CROSS-SECTIONAL STUDY.

Ivan Byamukama, Ivan Awach Ogwal*
St Francis Schools of Health Science -Uganda Institution of Allies Health

ABSTRACT

Background

Hepatitis B virus (HBV) is a viral infection comprised by the presence of hepatic leucocytes HBVs in the cytoplasm of the hepatocytes. Hepatitis B viral infection attacks the liver and causes acute and chronic disease.

Method

A cross-sectional study was carried out at Rukunyu Hospital Kamwenge to determine the prevalence of hepatitis B virus infection among HIV patients aged 15 - 35 years old on 111 respondents. Quantitative data collection was used, and the questionnaires were given to the consented participants to fill out for current data collection for new cases. A laboratory medical book register was requested from laboratory staff for old cases to find the prevalence of HBV.

Results

A total of 111 HIV patients were tested for HBV of which 23 HIV patients tested positive and 88 tested negative.Socio demographically, most of participants were females 63(56.8%) and males being 48(43.2%) Married participants being 61(55.0%) , single 27(24.3%) , divorced were 14(12.6%) participants and last being widow/widower 9(8.1%). The majority of the participants had started and reached at least in secondary level, however, some few were ongoing students and the prevalence of Hepatitis B virus among HIV patients was high in the age group of 26-30 years old.

Conclusion

The prevalence of Hepatitis B was highest among the ages of 26-30 years old, the prevalence and treatment challenges are still the biggest problem due to risk factors of HBV infection such as having multiple sex partners, sharing of clothes, blood transfusion, and intravenous injections seen to bring added risks.

Recommendation

As per the research study findings, there is a need for further research to be done such as setting up more health centers or hospitals to provide HBV screening among patients living with HIV to curb the HBV spread.

Keywords: *Prevalence, Hepatitis B Virus, HIV Patients, Rukunyu Hospital, Kamwenge District.*
Submitted: 2024-04-14 Accepted: 2024-09-29

*Corresponding Author: Ivan Byamukama**
St Francis Schools of Health Science -Uganda Institution of Allies Health

INTRODUCTION

Hepatitis B is a viral infection that attacks the liver and causes both acute and chronic disease. It is generally the global health that brings about liver infection caused by the hepatitis B virus, leading to chronic infection or acute infection thus putting people at risk of death due to cirrhosis liver cancer (hepatocellular carcinoma), (WHO July 2016)
Hepatitis B is mostly transmitted via mucosal exposure to the infected blood or other body fluids. This infection can also be observed to come from mother to child during birth, contact with infected surfaces like needle sharing, and clothing. Also, people who tested positive for HB surface antigen HBs Ag likely transfer the infection to sexual partners and thus need to rule out carriers in the community to eliminate hepatitis B infection. Globally, about 2 billion people are exposed to hepatitis B in the world, with Africa contributing 25% of the Global burden and about 1% of people living with HBV which is 2.7 million people are infected with the Human Immune Deficiency Virus. The prevalence of HBV infection in HIV patients is 7.4%, (WHO,2015). The WHO (2019) estimates 296 million people with chronic HBV, 1.5 million people are infected each year and 820000 deaths are estimated mostly from hepatocellular carcinoma.HBV infection is 50 to 100 times more infectious than HIV. Its resilience allows it to for more than a week on dry substances hence complicating its epidemiology. According to WHO, countries in Asia, Africa, and South America have carrier rates of 8%. Sub-Saharan Africa has a highly endemic rate of 20% infection on the global burden, with Central, Eastern, and Southern

Africa having (5-7%) high intermediate and then Northern Africa having low prevalence of HBV (2-4%).
The study aims to determine the prevalence of the Hepatitis B virus among HIV patients aged between 15-35 years attending atRukkunyu Hospital- KamwengeDistrict.

Specific objectives

- To determine the prevalence of Hepatitis B virus among HIV patients 15 - 35 years attending Rukunyu Hospital.
- To identify the risk- factors of the Hepatitis B virus among HIV patients aged 15-35 years attending Rukunyu Hospital.
- To assess the treatment challenges for hepatitis B virus infection among HIV patients aged 15-35 years attending Rukunyu Hospital, Kamwenge District.

