

Role of eating habits after treatment of hepatitis “C” patients

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Abstract:

Investigators suggest that high protein diet or rich energy diet (nitrogen, calories), vitamin B and D, dairy products, fruit, fish and soybean with 5 or more cups of green tea reduce the time of treatment and progression of liver diseases as well as hepatitis C. Some people claim that more than 3 coffee cups with dose PEG-INF and Ribavirin treatment will be beneficial to improve the virology response. To diagnose the effect of food factors which disturb health of reoccurred patients of hepatitis “C” and may support for reoccurrence? A cross sectional observational study was conducted in Department of Statistics at Minhaj University, Lahore, from September 2013 to September 2014. It is concerned with the interlock of inquiry under which research has been carried out. Only those patients were enrolled who again had relapse of hepatitis “C” after getting treatment. The data collected via questionnaire and verified telephonically from all patients. Statistical package for social sciences (SPSS) version 21.0 was used for data analysis. Chi-square test was used to check the association between risk factors with reoccurrence status and also favorable factors which showed how to reduce the chances of reoccurrence. Ordinal regression also used to check the role of eating habits on reoccurrence in hepatitis “C” patients. There were hundred patients sample enrolled in this study who had status of reoccurrence. Male and females patients were 58 and 42 per cent respectively. The average age, height and weight of patients was 45.13 years, 165.86 cm and 72.94 kg. Most variables were showing result insignificant but cruciferous vegetables and shaving arrangement had a significant impact. Favorable factors support the patients to reduce the reoccurrence of hepatitis “C”. These factors were also favoring in combating others diseases.

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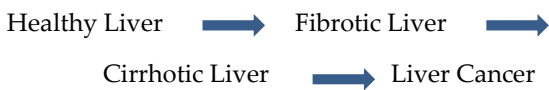
INTRODUCTION

Health is an English word which is derived from an old English word “HALE” that means “WHOLENESS”, “BEING WHOLE” or “SOUND WELL” but these meanings are not enough to explain this word “HEALTH”. We can simply say that health is the greatest blessing of Almighty Allah. Any altered or disturbing event in our steady health is known as disease.

Every disease is classified into two categories (levels) i.e. acute & chronic. Virus is a major source of liver diseases, especially of hepatitis. Hepatitis virus classified in to different categories like A, B, C, D and E but hepatitis “C”

is leading cause of mortality and morbidity in all over the world among afore mentioned types of viruses. Hepatitis “A” and “E” caused due to contaminated food and water while Hepatitis “B” and “C” caused due to blood products, Blood transfusion. Hepatitis “D” is caused by hepatitis ‘B’. Hepatitis B Vaccination (HBV) is available in market and every one can protect him/her -self by getting vaccination. In contrast, Hepatitis C Vaccination (HCV) is not available. Hepatitis “C” is investigated here as 180 million people suffering from it in Pakistan that stands second in the world. Its prevalence in Pakistan is 5 per cent and 75 per cent people unaware from hepatitis “C” symptoms. Genotype 3 is very common in Pakistan among 1-6 types.²⁶ This is alarming situation for population and also for

government of Pakistan. Majority of patients acquire hepatitis "C" from blood transfusion and drug use. There are few roads which transferred virus of hepatitis "C" into other people. These are injection drug use, blood transfusion, sex with an intravenous drug user, religious scarification, having been struck or cut with a bloody object, pierced ears or body parts, immunoglobulin injection, tattooing. Hepatitis "C" disease progression is as under:



MATERIAL AND METHODS

The observational cross sectional study design was applied to conduct this study. Sample size of this study was 100 patients which calculated by statistical formula for sample size proportion. The inclusion criteria of this study was patients who acquired hepatitis "C" after getting treatment or those patients who shifted from interferon to regulated interferon treatment. They gave detected response after using interferon therapy. Recovered patients after taking first time treatment were not included in this study. A large number of variables on risk factors and favorable factor

Some investigators suggest that high protein diet or rich energy diet (nitrogen, calories), vitamin B and D reduce the time of treatment and progression of liver diseases as well as hepatitis C.¹⁹ Another author recommended that dairy products, fruit, fish and soybean with 5 or more cups of green tea reduce the risk of liver cancer⁵. Another view is that more than 3 coffee cups with dose PEG-INF and Ribavirin treatment will be beneficial to improve the virology response.¹¹

included to check the effect of diet in reoccurrence of hepatitis "C" in patients. The data collected through questionnaire and telephonic-interview to collect information regarding eating habits.

