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HCV SEROCONVERSIONS IN DIALYSIS PATIENTS – A STUDY FROM SOUTH INDIA

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BACKGROUND

Hepatitis C virus (HCV) infection is common and associated with significant morbidity and mortality among dialysis patients. HCV infection is more common in dialysis patients than in healthy populations. The prevalence of hepatitis C (HCV) infection among the patients on hemodialysis (HD) varies from country to country and from one center to another in the same country. Global prevalence of HCV is 2.5%. The prevalence of HCV in MHD patients ranges from 6–60% whereas in India various studies show a prevalence of 4.3% to 45%.[1] This study aimed to evaluate the seroconversion rate of hepatitis C infection.

AIM OF STUDY: To study HCV seroconversion rate among patients on maintenance hemodialysis under Hub and Spoke model

Design: Retrospective Observational study.

INCLUSION CRITERIA

We included all those patients undergoing regular hemodialysis under hub and spoke model who were Hepatitis C negative at the initiation of dialysis.

EXCLUSION CRITERIA

Patients who were Hepatitis C positive at the initiation of dialysis.

Participants: Maintenance hemodialysis patients under Hub and Spoke model.

Period of study: Jan 2018 to Dec 2021.

PATIENTS AND METHODS

This retrospective study carried out in south India, four years data collected from dialysis centre's under Hub and spoke model.

Telangana government initiated the hub-and-spoke model where there are three hub centers located in Hyderabad, which is the capital of Telangana, and each of these hub centers caters to 10–15 spoke centers in the neighboring districts. Each of these spoke center is attached to an area hospital, and the infrastructure and water is provided by the superintendent of the respective hospitals. Spoke dialysis centers are monitored by physicians, anesthetists, or intensivists, who are trained for this purpose.

The data from each spoke center are uploaded daily and are supervised by the nephrologist at the hub center on a day-to-day basis. The hub center nephrologist reviews the history, physical examination findings, and investigations for each and every patient from each center and gives online approval after which the spoke center would initiate dialysis for that patient. Single use dialyser is used in all centres and transducers are discarded after each session of hemodialysis.

The monthly dialysis data for each patient are captured at the spoke center and are uploaded and reviewed by the nephrologist at the hub center every month before approval for the next cycle of dialysis is given. There are regular visits by the hub center nephrologist to the spoke center. This policy has brought dialysis to the doorstep of most of the patients in Telangana.

For HCV diagnosis, enzyme-linked immunosorbent assay (ELISA) for the detection of HCV antibodies was used. The initial screening and follow-up every 3 months for HCV ELISA was done.

RESULTS

Study included four years data which was statistically analyzed. In year 2018, 2019, 2020 and 2021 total patients receiving hemodialysis was 1966, 2336, 2503 and 2699 respectively out of which 100, 66, 23 and 22 patients which were Hepatitis C negative became hepatitis C positive in each year respectively. Percentage of seroconversion was 5.08%, 2.82%, 0.91% and 0.81%

in 2018, 2019, 2020 and 2021 respectively. Also there is decrease in seroconversion rate over 2018 to 2021.

Year	Total number of patients	Seroconverted patients	Percentage
2018	1966	100	5.08%
2019	2336	66	2.82%
2020	2503	23	0.91%
2021	2699	22	0.81%

DISCUSSION

Hepatitis-C infection is one of most prevalent infection in Pakistan. It can lead to Decompensated Liver Disease (DCLD) and even Hepatocellular Carcinoma (HCC).[2] HCV is associated with increased risk of morbidity and mortality among patients on maintenance dialysis.[3] HCV prevalence in maintenance hemodialysis patients in India is ranges from 4.3-45%.[1] HCV seroconversion rate in our study was in the range of 0.81%-5.08% over last 4 years, while other studies shows higher seroconversion rate.

Two studies from Pakistan showed HCV seroconversion rate of 48.9% and 22.2%.[4][5] A study from Indonesia found that the total HCV seroconversion in their dialysis patients was 27.8%.[6] Hepatitis C seroconversion in our dialysis unit was also lower than the seropositivity reported in studies in Brazil (46.7%), Libya (34.9%), and Egypt (34.8% & 13.2)[7][8][9][10] Studies from USA[11] has HCV seroconversion rate of 2.5%.

CONCLUSION

HCV seroconvesrion rate in our study was much lower as compared to other national or international studies also there is decrease in serocnversion rates over last four years. Single use dialyser and transducers are discarded after each session of hemodialysis under Hub and Spoke model an initiative by State Government of Telangana may have contributed to low seroconversion rate in our study.

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