METHODOLOGY

Study Design

The study was carried out using a descriptive cross-sectional study design and it had to provide information concerning the situation at a given time, by doing so, the status of the HIV patients concerning the presence or absence of Hepatitis B virus was assessed and involved data collection and measuring prevalence using the hospital-based test specific for Hepatitis B virus screening.

Study Area

The study was carried out at the ART clinic of Rukunyu Hospital located in Kamwenge District WesternRegion of Uganda which is 54.7 kilometers from Buhinga RegionalReferral in Fortportal City, and 125 kilometers from the Mbarara Regional Referral Hospital. Rukunyu Hospital is considered to be a District Referral hence large numbers of HIV patients with hepatitis B coinfection were expected to be high thus aiding the research study in terms of case availability.
The study was carried out in Rukunyu Hospital, June-October 2023 and later Data was analyzed and compiled.

Study population

The study population embraced all Hepatitis B patients with HIV to attend the Art clinic before the sample size was obtained with free will to consent to participation in the study.

Sample size determination

The sample size was determined using Kish and Leslie's (1970) formula i.e.
Where;
n = Estimated sample
Z= (score for 95% confidence interval)

$$n = \frac{Z2pq}{d}$$

p = prevalence of Hep B as 7.9% according to Emmanuel*et al.*, (2022).
d= Allowancesampling error
q= (1-P) which is the population without the desired characteristics. Given that; Z=1.96, p=0.079, q=1-P, d=0.05
Therefore;

$$n = \frac{(1.96)2x0.079\ x\ (1 - 0.079)}{(0.05)2}$$

$$n = \frac{(0.3034864\ x\ 0.921)}{(0.0025)}$$

n = 111
Based on the calculation, the study sample had 111Participants.

Data collection method

The Data was collected using the Quantitative method to determine the prevalence and to identify the risk factors and treatment challenges of Hep B virus infections among HIV patients attending the Art clinic at Rukunyu Hospital by use of Questionnaires and Interviews respectively.

Data collection tool(s)

Data was collected using interviews based on pretested questionnaires consisting of closed-ended and written in simple language to facilitate the collection of only necessary information from respondents. Data collection sheets were used to extract information from laboratory registers and this facilitated necessary information. Pens were also used to note necessary information.

Questionnaires

Data was collected using interviewer-administered questionnaires and pre-tested to collect information regarding the objectives of the study. This is because interviewer-administered questionnaires removed the necessity of the respondent being literate.

Data collection procedure

This included obtaining a permission letter from the research committee of St. Francis Schools of Health Sciences which was presented to the Medical Superintendent Director/ Head of Department at Rukunyu Hospital and permitted to conduct research from there. Also, a
letter seeking consent was presented to the participants and blood samples were collected in EDTA or Red top vacutainer tubes from the coinfection of hepatitis B and HIV patients with consent.

Experimental procedure

An experimental study involving specimen collection and processing was used to determine the prevalence of Hepatitis B virus infection among HIV patients aged 15 to 35 years attending Rukunyu Hospital Kamwenge, District. 4 ml venous blood from the respondent was collected EDTA bottle and HBsAg strips were used to screen for the presence of Hepatitis B virus in respondents' samples. From the same sample, HIV status was determined to rule out Hepatitis B co-infection with HIV using HIV 1/2 Determine. The results from both tests were read after 15 minutes to eliminate false negative results.

Study variables

Dependent variables

The dependent variable was the prevalence of the Hepatitis B Virus among HIV patients aged 15-35 years attending Rukunyu Hospital Kamwenge District. It was obtained by testing respondents, where the expected results acted as the proportion of respondents with Hepatitis B infection.

Independent variables

The independent study variables that were considered in the study area are;

Socio-demographic characteristics of respondents (sex, age, marital status, education, and residence).

Risk factors for HBV infection among HIV patients attending Rukunyu Hospital, Kamwenge District.

It was determined by asking respondents about those having more than one life sexual partner, condom use during sexual intercourse, and others.

Treatment challenges of HBV infection among HIV patients attending Rukunyu Hospital, Kamwenge, District.

Respondents will be asked, whether Hepatitis B immunization or vaccination services were available at nearby health facilities.

