Al-Razi University
Graduate Studies
College of Medical Sciences
Community Health & Nutrition Department

Sero-prevalence and Associated Factors of Viral Hepatitis B and C infection among Pregnant Women in Alaeen Valley, Hadhramout Governorate, Yemen

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Thesis Submitted to the Community Health & Nutrition Department College of Medical Sciences, AL-Razi University as Partial Fulfillment for MSc. in Epidemiology

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جامـــعة الرازي
الدراسات العليا
كلية العلوم الطبية
قسم صحة المجتمع والتغذية

الإنتشار المصلي والعوامل المرتبطة بعدوى إلتهاب الكبد الفيروسي البائي والسيني بين النساء الحوامل في وادي العين محافظة حضرموت-اليمن

رسالة مقدمة إلى قسم صحة المجتمع والتغذية، كلية العلوم الطبية، جامعة الرازي لإستكمال متطلبات نيل درجة الماجستير في الوبائيات

الباحث

احمد عبد الله نصيب بن بركات

بكالوريوس في المختبرات الطبية

المشرف الرئيس

الدكتور: عبد الله عبد العزيز محرم

أستاذ طب المجتمع المشارك
كلية الطب والعلوم الصحية
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أنه في يوم الاثنين الموافق 2020/10/19 تم اجتماع لجنة المناقشة والحكم على رسالة الماجستير المقدمة من الطالب/ **احمد عبدالله نصيب احمد بن بركات** المسجل بكلية العلوم الطبية تخصص **وبائيات** والمشكلة بقرار مجلس الدراسات العليا والبحث العلمي في محضر اجتماع رقم (09) بتاريخ 2020/09/30 بتشكيل لجنة المناقشة والحكم من الدكاترة التالية:

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(Seroprvalance and associated factors of viral hepatitis B and C infection among Pregnant women in Alaeen Valley, Hadhramout Governorate, Yemen).

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بالاشاره إلى الموضوع اعلاه نبلغكم أنه تم التدقيق اللغوي لرسالة الماجستير للباحث/ احمد عبدالله نصيب احمد بن بركات باللغة العربية:

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وباللغة الانجليزية:

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CERTIFICATE

This is to certify that the thesis entitled ***Sero-prevalence and Associated Factors of Viral Hepatitis B and C infection among Pregnant Women in Aleen Valley, Hadhramout Governorate. Yemen*****;** is Submitted to Community Health & Nutrition Department, College of Medical Sciences, AL-Razi University for the award master's degree in ***Epidemiology***. It is a record of the original and confides research work carried out by ***Ahmed Abdullah Naseeb Bin Barkat*** under our supervision. Such material as has been obtained from other sources has been duly acknowledged in the thesis. This thesis embodies the work of the candidate himself and no part thereof has been submitted for any other degree.

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Dedication

This thesis is dedicated to

My great parents, who never stop giving of themselves in countless ways,

My dearest wife, who leads me through the valley of darkness with the light of hope and support,

My beloved brothers and sister,

My beloved kids: Abdullah, Fatima, Barkat & Abdul Malik whom I cannot force myself to stop loving. To all my family, the symbol of love and giving,

My friends who encourage and support me,

All the people in my life who touch my heart.

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LIST OF ABBREVIATION

µl	Micron
AASLD	American Association for the Study of Liver Disease
Abs	Antibodies'
ACG	American College of Gastroenterology
Ags	Antigens
AHB	Acute Hepatitis B
ALP	Alkaline Phosphatase
ALT	Alanine Aminotransferase
AST	Aspartate Aminotransferase
CDC	Center for Disease Control and Prevention
CHB	Chronic Hepatitis B
CKD	Chronic Kidney Disease
CLD	Chronic Liver Disease
Cm	Centimeter
DDAs	Direct Acting Antivirals
DNA	DNA Deoxyribonucleic Acid
EHMs	Extrahepatic Manifestations
EIA	Enzyme Immuno Assay
ELISA	Enzyme-linked Immunosorbent Assay
F	Frequency
FDA-approved	Food and Drug Administration approved
HbcAg	Hepatitis B Core Antigen
HbeAg	Hepatitis B Early Antigen
HBeAg+	Hepatitis B Early Antigen Positive
HBIG	Hepatitis B Immunoglobulin
HbsAg	Hepatitis B Surface Antigen
HBsAg+	Hepatitis Surface Antigen Positive
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunity Virus

HVR1	Hypervariable Region 1
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IL	Interleukin
IRES	Internal Ribosome Entry Site
IU/ml	International Units per Milliliter
Iv	Intravenous Injection
Km^2	Kilometer Secure
LFTs	Liver Function Tests
m RNA	Messenger Ribonucleic Acid
Ml	Milliliter
MTCT	Mother to Chilled Transmission
Nm	Nanometer
N	Number
NS	Nonstructural
PCR	Polymerase Chain Reaction
RIA	Radio Immunoassay
RNA	Ribonucleic Acid
SD	SD Standard Deviation
SPSS	Statistical Package for the Social Science
TMA	Transcription Mediated Amplification
TMB	Tetra Methyl Benzidine
TSB	Total Serum Bilirubin
USA	United State America
UTR	Untranslated Region
WHO	World Health Organization

ABSTRACT

Background of the study

Viral hepatitis is a public health problem and challenge globally. Viral hepatitis B &C infection during pregnancy is associated with a high risk of maternal complications including pre-eclampsia, placenta praevia, preterm delivery, placental separation, antepartum hemorrhage, preterm labor, increased incidence of intraventricular hemorrhage, gestational diabetes mellitus, and mortality with a high rate of vertical transmission leading to fetal and neonatal hepatitis. This study underscores the importance of identifying the current sero-prevalence and associated factors of Viral Hepatitis B and C infection among Pregnant women that contribute to helping health authorities in the prevention of HBV and HCV among pregnant women in Alaeen Valley, Hadhramout.

