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Screening & prevalence of HCV in pregnancy: A narrative review

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Abstract

Background: Despite recent advances in the pathogenesis, treatment, and public health response to hepatitis C virus (HCV), HCV as it specifically relates to pregnancy has been a neglected condition and a markedly improved public health response to these populations is needed. HCV-monoinfected pregnant women have a 2–8% risk of viral transmission to their infant, but the mechanism and timing of mother to child transmission are not fully understood, nor is the natural history of the illness in pregnant women and their offspring. Recognition of HCV is relevant to infected pregnant women because of their risk of the long-term complications of infection, potential effects of infection on pregnancy, and risk of transmission to their infants. Unlike HIV; effective methods of prevention of HCV vertical transmission have not been developed. It is possible that a better understanding of HCV pathogenesis in pregnancy and MTCT of HCV infection will lead to useful prevention strategies, particularly as we enter an era where interferon-free drug cocktails may emerge as viable treatment options for HCV. Information on HCV infection in pregnant women in India is scanty. This study was carried out to investigate the screening and prevalence of HCV within an obstetric population and to identify the various risk factors for the viral infection in a view of limited studies and resources, important consideration on literature review taken.

Aim of study: The aim of the study is to investigate the screening and prevalence of HCV in Pregnancy.

Methods and material: A narrative review undertaken using the following databases in the end (September-October) of 2018, Pub Med, CINHALL, MEDLINE, National, International Journals and published articles regarding screening and prevalence of HCV in pregnancy.

Results: Twenty eight research studies from databases regarding screening and prevalence of HCV in pregnancy concluded that there is significant prevalence in pregnant women with associated risk factors posing risk for vertical transmission.

Discussion: In the review regarding screening and prevalence of HCV in pregnancy, there is an identifiable prevalence of Hepatitis C Virus among pregnant women. So, it is strongly recommended that all pregnant women with associated risk factors such as Past history of blood transfusion, surgery, and delivery by traditional birth attendant should be screened for anti-Hepatitis C virus in pregnancy, to know their infection status and thus prevent adverse outcome of pregnancy and its vertical transmission to their neonates.

Keywords: Screening, prevalence, HCV (Hepatitis C Virus), pregnancy, seroprevalence, mother to child transmission, vertical transmission

Introduction

“Let every mother and child to be counted”

Hepatitis C virus (HCV) is one of the major etiological agents for parenterally acquired hepatitis. It is asymptomatic in large proportion of cases (65-75%) and revealed accidentally by abnormal liver function tests or anti-HCV positivity. The long term morbidity and mortality is far greater than its counterpart Hepatitis B virus in terms of chronic hepatitis 70%, cirrhosis 20-30%, hepatocellular carcinoma and liver failure^[1].

Although Antenatal HCV infection rates vary worldwide. The overall prevalence of HCV infection ranges between 1% and 8% in pregnant women and between 0.05% and 5% in children. The pathogenesis of HCV infection during pregnancy remains poorly understood. Multiple risk factors were studied to increase the risk of HCV vertical transmission, including co infections with HIV, intravenous drug use, high maternal HCV viral load, mode of delivery, preterm labor, prolonged rupture of membranes and amniocentesis, while breastfeeding and HCV genotypes have little impact on vertical transmission. However most of the reports are still controversial^[2].

The worldwide literature on HCV prevalence has increased considerably over the past decade, yet few surveys have been conducted on national level.

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Little is known about hepatitis C virus infection in pregnant women in India. The seroprevalence of anti-HCV antibody in the healthy general population of India was found to be 1.5 per cent each in 234 voluntary blood donors and 65 pregnant women^[3]

A prospective observational study was conducted at Department of Obstetrics and Gynecology, Peoples Medical College Nawabshah, from May 2008 to June 2009 among 3020 pregnant women, screened for HCV antibodies during antenatal visits and found 102 were positive for HCV antibodies aged 17-35 years and concluded the Prevalence of Hepatitis C virus infection in pregnant ladies is 3.44%. Past history of blood transfusion, surgery, and delivery by traditional birth attendant are the most important risk factors for transmission of infection^[4]

Information on hepatitis C virus (HCV) infection in pregnant women in India is scanty. A cohort study was carried out to investigate the prevalence of HCV within an obstetric population in north India and to identify the various risk factors for the viral infection. A total of 8130 pregnant women from antenatal clinic were subjected to anti-HCV testing by third generation ELISA. Anti-HCV positive seropositive women were further tested for HCV RNA, hepatitis B and HIV. Prevalence of hepatitis C in pregnant women was 1.03 per cent. None of the known risk factors was found to be significantly associated with the HCV infection. Hence case identification and consequent management pose a particular problem and routine screening is not a viable option in our resource-poor setting. With a prevalence of the HCV infection equivalent to elsewhere in the world but with no significantly associated risk factor, identification of HCV infection here poses a greater public health problem^[5].