Quality control

Piloting the study

Piloting the study was done for one week before collecting the actual data; this gave knowledge about the challenges of the study at Rukunyu Hospital, Kamwenge District.

Pre-testing

The data collection tools such as the questionnaires were carried out before use in the study.

Selection criteria

Inclusion Criteria

All HIV patients attending Rukunyu Hospital Kamwenge District with consent to participate, were involved in the study.

Exclusion Criteria

All HIV patients attending Rukunyu Hospital Kamwenge District, who are below 15 years and above 35 years old.

Data analysis, presentation, and management.

After data collection, each questionnaire was checked for completeness and any gaps identified had to be filled immediately before HIV patients leave. The questionnaires (appendix II) were kept safe and raw data was analyzed using SPSS and presented information of frequency tables, graphs, and charts.

Ethical considerations

An introductory letter from St Francis Schools of Health Sciences – Uganda Institution of Allied Health was presented to the Medical Superintendent Director / Head of Department Rukunyu Hospital, Kamwenge District through the institution research committee will issue permission to the researcher to conduct the study from there. All information was treated with confidentially and privacy.

SJ Public Health Africa
Vol. 1 No. 10 (2024): October 2024 Issue
https://doi.org/10.51168/fgyt3p58
Original Article

RESULTS

Table 1; shows the socio-demographic data of 111 participants aged 15 - 35 years.

Age Group	Years	15-20	21-25	26-30	31-35	Total	Percentages
Sex	Males	15	11	13	9	48	**43.2%**
	Female	12	20	23	8	63	**56.8%**
	Total	27	31	36	17	111	
Place of Living	Urban	10	9	19	2	40	**36%**
	Rural	17	22	17	15	71	**64%**
	Total	27	31	36	17	111	
Marital Status	Single	26	1	0	0	27	**24.%**
	Married	1	22	24	10	57	**51%**
	Widow	0	2	5	5	12	**10.8%**
	Divorced	0	6	6	2	14	**12.6%**
Educational Level	Primary	6	6	10	7	29	**26.1%**
	Secondary	18	9	17	4	48	**43.2%**
	Tertiary	3	13	8	0	24	**21.6%**
	Uneducated	0	3	1	6	10	**9.0%**
Positive Results	Male	0	2	3	3	8	**34.8%**
	Female	1	3	7	4	15	**65.2%**
	Total	1	5	10	7	23	

From Table 1, of age group 26-30 years old had the highest participants with 40(36.0%), followed by the age group of 21-25 years with 31(27.9%) participants, the age group of 15-20 years with 27(24.3%) participants and last being age group of 31-35 years with 17 (15.3%).

The age group of 26-30 years had the highest percentage of positive participants 10, the age group of 31-35 years, the age group of 21-25 with 5 participants, the age group of 21-25 years with 5, and the age group of 15-20 years old with 1participant

Sex. During the study out of111 participants,63(56.8%) was female and 48 (43.2%) were male

Out of 63 female participants, 15 were positive, and out of the 48 male participants, 8 were positive, making it 23 positive participants with Hepatitis B infection.

Marital status. The biggest number of the respondents or participants were married people 57(51.4%), single participants 27(24.3%), divorced participants were 14(12.6%), and widow/widower participants 12 (10.8%).

