



The Occurrence of Hepatitis C Virus among Uremic Patients

KEYWORDS

Hepatitis C Virus, Uremia.

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ABSTRACT *Objective: To detect the occurrence of Hepatitis C Virus in uremic patients in relation to age and gender and to evaluate the effect of blood transfusion as a risk factor.*

Methods: The study was conducted at Baghdad Teaching Hospital in the Medical City in Baghdad on 70 uremic patients compared to 20 patients subjected to surgery using Enzyme Linked Immuno Sorbent assay (ELISA) to detect IgG antibody.

Results: High anti HCV positive antibody level were observed in 22.9%, with the highest rate among the age group (20-40) years old (37.5%), but still with no significant association and no gender predilection, blood transfusion as a risk factor , showed no significant association as well.

Conclusion: Extending the sample size and the use of more advanced methods in detecting this virus may be indicated.

Introduction:

Hepatitis C Virus (HCV) infection represents a major medical and epidemiological challenge in patients with end stage renal diseases on renal replacement therapy with dialysis and transplantation(1). Patients infected with HCV are more susceptible to develop chronic hepatic diseases, hepatic cirrhosis and hepatocellular carcinoma than patients with hepatitis B virus (2 & 3). HCV is a single stranded RNA virus, the mode of transmission usually occurs parentally, is primarily through contact with infected blood (4&5). The majority of acute cases become chronic(6), and large number of chronic hepatitis C are clinically indistinguishable from cases of chronic hepatitis due to other causes and it may be the most common one (5&7).

Methods:

The current study was conducted during the period from August to October 2011 in Baghdad Teaching Hospital in Medical City in Baghdad including 70 uremic patients, of those 70 patients, 40 were doing hemodialysis for the first time and 30 patients were on maintenance hemodialysis. Those were compared to 20 patients representing the control group who were doing viral test for HCV prior to surgery and were complaining of diseases other than renal or hepatic diseases.

Three ml of blood were taken from each patient, centrifuged and then serum was taken and stored in deep freeze at (-17)° c, were examined later using Enzyme Linked immunosorbent Assay (ELISA), with ELISA kit for HCV antibody (IgG).

Chi square was used to determine significance of relation between the different parameter markers, correlation between parameters was detected by using the person's correlation. The level of significance considered when P- value was less than 0.05.

Results:

The distribution of studied groups in relation to age is shown in table (1) with the following frequency distribution: among the age group (20-40) years old HCV IgG was positive in 6 out of 16 (37.5%), among the age group (41-60) years old it was positive in 8 out of 41(19.5%), two patients out of 13 (15.4%) were positive among age group (61-80) years old.

Table (1) shows the distribution of HCV in relation to age.

| | Age groups in years | | | Total | Chi-Square Test |
|---|---------------------|-------------|-------------|-------------|------------------------------------|
| | 20-40 | 41-60 | 61-80 | | |
| HCV (IgG) +ve within age group (no. &%) | 6 37.5% | 8 19.5% | 2 15.4% | 16 22.9% | Value 2.617 Degree of freedom 2 |
| HCV (IgG) -ve within age group(no.&%) | 10 62.5% | 33 80.5% | 11 84.6% | 54 77.1% | |
| Total number within age group (no.&%) | 16 100% | 41 100% | 13 100% | 70 100% | P value 0.270 |
| Control group | 0 | 0 | 1 | 1 | |

The frequency distribution of patients in relation to gender was also studied and showed that male and female were nearly equally affected as shown in table (2), with frequency of 20% in the male group and 26.7% in the female group.

Table (2): Distribution of HCV according to Gender

| | Gender | | Total | Chi Square Tests |
|---|--------|--------|-------|---------------------|
| | Male | Female | | |
| HCV (IgG) +ve within age group (no. &%) | 8 | 8 | 16 | Value 0.432 |
| | 20% | 26.6% | 22.9% | |
| HCV (IgG) -ve within age group (no.&%) | 32 | 22 | 54 | Degree of freedom 1 |
| | 80.0% | 73.3% | 77.1% | |
| Total number within age group (no. &%) | 40 | 30 | 70 | P value 0.511 |
| | 100% | 100% | 100% | |
| Control group | 1 | 0 | 1 | |

The distribution of HCV in relation to exposure to blood transfusion is shown in table (3).

The frequency distribution of HCV seropositive in patients subjected to hemodialysis was higher than in the control group, the highest rate was at the age group (20-40) years old, but still not reached a significant level.

Table (3):Distribution of HCV in relation to blood transfusion.

| | Blood Transfusion | | Total |
|---------------------------------------|-------------------|-------|-------|
| | +ve | -ve | |
| HCV (IgG) +ve within BT (no. &%) | 7 | 9 | 16 |
| | 33.3% | 18.4% | 22.9% |
| HCV (IgG) -ve within BT (no.&%) | 14 | 40 | 54 |
| | 66.7% | 81.6% | 77.1% |
| Total number within age group (no.&%) | 21 | 49 | 70 |
| | 100% | 100% | 100% |

Discussion:

During the current study, the number of HCV seropositive in patients subjected to hemodialysis was higher than in control. The patients could be infected in various way, the highest rate were reported in the age group (20-40) years old, but still not reached to a significant level, this could be compared with a study done in Bangladesh, were the highest infection rate of HCV were in the age group (30-50) years old (8). The frequency of HCV infection among hemodialysis patients varies from country to country and from one center to another, it is higher in the developing countries than in the developed countries (9&10).

