Research Paper Medical Science

A Study of Hepatitis-C Prevalence In Ckd Patients On Maintance Hemodialysis;A Single Centre Study

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ABSTRACT

Introduction: Hepatitis C infection & CKD major health burden worldwide .wide range of extra-hepatic manifestations in various organs including the kidneys. HCV is both a consequence and cause of CKD.Hemodialysis in supporting the ESRD patients ,but carries a risk for hepatitis C infection. Despite much improvement the prevalence of hepatitis C infection in hemodialysis patients is still higher than the general population. Hepatitis C infection has a negative effect on the survival of hemodialysis and renal transplant patients. in developing countries with high prevalence of HCV, nosocomial transmission through transfusions, hemodialysis or unsafe injections is still an important issue

Aim: The objective of study to assess the prevalence of hepatitis-c in CKD patients on maintenance hemodialysis .

Materials and Methods: This is a prospective cross sectional in which 400 Hemodialysis CKD patients , who attended Dialysis units of Department of Nephrology, at Smt. G. R. doshi & Smt. K. M. Mehta, IKDRC, DR H. L.Trivedi ITS Ahmedabad (India)from period december2014 to october 2015.we performed elisa for hepatitis-b,hepatitis-c and hiv routinely in ourCKD patients on MHD on regular interval. All patients on maitanance hemodialysis were tested for anti-HCV antibodies[third generation].

Results: The overall prevalence of HCV infection was 6.25%. The longer the patient is on HD the more susceptible he/she is to HCV acquisition.

Conclusion: managment of hep c in ckd on dialysis pts is challanging Hemodialysis is supporting ,but carries a risk for hepatitis C infection. HD patients should be routinely screened for HCV infection, preferably using serological methods. Strict adherence to universal precautions without isolating HCV-infected dialysis patients seems to be enough to control disease spread in HD units

KEYWORDS : hemodialysis, hepatitis C virus,CKD

INTRODUCTION;-Hepatitis C virus (HCV) infection remains frequent in patient receiving long-term dialysis both in developed and less-developed countries. The natural history of HCV infection in dialysis patients remains incompletely understood; controversy continues even in patients with intact kidney function.Hepatitis C virus (HCV) has been recognized as an emerging problem in dialysis patients, and viral hepatitis remains a major hazard for both patients and medical staff of hemodialysis (HD) units[1,2]. The reported incidence of HCV antibody worldwide between HD patients ranges from 10.5% to 24%,[3,4] while the prevalence of anti-HCV among dialysis patients varies in different countries (5-85%) worldwide[5] . Although third-generation anti-HCV testing is specific and sensitive in patients with end-stage renal disease, earlier versions of anti-HCV testing have been less reliable in ESRD patients because of the blunted humoral immune response that occur with renal disease: a small proportion of ESRD patients have HCV viraemia in serum, but lack detectable anti-HCV [6].

Materials and Methods: This is a prospective cross sectional in which 400 Hemodialysis CKD patients , who attended Dialysis units of Department of Nephrology, at Smt. G. R. doshi & Smt. K. M. Mehta, IKDRC, DR H. L.Trivedi ITS Ahmedabad (India)from period december2014 to october 2015.we performed elisa for hepatitis-b,hepatitis-c and hiv routinely in ourCKD patients on MHD on regular interval. All patients on maitanance hemodialysis were tested for anti-HCV antibodies[third generation].

Results in our study out of 400 patients 326(81.5%) patient were male and 74(18.5%) were female[TABLE-1]in male 22(6.74%) out of 326 patients elisa for anti-hcv were positiveand in female 3(4.05%) out of 74 were positive[TABLE-3]majority of patients belong age between 40-60 year of age[table-2]