A case-control Study was conducted on 947 booked pregnant women who were screened for HCV antibodies during antenatal consultation and were admitted for delivery in labor room at Shifa International Hospital, Islamabad, from June 2001 to May 2002 and concluded the Prevalence of hepatitis C in pregnant women was 3.27%. Past history of surgical procedures was the most important factor for transmission of hepatitis C virus infection. No adverse effect on pregnancy outcome was observed in terms of gestational age, Apgar score and baby weight when compared with the controls^[6]

A case-control study was carried out to investigate the prevalence, risk factors, and pregnancy outcome in a total of anti-HCV-positives 1412 pregnant women presenting in the labor room of Department of Obstetrics & Gynecology of Guru Gobind Singh Medical College and Hospital, Faridkot between January 2010 and January 2013 were subjected to anti-HCV testing by third generation ELISA and found the prevalence of pregnant women positive for anti-HCV antibodies to be 2.8 % in our study which is almost double the reported prevalence of 1.03 % in a study from North India^[5]. Prevalence in western countries ranges from 0.14 to 4.4 %^[7, 8] which is comparable to developing countries like India^[9]

A study estimated Seroprevalence and mother-to-infant transmission of hepatitis C in 499 asymptomatic pregnant Egyptian women and concluded that there is a high prevalence of anti-HCV with estimated seropositivity of 13-22% in healthy pregnant Egyptian women and vertical transmission is a major risk for chronic HCV carriers evidenced by 20 newborns were HCV RNA-positive at birth

[10]

A study determined the prevalence of hepatitis C infection among the 1381 pregnant women attending antenatal clinic of a rural teaching hospital, Sangareddy. Out of 1381 samples, 03(0.21%) were reactive; while the others were nonreactive for HCV. Out of the 03 (0.21%), women were reactive for Anti-HCV, 01 were belonged to an urban area, while the remaining 02 were belongs to a rural area. Results show that seroprevalence of HCV infection 02 (0.31%) in the age group 21 – 30 years. Hepatitis C seroprevalence among pregnant women in this region is low; it is still advisable for pregnant women to be screened for HCV^[11]

A population-based, retrospective cohort of pregnant women who delivered between 2006 and 2014 was identified and classified as HCV infected or HCV uninfected. Between 2006 and 2014, 1043 (1.2%) HCV-infected pregnant women delivered, and the HCV-infected women were more likely to be <30 years of age. It is observed HCV prevalence increased by 60%. Despite the increased HCV prevalence among pregnant women and the risk of perinatal HCV transmission, HCV-exposed infants are not adequately screened, and many pediatric HCV infections remain undetected^[12]

A total of 4825 pregnant women booking for antenatal care between November 1997 and April 1999 were examined for universal antenatal screening for hepatitis C virus (HCV) infection among an inner London population, with regard to prevalence, uptake, and acceptability of testing, and identification of new cases and concluded that the overall prevalence of anti-HCV was 0.8%, HCV viraemia was 0.6% and 0.2% of women had a false positive result. Routine screening for HCV is acceptable to pregnant women^[13]

A total of 6.1% (22/360) of pregnant women were HCV seropositive; of them only 45% (9/20) had viraemia concluded prevalence of HCV infection in pregnant women in Egypt appears to be lower than previously reported^[4]. 103(5%) were found positive for anti-HCV among 2050 pregnant women who were tested for anti-HCV during a cross-sectional study and concluded that Hepatitis C is a common infection in pregnant women. Risk factors include use of contaminated syringes, contaminated surgical instruments and blood products^[15].

HCV prevalence of 4.66% was revealed among 150 pregnant women who were tested for anti HCV antibodies in a epidemiological study of district Nowshera. Additionally, the educational level of these women was also linked with the viral infection^[16]. 200 pregnant women tested for anti-HCV antibodies and 9 were positive revealed that HCV affect pregnant women in Kaduna state, Nigeria with a prevalence rate of 4.5% posing the risk of vertical transmission^[17].

Seropositivity of HCV was 0.43% in a retrospective study where data of all pregnant women who delivered at this hospital from April 2015 to March 2016 were collected and compiled which reinforces the need for establishing effective prevention programs which would lead to reduction in the prevalence of Hepatitis C infection^[18].

Method

A narrative review of international review was undertaken by PRISMA guidelines using the following databases in the end of 2018, Pub med, CINAHL, MEDLINE, national, international journals and magazines regarding screening and prevalence of HCV in pregnancy.

Data sources and searches: Data collected from the pub med, CINHALL, MEDLINE, Local newspaper, national, international journal, and magazines.

Selection criterion of the study and data extraction

The selection criteria for the systemic review using PRISMA guidelines regarding screening and prevalence of HCV in pregnancy.

