

Seroprevalence of Hepatitis C and B Virus Infection among Sudanese Men whipped during wedding (Alpotan) in Khartoum state 2022

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Abstract:

Objective: This study aimed to compare the prevalence of hepatitis C and B in whipping which are risk of blood borne diseases with non-whipped participant.

Materials and methods: A case-control study was conducted at Khartoum state -Sudan. Clinical data was collected through a questionnaire prepared for this study, Five ml blood was drowned and serum was separated and freeze until used, four generation hepatitis C and third generation hepatitis B kits was used to detect the hepatitis C virus and Hepatitis B surface antigens by ELISA.

Result: The median (IQR)age of cases and controls was 28(22-37), 31(27-42) y respectively, the whipping was started at the young age with mean 20y and range (13 -36)y. The median IQR for the whipping frequency was 7(3-15) times. The education status for cases was (n= 32 35.5% 53 58% 5 6.5%) primary secondary and graduated respectively while for control was (12 13.33% 24 26.66% 54 60%) for primary secondary and graduated. The whipping was more common in secondary school than primary and graduated groups, the education was statistically correlated with whipping habits, whipping group was high risk to get viral hepatitis than control group odds ratio was 4.14 with statistically significant confidence interval CI for odds ratio (0.45,37.78). Furthermore, the whipping frequency and total whips are correlated with hepatitis C and B infection p. value 0.000

Conclusion: The prevalence of the HBV and HCV are prevalent in whipping group, more study with whipping scar was needed.

Keywords: seroprevalence, HBV, HCV

INTRODUCTION

Hepatitis B and C were prevalent in Sudanese population in recent systematic review and metanalysis done by Badwi et.al (1) the prevalence was range from(5.1% to 26%) for HBV with pool prevalence 9% and HCV range 0.6-27% with overall pool prevalence 2.5% moreover ,Badwi et al summarized that age group 20-40 ,health workers ,tattooing, and surgical procedures are more risk factors for hepatitis(1).Whipping (Alpotan) in Sudanese wedding is a procedure in which one individuals using tools

mostly not disposable (whip), and whips many peoples (without upper clothes) in the wedding such as relatives, friends, and others and make scars, the whips not changes even contains blood, this procedure is a route of transmission of blood borne disease such as HBV and C. Rarely the whipping was done without wedding at the rural areas but always was done with less persons not exceeds 10. As an international's rituals, the whipping was belonged to rituals that transmitted blood borne disease, considering these rituals the blood brotherhood (superficial cutting of finger are associated with HBV HCV and HIV (2)(3). Furthermore, African cultures associated with use of shared instruments are associated with transmission of HIV(4). Self-flagellation (Shia rituals are associated with HTLV(5)(6). There are few literatures in Sudan, studying the whipping as the risk factor of HBV and HCV, so our case control study with representative samples was highlights to these rituals as risk factors.

MATERIALS AND METHODS

Study design and settings

A case control study was conducted at Khartoum state-Sudan from October to November 2022, after approved of ethical approval from Al-Neelain University faculty of medical laboratory sciences. Cases (whipped men's and apparently healthy were included know case of HBV or HCV or having bleeding diathesis, participant whipped with clothes, were excluded. Controls (apparently healthy blood donors were selected matched with cases and with same exclusion criteria) 90 study participants from each group were selected for this study.

Data collection

Questionnaire was prepared for occupation education status and whipping frequency and total whips for each participant, 5 ml blood was drawn according to the standards methods of collection and serum was separated and freeze until testing.

HBsAg and HCV detection

Four-generation (fortress) HBSAg and third generation HCV (fortress) antibody was detected by Elisa after following manufacture instruction, the positive and negative result were considered with positive and negative controls readings.

Data analysis

Data were analyzed by SPSS version 23(IBM) continuous variables age, age of first whipping, whipping frequency, total whips were assessed by mean for normally distributed variable and median interquartile (IQR) for non-normally distributed variables. While education status of both cases and controls was represented by frequency. Odds was used to compare between cases and controls because the prevalence in both groups less than 20% correlation was performed with whipping frequency and, total whips. The whipping was tested for correlation with education status.

RESULT

The median (IQR) age of cases and controls was 28(22-37), 31(27-42) y respectively, the whipping was started at the young age with mean 20y and range (13 -36). The median

IQR for the whipping frequency was 7(3-15) times. The education status for cases was (n= 32 35.5% 53 58% 5 6.5%) primary secondary and graduated respectively while for control was (12 13.33% 24 26.66% 54 60%) for primary secondary and graduated TABLE(1). The occupation for cases and controls

The whipping was more common in secondary school than primary and graduated groups, the education was statistically correlated with whipping habits, whipping group was high risk to get viral hepatitis than control group odds ratio was 4.14 with statistically significant confidence interval CI for odds ratio (0.45,37.78) not contain one. Furthermore, the whipping frequency and total whips are correlated with hepatitis C and B infection p. value 0.000 see table (2).

DISCUSSION

Despite, the low frequency of hepatitis B and C virus in this group at the risk of infection comparing with local frequency of hepatitis in Sudanese population there was significant relative risk for whipping to transmit the hepatitis, the frequency of hepatitis B and C virus in Sudan range from 5.1 TO 26 and 0.6 -23% respectively, our result agreed with general population. Comparing to the group at risk such as in Sudanese our prevalence low. Regarding the HCV there are one case whipping 20 times with total whips 200, the prevalence at group of risk in Sudanese was range 23.7%(7) in haemodialysis ,Mudawi et.al describe HCV antibody in HIV patient the prevalence was 1.7% (8),Elhadi et.al describe the prevalence in haemodialysis with different sit the prevalence (pool) was 1.6% (9)our prevalence was low when we compared to group at risk such as our study(whipping) but the odds ratio was significant when compared to control while contains zero case .In the HBV there was significant odds ratio for hepatitis B and control group but the overall prevalence is lower than group at risk in Sudanese population 26% in HIV patient(10) ,9% in hemodialysis(11) 6% in medical staff (12)21.3 % in children's with cancers(13). Determine the whipping scars of the scapula is mandatory to assure the whipping effect, PCR and other sensitive technique are recommended to study the diversity of the virus among this groups, cluster sampling including all village in Sudanese are required to get overall magnitude of the problem.

Author contributions

All authors contribute same with formulation of study, methods, laboratory procedures, all authors read the final draft of the manuscript.

Data source

All data are available in the manuscript.

Disclosure

Authors discloses no competing interest

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Table (1) Categorical data in cases and controls

Variable	Cases (90)	Controls (90)
Age (median)IQR	28(22-37) y	31(27-42) y
Primary school	N=32 35.5%	N=12 13.33%
Secondary school	N=53 58%	N=24 26.66%
Graduated	N=5 6.5%	N=54 60%
Private/ self employed	N=43	N=47
Publicly employed	N=11	N=28
Unemployed	N=36	N=15
Mean age of First starting of whipping with lower and upper range	20(13-36) y	0
Median interquartile of whipping frequency	7(3-15) time	0
Total whips (median IQR)	30(13-60) whips	0

Table 2 correlation between variables in cases (WHIPPED) and controls (NON WHIPPED)

Variable	Cases (90)	Controls (90)	P. value	Odds Ratio
POSITIVE HBSAG	3	1		3.1
Positive HCV	1	0		5.06
Correlation of graduation with whipping habits			0.0392	0.0001
HBV and HCV correlation with total whips			0.000	