Statistical package for social sciences (SPSS) version 21 was used to perform mean and standard deviation for quantitative variables. While Chi-square used to check association between variables. Ordinal logistic regression model was used to check the partial contribution of risk factors and favorable factors.

$$\text{Logit model is } \ln\left[\frac{\text{prob}(\text{event})}{1 - \text{prob}(\text{event})}\right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_k X_k$$

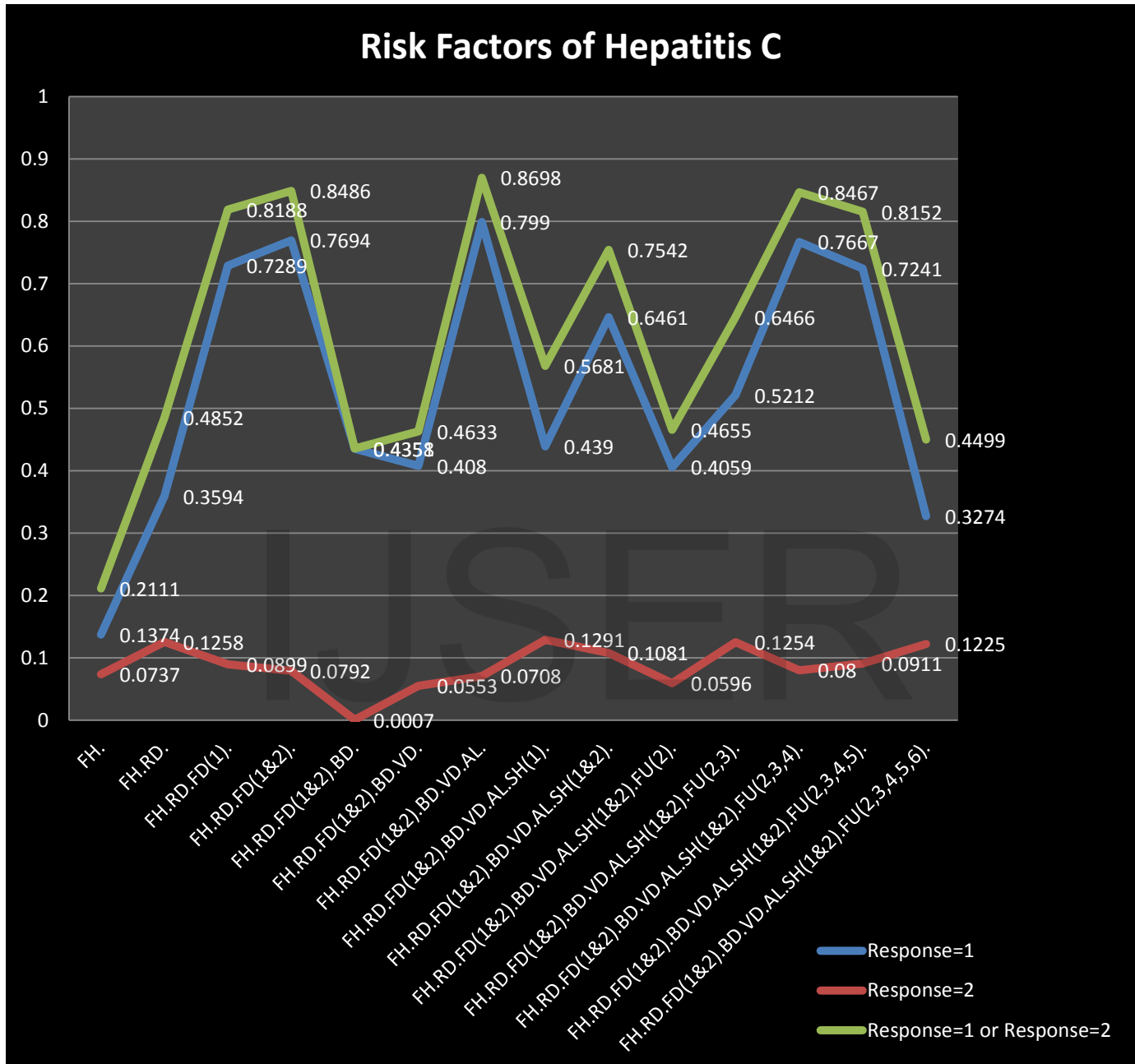
Abbreviation of Risk Factors and Favorable Factors