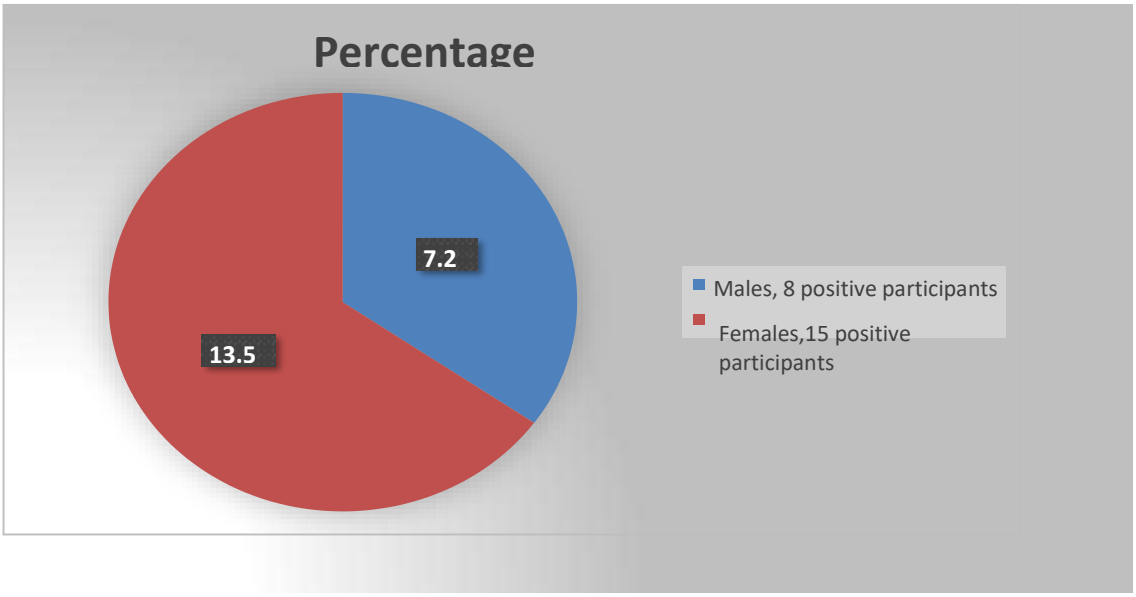
Educational level. The majority of the participants were educated and had reached secondary level 48(43.2%), followed by primary level 29(26.1%), tertiary level 24(21.6%), and last uneducated level with 10(9.0%) participants.

Place of living. Most of the participants involved in the study were living in rural areas 71(64%) and those living in urban areas 40(36 %). The highest number of participants living in rural areas was identified in the age group of 21-25 years with 22 (19.8%), both the age group of 15-20 years and the age group of 26-30 had the same number of participants 17(15.3%) and the group of 31-35 was the one with least number of participants 15(13.5 %) living in rural areas.

Prevalence of hepatitis B virus among HIV patient

SJ Public Health Africa
Vol. 1 No. 10 (2024): October 2024 Issue
https://doi.org/10.51168/fgyt3p58
Original Article

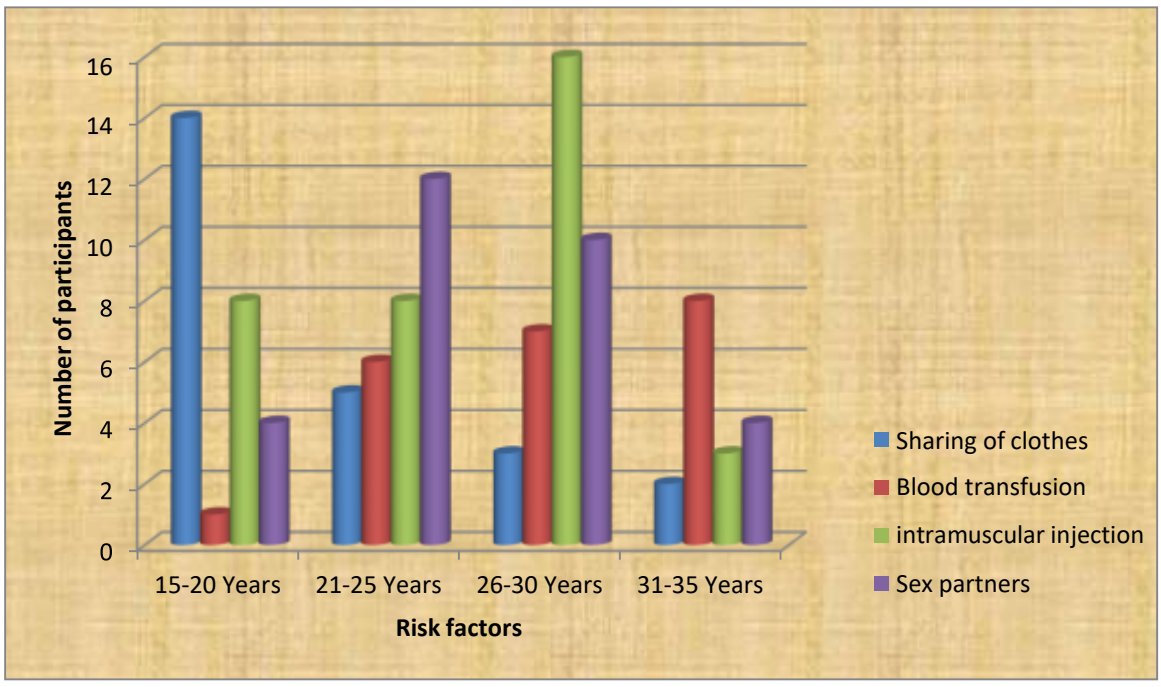
Figure 1: Pie chart showing Hepatitis prevalence among HIV patients



