Comparison of End Treatment Virological response to Pagylated Interferon Plus Ribavirin therapy in Genotype-3 HCV RNA virus infected patients having CKD (stage 1 and 2) versus Non-CKD, Non-Responders to Conventional Interferon Plus Ribavirin therapy

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Abstract:

Background: Hepatitis C is a common infection in developing countries. The treatment of this is still a major challenge to health care system across the globe.

Objective: to compare the End-Treatment virological Responsein patient with CKD stage (stage 1, 2) and non-CK-D,non-responders to conventional therapy of conventional interferon plus ribavirin.

Methodology: This study was conducted in Medical unit of Saidu Teaching Hospital Swat from 1st July 2017 to 30st June 2019. Patients, non-responder to conventional therapy patients were divided into two groups those with CKD stage (stage 1, 2) and those without CKD. Both the groups were started on Pegylated interferon and Ribavirin therapy for 24 weeks. TheEnd-Treatment Response (ETR)was assessed after 24 weeks of treatment by doing HCV RNA PCR.

Results: Out of total 69 patients were included in our study, 40 were having Non-CKD while 29 were having CKDstage (stage 1, 2). The End treatment virological Response in CKD patient was 75.9% (22 out of 29 patients) however the response in those without CKD patients were 87.5% (35 of out of 40 patients) this difference was not significant (p vale 0.211).

Conclusion: In patients who are not responders to conventional therapy of interferon plus ribavirin, pegylated interferon plus ribavirin has a significantly good response in both patients with or without CKD of initial stages (stage 1 ,2)

Introduction:

Hepatitis C infection is a chronic liver viral infection. As the HCV is not a noticeable disease in Pakistan, so the national data for the exact estimate of hepatitis C infection is not available. However some it is predicted that about 6% of Pakistani population is infected with hepatitis C virus1.

The hepatitis C may be progress to chronic infection and/or to other common complication known as cirrhosis which leads to further morbidi ties like decompensations and hepatic carcinoma2, 3. The treatment chronic infection should be treated before the cirrhosis developes4.

Conventional therapy used for the treatment of hepatitis C virus is interferon and ribavirin. It has been estimated that 50% of the patient respond to this regimen while the remaining does not response. The factors for non-responder varies which may include the genotype of virus, host factors and other molecular mechanisms caused by HCV proteins to inhibit the IFN signal transmission pathway5, 6.

The pegylatet interferon regimen also has better response in some responders. A randomized control trial showed high proportion of patient with ETR in all doses of pegylatet interferon(dose of 0.5, 1.0, 1.5µg/kg response were 33%, 41%, 49%, respectively) compared to interfer - on group (24%)7.

In patient with CKD there is interference with the pharma - cokinetic of pegylatet interferon and ribavirin. In patient on hemodialysis the end-of-treatment response has been observed in 14 (82.4%) patients8. Omer et al found that 83.4% of hemodialysis patient showed end-treatment response9.

The aim of the study is to find out the end treatment response of pegylated interferon in patients with CKD as the most study have done on hemodialysis patient no proper documentary found on the subject.

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Methodology

This study was conducted in Medical unit of Saidu Teach - ing Hospital Swat from 1stJuly 2017 to 30 June 2019. All the patients admitted to the medical unit for the treatment of hepatitis, Genotype III HCV infected patients (By qualitative PCR) non-responder to conventional therapy, both gender were included in the study. All those who received conventional therapy consisting of interferon in dose of 3 Million Units S/C three times/week and ribavirin in dose of 1000-1200mg/day based on body weight and after 24 weeks PCR still detected HCV RNAs were classified as non-responder to conventional therapy. Patient who were too old (age greater than 85 years), those younger than 20 years, all those who are co-infect - ed with other chronic virus like hepatitis B or HIV and not

welling for consent were excluded from the study. Patient were divided into two groups, group A with chronic kidney disease while other, group B, without chronic kidney disease. Chronic kidney disease were defined as all those who have effective GFR calculated is between 90 to 60 mL/min/1.73 m2 measured on two occasion 90 days apart. Both the group were started on Paginated interferon and Ribavirin therapy which was consisted of peg-interferon Alfa 2a in dose of 180 µg/week S/C and ribavirin in dose of 1200mg/day based on body weight, for 24 weeks. The end treatment response was considered positive in all patient with no hepatitis C virus was detected after 24 hours of treatment.

Analysis of the data was done by SPSS version 23. Mean age, gender, diabetes and ischemic heart disease presence were compared in both groups. The response rates of patient in both groups were calculated.

Result

Out of total 69 patients were included in our study, 40 were in group B (having no CKD) while 29 were in group A (having CKD). Comparing both groups for gender, male were more than female in CKD group [30 (43.47%) versus 15 (21.7%) p value 0.045]. the mean age in CKD group was 48.14 ± 7.87 while it was 32.45 ± 6.93 in no CKD group, this difference was also significant (p=0.000). diabetes was positive in 13(18.84%) of CKD and in 8(11.59%) of patient with no CKD. Ischemic heart disease history was positive in 7(10.14%) of patient with CKD and in 3(4.35%)without CKD. (table 1)

Discussion

Our result showed a greater response of pegylated interferon in those patients who were not having CKD. The response rate in CKD patient was 75.9% (22 out of 29 patients) however the response in those without CKD patients were 87.5% (35 of out of 40 patients) this difference was not significant (p vale 0.211). Our result were a bit lower than those found by Ayaz et al and Kokoglu et al who showed end-of-treatment response in 14 (82.4%) and 83.4% patients respectively8, 9. However they have done this study in hemodialysis patient. The ETR and SVR found ed byCasanovas-Taltavullet al. was only 25%, and 83%with the recurrence in 50% of patient with renal transplant and on hemodialysis10.

In our study there was difference in age and gender regarding the presence of CKD and nonrespondentparticipatient which was significant, so that may interfere with the result. The second limitation of my study included the possible not administrating the peg interferon by the patients in timely. Also due to lab errors the viruses have not be detected.

Conclusions

In patients who are not respondent to conventional therapy of conventional interferon plus ribavirin, pegylated interferon has a good response in both patients with initial stage of CKD and no CKD. Further evaluation with large sample size is necessary to evaluate these effectsin future to have a good view of study finding regarding the subject.

		Stage 1 and 2 CKD		P value
		Yes	No	
Gender	Male	15 (21.7%)	30 (43.47%)	0.045
	Female	14 (20.28%)	10 (14.49%)	
Age (years)		48.14 ± 7.87	32.45 ± 6.93	0.000
DM	Yes	13(18.84%)	8(11.59%)	0.027
	No	16(23.19%)	32(46.38%)	
IHD	Yes	7(10.14%)	3(4.35%)	0.053
	No	22(31.88%)	37(53.62%)	

The End treatment Response in CKD patient was 75.9% (22 out of 29 patients) however the response in those without CKD patients were 87.5% (35 of out of 40 patients) this difference was not significant (p vale 0.211)

ETR * Stage 1 and 2 CKDCross tabulation

			Stage 1 and 2 CKD		Total	P value
			Yes	No		
ETR	Yes	Count	22	35	57	0.211
		% within CRF	75.9%	87.5%	82.6%	
	No	Count	7	5	12	
		% within CRF	24.1%	12.5%	17.4%	
Total		Count	29	40	69	
		% within CRF	100.0%	100.0%	100.0%	

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