RISK FACTORS		FAVOURABLE FACTORS	
Variable Name	Abbreviation	Variable Name	Abbreviation
Family history	FH	Garlic	G
Restricted diet	RD	Grape fruit	GF
Frequently used diet	FD	Beets	B
Blood deficiency	BD	Leafy	L
Vitamin deficiency	VD	Green tea	GT
Alcohol	AL	Coffee	C
Shaving	SH	Cruciferous vegetable	CV
Type of food after using uncomfortable	FU	Lemon	LE
		shaving arrangement	SR

RESULTS

Risk Factors	Response=1	Response=2	Response=1 or Response=2
FH.	0.1374	0.0737	0.2111
FH.RD.	0.3594	0.1258	0.4852
FH.RD.FD(1).	0.7289	0.0899	0.8188
FH.RD.FD(1&2).	0.7694	0.0792	0.8486
FH.RD.FD(1&2).BD.	0.4351	0.0007	0.4358
FH.RD.FD(1&2).BD.VD.	0.408	0.0553	0.4633
FH.RD.FD(1&2).BD.VD.AL.	0.799	0.0708	0.8698
FH.RD.FD(1&2).BD.VD.AL.SH(1).	0.439	0.1291	0.5681
FH.RD.FD(1&2).BD.VD.AL.SH(1&2).	0.6461	0.1081	0.7542
FH.RD.FD(1&2).BD.VD.AL.SH(1&2).FU(2).	0.4059	0.0596	0.4655
FH.RD.FD(1&2).BD.VD.AL.SH(1&2).FU(2,3).	0.5212	0.1254	0.6466
FH.RD.FD(1&2).BD.VD.AL.SH(1&2).FU(2,3,4).	0.7667	0.08	0.8467
FH.RD.FD(1&2).BD.VD.AL.SH(1&2).FU(2,3,4,5).	0.7241	0.0911	0.8152
FH.RD.FD(1&2).BD.VD.AL.SH(1&2).FU(2,3,4,5,6).	0.3274	0.1225	0.4499