The Pie chart above shows the prevalence of Hepatitis B virus among HIV patients attending Rukunyu Hospital, where the prevalence was 20.7% in 23 positive participants out of 111 participants involved in the study. However, the prevalence of HBV was highest in the females with 15(13.5%) and males had a prevalence of 7.2% in 8 positive participants.

Risk factors of hepatitis B viral infection among HIV patients attending Rukunyu hospital.

Figure 2: Column graph showing the risk factors responsible for hepatitis B virus infectionwith different age groups of 15-35 years for both males and females together.



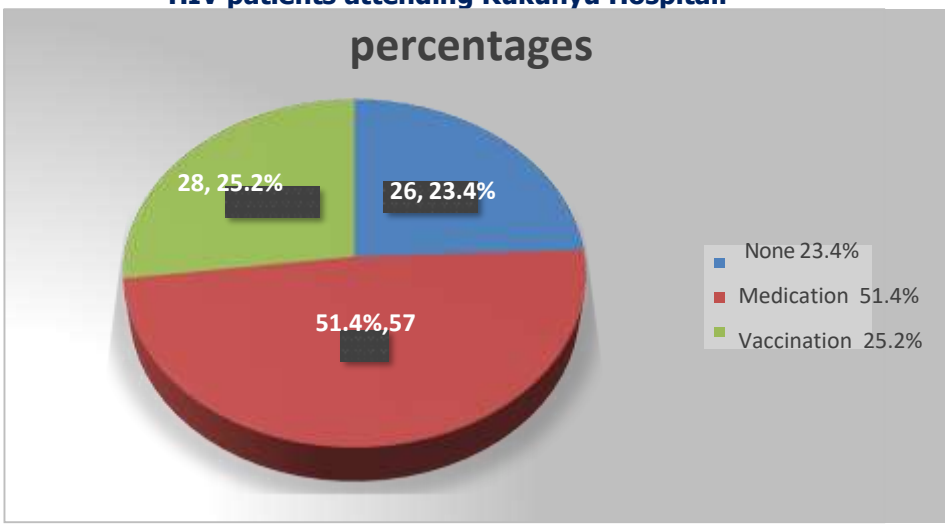
SJ Public Health Africa
Vol. 1 No. 10 (2024): October 2024 Issue
https://doi.org/10.51168/fgyt3p58
Original Article

The column graph indicates the information obtained during the research finding of the study carried out on 111 participants assessing risk factors that increase the cause of Hepatitis B virus among different age groups from 15-35 years of old. They include sharing of clothes, blood transfusion, intramuscular injection, and having multiple sexual partners. The intramuscular injection was the risk factor with the highest with 35(31.6%) participants, having multiple sex partners was the second with 30 (27.0%) participants, third was sharing of clothes with 24(21.6%) participants and the fourth was blood transfusion with 22 (19.8%) participants.

.

Assessment of treatment challenges of Hepatitis B virus among HIV patients

Figure 3: The pie chart indicating the treatment challenges of the Hepatitis B virus among HIV patients attending Rukunyu Hospital.



The pie chart shows how the 111 HIV patient participants responded to treatment services for the Hepatitis B virus among themselves. From the above 85(76.6%) received treatment services like vaccination services 28(25.2%) and medication 57(51.4%)and 26 (23.4%) participants never received treatment.

Discussion

Socio-demographic data of 111 participants aged 15-35 years attending Rukunyu Hospital Kamwenge, the prevalence of hepatitis B virus among HIV patients.

The objective of the study was to determine the prevalence of Hepatitis B virus among HIV aged 15-35 years.