TABLE-1 GENDERWISE DISTRIBUTION OF PATIENTS TOTAL NO OF PATIENTS-400

GENDER	TOTAL NO OF PATIENTS-400	%
MALE	326	81.5
FEMALE	74	18.5

TABLE-2 AGEWISE DISTRIBUTION OF PATIENTS TOTAL NO OF PATIENTS-400

AGE(YEAR)	N-400	%
<40	130	32.5
40-60	165	41.25
>60	105	26.25

TABLE-3 ANTI-HCV +VE PATEINTS

GENDER	N-400	%	ANTI HCV+VE PTs	%
MALE	326	81.5	22	6.74
FEMALE	74	18.5	3	4.05

TABLE-4 MEAN VALUE OF PARAMETER

PARAMETER	MEAN	NORMAL VALUE
HB%(gm/dl)	10.35	12-14
TLC(c/mm)	6019.5	4000-11000

PLATLETS(c/mm)	1.32	1.5 -4.5
UREA(mg/dl)	81.09	13-45
CREATININE(mg/dl)	6.82	.5-1.4
Na^{+}(meg/l)	131.78	135-145
K^{+}(meg/l)	4.07	3.5-5.5
RETICULOCYTE COUNT%	.93	.5-2%
S.LDH(u/l)	160.3	100-190
CPK-TOTAL	71.68	10-120MCG/L
S.BILLIRUBIN TOTAL(mg/dl)	.84	.3-1.2
DIRECT BILLIRUBIN(mg/dl)	.36	.5
INDIRECT BILLIRUBIN(mg/dl)	.48	.3-.7
SGPT(u/l)	43.57	40
SGOT(u/l)	40.63	40
S.ALBUMIN(gm/dl)	3.24	3.2-5

DISCUSSION

The performance parameters of the testing method used have a direct impact on the detection of hepatitis C and thus can lead to differences in the prevalence data. In the early 1990's, the first generation HCV antibody testing kits were introduced using NS4 antigen. These tests were further improvised with the addition of NS3 and the core regions of the viral genome. This second generation ELISA assay had a higher sensitivity and specificity over the earlier one.[7,8] At present, the third generation ELISA assays use highly purified antigens with addition of NS5 region of HCV genome and have the highest sensitivity and specificity.[9] The kit used by us has a combination of recombinant and synthetic peptides as antigens with 100% sensitivity and 67% specificity. HD patients are at high risk for the development of hepatitis C infection. However, the data of prevalence of HCV infection among Indian HD patients is inadequate. In an article in 1992 Salunkhe *et al*.[10] reported 45%, Chadha *et al*. [11] in 1993 reported 12.1%, Sumathi *et al*[12] in 1993 reported 37.5%, Agarwal *et al*.[13] in 1999 reported 42% and Jaiswal *et al*.[14] in a study from 1992 to 2000 reported prevalence of 30%. The prevalence of HCV infection among the HD patients at our institute is 23.5%.

With the advent of molecular techniques, the circulating virus can now be detected by HCV ribonucleic acid measurement using polymerase chain reaction (PCR) test.[15] This testing is used for early detection (before seroconversion) and is also essential for confirmation of active HCV infection and monitoring of antiviral therapy. However, the limitation of this test is the cost effectiveness and non-availability in most of the laboratories.

In our study, only anti-HCV was taken as criteria to diagnose HCV infection. PCR test is required if the patients are planned to be put on anti-viral therapy. This was definitely not the aim of the present study. Thus although the limitation exists for the use of single anti-HCV test, considering all factors, it is still the test of choice for HCV screening as recommended by Centers for Disease Control and Prevention (CDC). The current CDC recommendations for HCV screening in HD patients include testing for anti-HCV and serum ALT on admission, ALT every month and anti-HCV semiannually.

Lack of strict adherence to universal precautions by staff and sharing of articles such as multidose drugs might be the main mode of nosocomial HCV spread among HD patients[16] Although some studies found that nosocomial spread of HCV declined when HCV - infected patients were treated in dedicated HD units, other investigators could control nosocomial spread by strict application of hygienic precautions without isolation of HCV - infected subjects or machine segregation.[17]

CDC recommends that special precautions should be observed in dialysis units. These include wearing and changing of gloves and water-proof gowns between patients, systematic decontamination of the equipment circuit and surfaces after each patient treatment and no sharing of instruments (e.g., tourniquets) or medications (e.g., multidose vials of heparin) among patients.[18]

To promote more efficient biosafety controls, quality programs must be implemented in dialysis centers addressing methodology training of technical teams and constant monitoring by epidemiological authorities.

It is recommended that HD patients should be monitored in order to determine the full risk factors for HCV contamination observed in this study.

Conclusions

HCV infection is more prevalent among HD patients in the developing countries. HCV infection prominently increases the burden of disease in the HD population. The longer the patient is on HD, the more susceptible he/she is to HCV acquisition. HD patients should be routinely screened for HCV infection, preferably using serological methods. Strict adherence to universal precautions without isolating HCV-infected dialysis patients seems to be enough to control disease spread in HD units

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