Objectives

The current study aimed to determine the seroprevalence of HBV and HCV infection and associated risk factors among pregnant women attending Antenatal Clinic in Saleh Babker Welfare Hospital Alaeen Valley, Hadhramout Governorate, Yemen.

Methods

A descriptive cross-sectional study was conducted among pregnant women attending obstetrics and gynecology clinic for antenatal care in Saleh Babker Welfare Hospital, Alaeen Valley, Hadhramout Governorate, Yemen. To determine the sero-prevalence of hepatitis B and C infection and associated risk facts, the sample size of the target population was calculated to become 300 Yemeni pregnant women attending antenatal clinics in the study area. The sample size was determined by using Epical program version 2000. Pregnant women attending obstetrics and gynecology clinics for antenatal care were consecutively enrolled until the desired sample size was reached. Data was collected using a close-ended questionnaire. Data including socio-demographic characteristics: Age, residence, education level, occupation, marital status, parity, and risk factors and medical history. A blood specimen was collected for detection of HBsAg and Antibodies to Hepatitis C virus. Data coded and entered into SPSS version 21.0 for descriptive and inferential statistical analysis.

Results

The overall prevalence of hepatitis B and hepatitis C was (3%), and (0,7%), respectively.

The mean age of participating pregnant women was ± SD, 29.37± 6.572 years, about (70%) of them were from semi-urban area, the vast majority of participants (94 %) were married, more than half (51%) of the target pregnant women had basic education, (83%) of them were housewives, and (72%) of them had multigravida. The total (100%) of pregnant women have not had a medical history of taken vaccination to HBV, and not tested for HBV&HCV and there was no history of tattoo. While only (12%) of the participants have had a history of blood transfusion and (17%) of the participants have had a history surgery and (2%) of the participants have had a history liver disease, more than half (63.3%) of them have had a history of dental procedures and (2%) of the participants have had a cupping and in finely (100%) of them had ear piercing. The positivity of prevalence for HBsAg was: about (29.4%) among the age group 37 years and above, (3.3%) among the pregnant women from the semi-urban area, about (5.3%) were with the secondary school educational level, about (5.9%) were separated regarding marital status, and (3.2%) were housewife, and (3.2%) were multi gravida. The positivity of prevalence for Anti HCV was: about (2%) among the age 27-36 years, (1.1%) among the pregnant women from the urban area, about (1.2%) were with the illiterate educational level, about (0.7%) were married regarding marital status, and (0.8%) were housewife, and (1.2%) were primary gravida.

Regarding the overall sero-prevalence of HBsAg and Anti HCV only (3%) and (0.7%) of the participating pregnant women had a positive sero-prevalence of HbsAg and Anti HCV, respectively. The prevalence of HBsAg was about (8%) and the prevalence of anti HCV was (2.8%) among the pregnant women who had a history of blood transfusion. The prevalence of HBsAg was about (66.7%) and the prevalence of anti HCV was (0.7%) among the pregnant women who had a history of liver diseases. The prevalence of HBsAg was about (3.9%) and the prevalence of anti HCV was (2%) among the pregnant women who had a history of surgery, the prevalence of HBsAg was about (3.2%) and the prevalence of anti HCV was (1.1%) among the pregnant women who had a history of dental management. In addition, the prevalence of hepatitis HBsAg (3%) and anti HCV (0.7%) among the participating pregnant women who had a history of ear piercing.

Conclusion

The sero-prevalence of HBsAg was (3%) of moderate severity among the participating pregnant women according to WHO. The sero-prevalence of anti-HCV was found to be (0.7%) among the participating in pregnant women.

There was no statistically significant association between the overall prevalence of hepatitis B virus and hepatitis C virus infection and the demographic characteristics of pregnant women who participated in the study at (P-value >0.05). Although there was a statistically significant association between the overall prevalence of hepatitis B virus infection and the history of liver diseases and the history of blood transfusion of pregnant women at level (P-value <0.05).

Recommendations

Based on the reults of the study we recommende:

Introuction of routine screening for HBV and HCV for all pregnant women attending antenatal clinics in health care centers or hospitals during the antenatal period, using standard precaution and infection control measures to all risk factors, such as blood transfusion, surgery history, liver disease history, dental management, and had an ear-piercing that increasing prevalence of HBV and HCV infection.

Vaccination for HBV is given at birth to newborn infants of mothers found to be HBsAg positive so as to reduce and prevent the spread of infection. However, more data is required from larger studies to support the findings so that, ultimately, this can be recommended as a policy.