Age. The majority of participants were females 63 (56.8%) and males 48 (43.2%), out of 111 participants, and the age group of 26-30 had many 36(32.4%%) in total 23 Participants were positive with HBV 15 females and 8 males, age group of 21-25 had and 31(27.9%) participants, age group of 15-20 had 27(24.3%) participants and last age group of 31-35 had 17(15.3%) participants. This is very contradictory to the study conducted in Uganda out of 985 evaluable patients receiving ART, where the overall prevalence of Hep B infection was 7.9% and significantly lower among females at 6.8%(Emmanuel Ochola *et al.*, *al*2020).

Out of 111 HIV patients involved in that tested positive with HBV 23 participants, the age group of 26-30 had the highest number of positive participants 10, the age group of 31-35 with 7 participants, the age group of 21-25 with 5 participants and the the the last was the age group of 15-20 with 1 participant. Women had the highest number 15than male HIV patients having 8 participants giving the current prevalence of hepatitis B virus to be 20.7% higher than the previous hepatitis B virus percentage according to the study at Rukunyu Hospital for the prevalence of liver fibrosis in hepatitis B patients was 9.2% using APRI Daniel Nzarambaet. *al*., 2022.

Risk factors of hepatitis B viral infection

According to the finding results, shows that out of 111 participants, the most contributing factor was found to be intravenous injections with 35 participants and this was highly examined in the age group of 26-30 years, the second factor was having multiple sex partners with 30 participants and this was identified most in the age group of 21-25 years however some participants used condoms 19 participants

and 11 participants were not using condoms, followed by the factor of sharing clothes with 24 participants seen in the age group of 15-20 years and the last factor was blood transfusion with 22 participants observed in the age group of 31-35 years. However during the study in the age group of 15-20 years, the commonest risk factor was sharing of clothes with 14 participants, followed by intramuscular injection with 8 participants, then multiple sex partners with 4 participants, and lastly, the risk factor was blood transfusion with 1 participant. For the age group of 21-25 years, the commonest risk factor was multiple sex partners with 12 participants, followed by intramuscular injection with 8 participants, blood transfusion with 6 participants, and then last sharing of clothes with 5 participants.

In the age group of 26-30 years, the intramuscular injection was the commonest with 16 participants, with partners, and sexual partners 10participant, followed by blood transfusion with 7 participants, and then the last risk factor in this age group was sharing of clothes with only 3 participants. In the age group of 31-35 years old, the commonest risk factor was blood transfusion with 8 participants, followed by multiple sex partners. In the age group of 31-35 years old, the commonest risk factor was blood transfusion with 8 participants, followed by the sexual partners which had 4 participants then intramuscular injection with 3 partners, and the sharing of clothes with 2 participants.

The study is almost similar to the study conducted in Malaysia where sharing of clothes, and body piercing were the biggest risk factors for the Hepatitis B virus Rajamoorthy et al.,2020.

Treatment challenges of Hepatitis B viral infection among HIV patients attending Rukunyu Hospital.

Most HIV patients have participated and gained from the services offered at HIV/HBV clinics, and health facilities. Out of 111 participants involved in the study 85 (76.6%) benefit from

services like vaccination 28(25.2%), medication 57(51.4%)while 26 (23.4%)have not benefited from above from the government

This is contractually with the study done by (Zeinab Nabil et al.,2022) where most individual with HIV treatment challenges had limited resources setting and unaware setting of their medications the most significant barrier in HBV treatment and Covid 19 pandemic also interrupted the HBV treatment

Conclusion.

The purpose of the study was to determine, the prevalence of the hepatitis B virus among HIV, risk factors, and the treatment challenges of HBVamong HIV patients.

The study found out that, out of 111 participants 23 individuals were Hep B positive and 88 were negative, the information gathered indicates several risk factors contribute to the prevalence of HBV such as sharing clothes with infected people, exposure to infected blood or body fluids like blood transfusion, intramuscular injections and engagement in multiple sex with unprotected sex.

According to the socio-demographic, data analyzed a great number of participants were females 63 and males 48, on marital status married participants were many compared to other status being 57, single participants were 27, divorced were 14 and widow/widower were 12 participants. Most of the participants that got involved in the study were educated up to different levels with the secondary level having 40-participants, and the primary level having 24 participants, however, some were still ongoing students and were participants those who were uneducated were 10 participants.