- Articles and publications related to screening and prevalence of HCV in pregnancy.
- Incidence and prevalence of the HCV in India
- Studies related to Sero prevalence of HCV in antenatal women.
- Studies related to prevalence and risk factors for hepatitis C virus among pregnant women.
- Studies related to failure to test and identify perinatally infected children born to hepatitis C virus- infected women.
- Studies related to epidemiology of Hepatitis C Virus.

The data extraction criteria for the systemic review regarding screening and prevalence of HCV in pregnancy.

Findings

Through all these literature review, the investigator concluded that prevalence of HCV in pregnancy is low in

pregnant women with none of the associated risk factors and it ranges between 1.03% to 4.5% among pregnant women with associated known risk factors like Past history of dilatation and curettage, abortions, blood transfusion, HIV and HBSag, multiple sex partners, infected partner, surgery, delivery by traditional birth attendant and a non-institutional delivery, acupuncture or tattooing, injecting drug users.

Discussion

In the National, International literature regarding screening and prevalence of HCV in pregnancy, there is an identifiable prevalence of Hepatitis C Virus among pregnant women. So, it is strongly recommended that all pregnant women with associated risk factors such as Past history of blood transfusion, surgery, and delivery by traditional birth attendant should be screened for anti-Hepatitis C virus in pregnancy, to know their infection status and thus prevent adverse outcome of pregnancy and its vertical transmission to their neonates. Further research is needed to determine the relative merits of the current selective screening policy versus universal prenatal HCV screening in pregnancy. Routine screening for HCV is acceptable to pregnant women. The majority of women diagnosed during their current pregnancy would not have been identified as HCV infected by epidemiological risk factors at the time of booking.

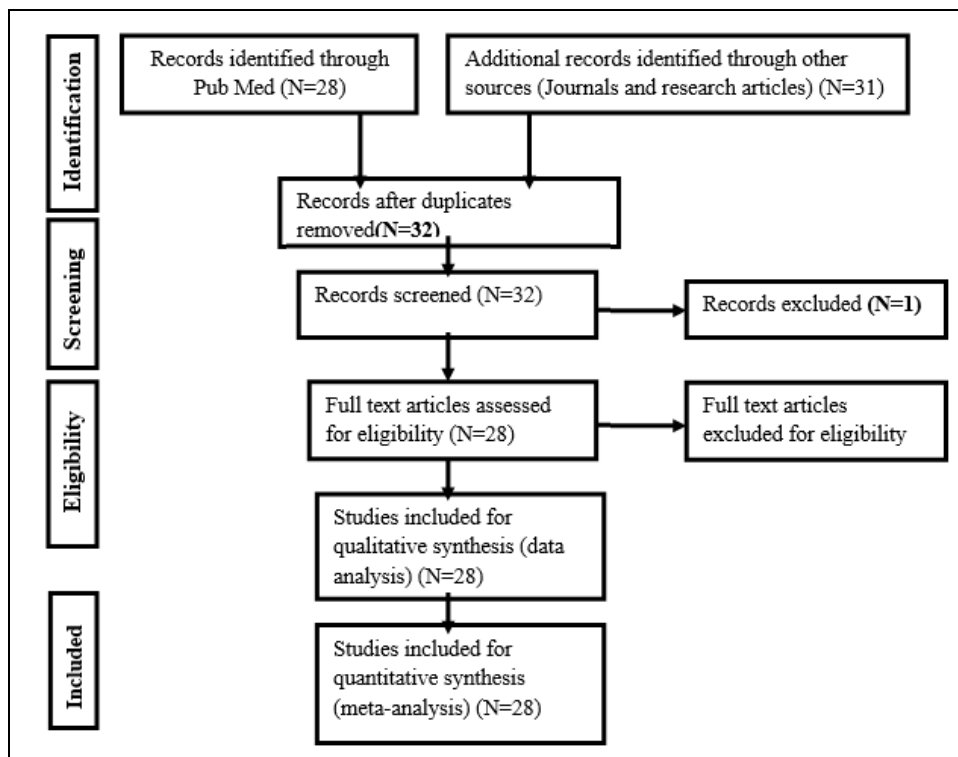


Fig 1: Prisma Flow Diagram

Results

Twenty eight research studies from databases regarding screening and prevalence of HCV in pregnancy concludes prevalence of hepatitis C virus was 1.03%-4.5% in pregnant women with associated risk factors and positive which is posing risk for vertical transmission. Associated risk factors are pregnant women with previous vaginal deliveries with episiotomy, previous surgeries, blood transfusions, and D&C for abortion or dysfunctional uterine bleeding which were taken as independent variables additionally the

education level of women is also considered in their studies.

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Conflict of interest statement

All contributions of this review articles did not have any financial difficulty to carry out this narrative review regarding screening and prevalence of HCV in pregnancy. There was not any hindrance to write an article and to publish in your journal.

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