Table: Risk Factors

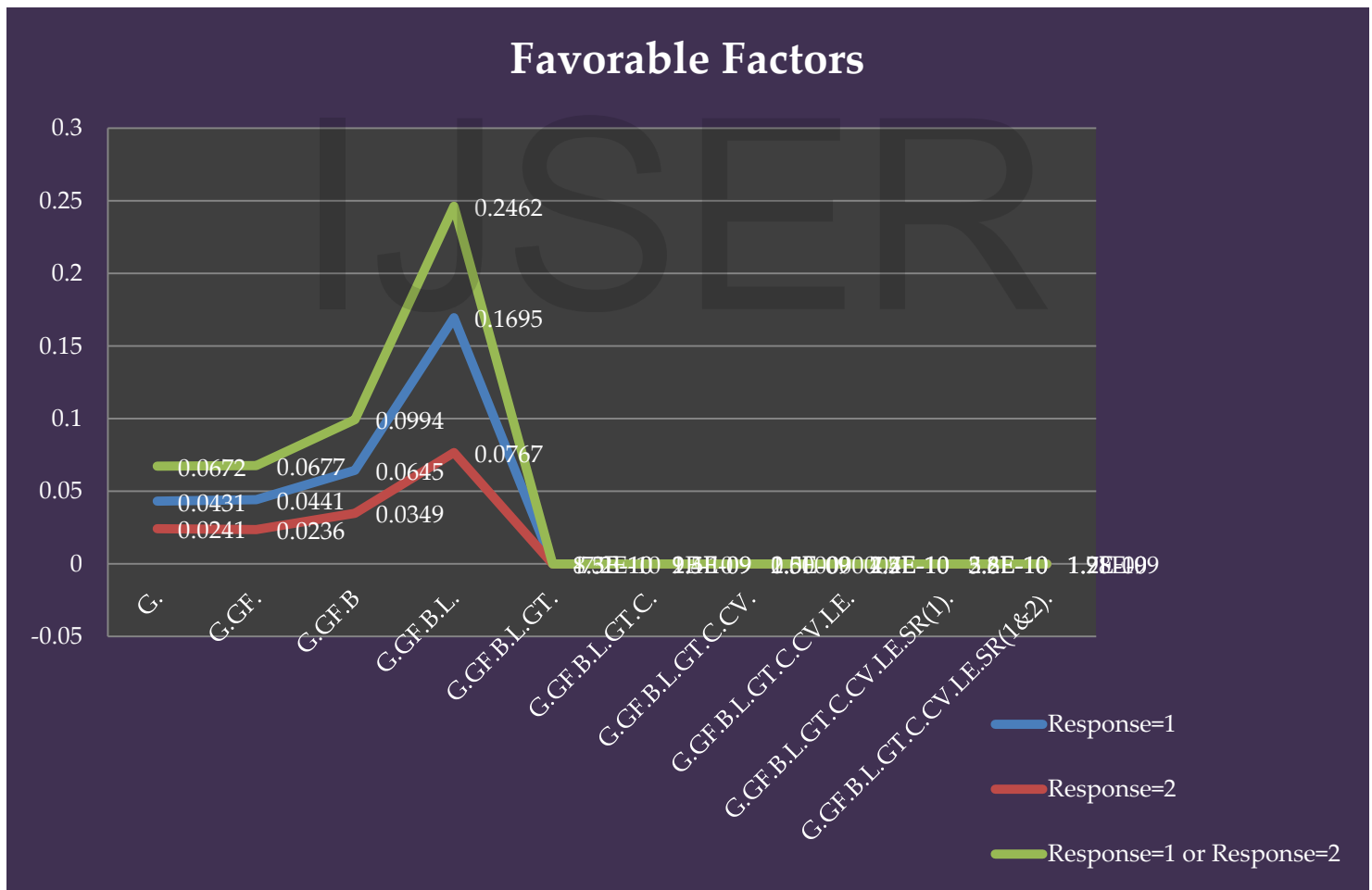


The above line graph represents the risk factor in liver diseases but here focus on hepatitis "C" disease. Graph tells that risk factors attacked more effectively to reoccurred hepatitis' "C" patients till response=1(up to first month) then this effectiveness going down day by day from 2nd

month to 3rd month due to therapy of hepatitis "C" as compared to 1st month but overall risk factors are showing to high frequency of virus in patients and try to damage the liver of hepatitis "C" recurrence patients.

Table: Favorable Factors

Favorable Factors	Response=1	Response=2	Response=1 or Response=2
G.	0.0431	0.0241	0.0672
G.GF.	0.0441	0.0236	0.0677
G.GF.B	0.0645	0.0349	0.0994
G.GF.B.L.	0.1695	0.0767	0.2462
G.GF.B.L.GT.	8.5E-10	-7.2E-10	1.3E-10
G.GF.B.L.GT.C.	1.5E-09	9E-10	2.4E-09
G.GF.B.L.GT.C.CV.	2.5E-09	1.5E-09	0.000000004
G.GF.B.L.GT.C.CV.LE.	4.5E-10	2.7E-10	7.2E-10
G.GF.B.L.GT.C.CV.LE.SR(1).	3.6E-10	2.2E-10	5.8E-10
G.GF.B.L.GT.C.CV.LE.SR(1&2).	1.2E-10	1.78E-09	1.9E-09



The above graph represents the favorable factor in liver diseases but focuses on hepatitis "C" disease. It shows that favorable factors have played positive and more effective role in reoccurred hepatitis' "C" patients till response=1(up to first month). Then this effectiveness going down day by day from 2nd month to 3rd month due to pressure of virus of

DISCUSSION

This study contains a sample of hundred hepatitis "C" patients who have reoccurrence status while they all have taken "regulated interferon therapy" with ribavirin (capsules or tablets). The average age of participated patient was 45.13 years and standard deviation was 8.329 year. The average height of recorded patients was 165.86 cm and 9.593 cm was its standard deviation. Similarly 72.94 kg was average weight of patients and 11.38 kg standard deviation resulted. Mean of hemoglobin was 12.6 g/dl, blood glucose was 131.25. Creatinine was 1.15 and ALT was 63.7 noted.