The male and female were nearly equally affected, the seropositive HCV IgG in males was 8 out of 40 (20%). In females it was 8 out of 30 (26.7%), no statistical significant was detected regarding gender, this may be compared with a study done on general population in Jiangsu province, the positive rate of anti HCV antibodies were higher in females than in males, peak prevalence of anti HCV antibodies was observed among persons at (50-59) years of age (11),however, in a study done in Adana in turkey the rate of infection was significantly higher in men than in women.(12).

Certain studies showed that HCV could be spread by accidental exposure to infected blood (13), in our study no statistical significant difference was detected between the studied group and blood transfusion, this result agree with the fact that doing screening tests for HCV among blood donors has reduced the risk of acquiring HCV from blood product (14, 15&16)..

Conclusion:

The occurrence of Hepatitis C in uremic patients revealed no significant association regarding age and gender. The risk factor, blood transfusion, showed no significant association as well, extending the sample size and the use of more advanced methods in detecting these viruses may be indicated.

REFERENCE

- Chen y, Wang N, Sheng Y, Zhang X, Yan Y, Yu G, Gui Y and Teng L. 2011 Hepatitis C virus infection in uremic patients on maintenance hemodialysis: a follow up study for 150 months. African J of Microbiol. Research vol.5 (22) pp.3677-3683. | 2. Jadoul M, cornu C, Van Y. 1993. Incidence and risk factors for hepatitis C seroconversion in hemodialysis: Aprospective study. The UCL Collaborative Group Kidney Int; 44(6): 1322-1326. | 3. Al-Kubaisy WA, Obaid KJ, Noor NA, Ibrahim NS, Al-Azawi AA. 2014. Hepatitis C Virus Prevalence and genotyping among hepatocellular carcinoma patients in Baghdad. Asian Pac J Cancer Prev.15 (18):7725-30. | 4. Perico N, Cattaneo D, bikbov B, Remuzzi G. 2009. Hepatitis C infection and chronic renal diseases. Clin.J.Am.Soc.Nephrol; 4(1):207-220. | 5. Moh Hanafiah, K, groeger J, Flaxam AD, Wisersma ST. 2013. Global Epidemiology of Hepatitis C virus infection. New estimate of age specific antibody to HCV serovalence. Hepatology 57(4):133-44. | 6. Meyers CM, Seeff LB, Stehman-Breen CO, Hoofnagle Jh. 2003. Hepatitis C and renal disease. Am. J.Kidney Dis; 42(4):631-657. | 7. Nationally Notifiable diseases and Conditions. | http://www.cdc.gov/hepatitis/HCV/lab_Testing.htm.2012. | 8. Islam MS, Miah MR, Roy PK, rahmanO, Siddique AB, Chowdhury J, Ahmed F, Rahman S, Khan MR. 2015.Genotypes of hepatitis C virus in Bangladeshi population. Mymensingh Med J, 24 (1):143-51. | 9. Sexana AK, Panhotra BR, Naguib M. 2001. Prevalence of hepatitis C antibodies among hemodialysis patients in Al-Hasaregion of Saudi Arabia. Saudi J Kidney Dis.Transpl; 12:562-565. | 10. Yilmaz ME, Kara IH, Sari Y, Duzn S, Usul Y, Isikoglu B. 2001. Seroprevalence and risk factors of HCV in dialysis patients in a university HD Center of Southeast Anatolia, Turkey.Dial Transplant; 30:748-755. | 11. Xu J, Zhu L, Tag F, Zhu Y, Cae M, Du G, Xu J, Peng H, Zhai X. 2014.Rate of infection and related risk factors on hepatitis C virus in three countries of Jiangsu Province. Zhonghua Liu Bing Xue Zhi, 35(11):1212-17. | 12. Ozturk AB, Dangan UB, Ozturk NA, Ozyazici G, Demir M, Akin MS, Bongoi AS. 2014. Hepatitis C virus genotypes in Adana and Antakya regions of Turkey.Turk. Med Sci, 44(14):661-5. | 13. Luo R, Greenberg A, Stone CD. 2014. Increasing volume but decreasing mortality of hospitalized hepatitis C patients in the united states, 2005-2011. J Clinical gastroenterology. Sep.8. | 14. Robins WS. 1995. Hepatitis B virus and hepatitis D virus in Mandell GL, Bernett JE, Dolin R. Principles and practice of infectious Diseases, 4th ed. New York, Churchill livingstone.1406-1439. | 15. Worldhealth Organization. 1999. Hepatitis X-global prevalence. Weekly Epidemiological Record.74:425-427. | 16. Zhanq k, wang l, Sun y, zhanq R, Lin G, Xie J, Li J. 2014. Improving the safety of blood transfusion by using a combination of two screening assays for Hepatitis C Virus. Transfus.Med.24(5):297-304. |