Recommendations

Based on the above study I would wish to recommend the government establish and emphasize grounds or measures to educate them about the mode of transmission, risk factors, and prevention of Hep Viral infection among HIV patients and the population at large.

ACKNOWLEDGEMENT

I wish to acknowledge and appreciate my supervisor IVAN AWACH Ogwal, for guiding me tirelessly via my research study, still, I thank all SFRASH administrators more so my beloved tutors for the mentorship they rendered in the course of my study equipping me with relevant knowledge and skills in the trek of my education from the year 2020 - 2023. I would like to extend my sincere thanks and regards to the entire staff ofRukunyu Hospital for developing my research report at the hospital.

List of abbreviations/ acronyms

EDTA: Ethylene Di-amine Tetra Acetic Acid
HBsAg: Hepatitis B virus surface Antigen
HBV: Hepatitis B Virus
HIV: Human Immune Deficiency Virus.
WHO: World Health Organization
PLWH. People living with HIV
AIDs. Acquired Immune Deficiency syndrome

Authors, Biography

Byamukama Ivan, student of Diploma In Medical Laboratory Technology of UAHEB.

Ivan Awach Ogwal, supervisor, St Francis Schools of Health Science -Uganda Institution of Allies Health

REFERENCES

1. Nzaramba, Daniel, Benson Musinguzi, Ivans Gyagenda, John Lusoma Ntemi, Josephat

Kighoma, PatrickSobere, and FrankSsedyabane. "Prevalence of LiverFibrosis in Hepatitis B Virus Infection Using Aspartate Aminotransferase to Platelet Ratio Index (APRI) Score at RukunyuHospital, Kamwenge District, South Western Uganda." (2022). https://doi.org/10.21203/rs.3.rs-1725083/v1 PMid:36163018 PMCid: PMC9512986

2. Hepatitis B. (april,2024.). Retrieved October 29, 2024, from https://www.who.int/news-room/fact-sheets/detail/hepatitis-b
3. Rajamoorthy, Y., Taib, N. M., Mudatsir, M., Harapan, H., Wagner, A. L., Munusamy, S., ... & Radam, A. (2020). Risk behaviors related to hepatitis B virus infection among adults in Malaysia: A cross-sectional household survey. Clinical Epidemiology and Global Health, 8(1), 76-82. https://doi.org/10.1016/j.cegh.2019.04.011
4. Said, Z. N. A., & El-Sayed, M. H. (2022). The challenge of managing hepatitis B virus and hepatitis C virus infections in resource-limited settings. World Journal of Hepatology, 14(7), 1333. https://doi.org/10.4254/wjh.v14.i7.1333 PMid:36158908 PMCid: PMC9376770
5. Chiesa, A., Ochola, E., Oreni, L., Vassalini, P., Rizzardini, G., & Galli, M. (2020). Hepatitis B and HIV coinfection in Northern Uganda: Is a decline in HBV prevalence on the horizon? PloS one, 15(11), e0242278. https://doi.org/10.1371/journal.pone.0242278 PMid:33206693 PMCid: PMC7673526
6. World Health Organization. Hepatitis B. [APRIL; 2024];https://www.who.int/news-room/fact-sheets/detail/hepatitis-b,2019
7. World Health Organization. Hepatitis B. [Jun; 2022];https://www.who.int/news-room/fact-sheets/detail/hepatitis-b 2015
8. Kish, L. (1976). Optima and Proxima in linear sample designs. Journal of the Royal Statistical Society Series A: Statistics in Society, 139(1), 80-95. https://doi.org/10.2307/2344384

PUBLISHER DETAILS:

SJC PUBLISHERS COMPANY LIMITED

SJC Publishers Company Limited
TODAY AND TOMORROW

Catergory: Non Government & Non profit Organisation
Contact: +256 775 434 261 (WhatsApp)
Email: info@sjpublisher.org or studentsjournal2020@gmail.com
Website: https://sjpublisher.org
Location: Scholar's Summit Nakigalala, P. O. Box 701432,Entebbe Uganda, East Africa