Chi square test was applied to check the relation between reoccurrence at different month as per guidelines by health physicians with risk factors. Favorable factors are found more effective in liver diseases with therapy. Firstly it applied on risk factors one by one and concluded that men and women have equal chances of reoccurrence or statistically insignificant. Family history has not led the reoccurrence of hepatitis "C" in patients. Restricted diet has significant result and tries to reduce the chances of reoccurrence of hepatitis "C". Even frequently used diet like vegetable, fruits, juices, rice, etc. reduce the chance of reoccurrence of hepatitis "C" than junk foods. The result of blood deficiency and vitamin D is insignificant. These

hepatitis "C" as compared to 1st month. But overall the response of favorable factors is looking good and supportive to therapy to control hepatitis "C" reoccurrence. Whereas green tea has excellent effect to control the virus with the help of therapy.

weaken the patient's immune system but do not support hepatitis "C" to reoccurrence. Alcohol gave insignificant result as per data that it did not disturb the liver for hepatitis "C" whether it is biggest risk factor for converting hepatitis "C" into severe position. The main reason of insignificance of alcohol in a Muslim country is that people feel shame to adopt this prohibition. Shaving is a rare risk factor in Pakistani population and result is insignificant that cannot affect the reoccurrence of hepatitis "C". Oily, junk food, sea food, meat (spicy) even rice frequently user feeling little bit uncomfortable after to eat.

After checking relation of risk factors with reoccurrence, I shifted over on favorable factors, firstly check garlic that has insignificant result. Grapefruit shows insignificant output which concluded that it does not reduce the chances of reoccurrence of hepatitis "C". Beets have insignificant effect in reoccurrence of hepatitis "C". Leafs have also insignificant result. While green tea used only by five per cent people showing result insignificant. Coffee also has insignificant relation with reoccurrence of hepatitis "C". Cruciferous vegetables (especially mustard greens, various cabbages, broccoli, cauliflower, Brussels, sprouts) have significant result in reducing the reoccurrence of hepatitis "C". Response of lemon was insignificant but shaving arrangement after 1st positive test of hepatitis "C" reduces the chances of reoccurrence.

Graph told that risk factors attacked more effectively to reoccurred hepatitis' "C" patients till response=1(up to first month) then this effectiveness going down day by day from 2nd month to 3rd month due to therapy of hepatitis "C" as compared to 1st month but overall risk factors were showing to high frequency of virus in patients and try to damage the liver of hepatitis "C" reoccurrence patients. Graph told that favorable factors played positive and more effective role in reoccurred hepatitis' "C" patients till response=1(up to first month) then this effectiveness going down day by day from 2nd month to 3rd month due to pressure of virus of hepatitis "C" as compared to 1st month but overall response of favorable factors was looking beneficial and try to support the therapy to control hepatitis "C" reoccurrence whereas green tea has excellent effect to control the virus with help of therapy.

study and reviewed the statistical aspects. AZKC co-supervised the study and reviewed the medical aspects.

CONCLUSION

This study contains 100 number of reoccurred hepatitis "C" patients whose average age was 45.13 year. Few risk factors and few favorable factors studied and concluded that risk factors quickly attack on liver when they were patients of hepatitis "C" or other liver diseases in first month. Then after first month of disease risk factors disturbance speed is little bit low but try to damage the liver. No doubt favorable factors support the patients to fight with the hepatitis "C" and also beneficial in reducing the chances if reoccurrence.

AUTHOR'S CONTRIBUTION

KMA planned the study, Data collection, Data coding, Data entry in SPSS, Data analysis, interpreted the results and Drafted initial and final manuscript. MI supervised the

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