Prevalence and treatment response of hepatitis C in hemophilia patients

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Introduction

- Taiwan is a hyperendemic area of liver diseases. Hepatitis B virus (HBV) and hepatitis C virus (HCV) are the two major etiologies of liver diseases in Taiwan.
- The seroprevalence of HCV among general population in Taiwan is around 4.4%.
- Adults with hemophilia have one of the highest prevalence rates of HCV among all populations at risk for this disease.
- The prevalence of HCV infection in Taiwan hemophiliacs was high in early years, but getting lower in recent years. (Table 1)

Aim

- Our study was aimed to evaluate the efficacy and safety of hepatitis C treatment in hemophilia patients.

Methods

- From April 2010 to September 2013, data from 11 hemophilia patients with chronic HCV infection received HCV treatment according to the American and European Association for the study of Liver guidelines were collected.
- Clinical parameters including the HCV serotype, treatment course using pegylated interferon and Ribavirin combination therapy as well as adverse events were analyzed to evaluate the efficacy and safety of hepatitis C treatment in hemophilia patients.

Result

- Eleven hemophilia patients with abnormal transaminases and/or high HCV viral load undergoing HCV treatment were recruited, aged 32 to 73 with a mean of 47.4 years.
- The HCV serotype exam showed type 1b in 7 patients, complex serotype in 3 patients. The other 2 patients showed type 1a and type 3a, respectively. (Table 2)
- Among 11 patients, early viral response (EVR) were observed in 8 patients, 8 of 10 patients completed HCV treatment achieved the criteria of sustained viral response (SVR). (Table 3)
- One patient stopped treatment less than one month due to intolerable myalgia, general malaise, other 10 patients experienced grade 2-3 hematologic adverse effect without increase of bleeding events.

Conclusion

- Our study demonstrated the HCV treatment response rate in hemophilia patients is comparable to those in the general population without a higher risk of adverse events.

Discussion

- The cause of death in Taiwan hemophilia patients was changed in recent years (Table 4), less hemorrhage and HIV infection related death but increased HCC related death were noticed.
- The incidence of HCV infection in Taiwan hemophiliacs is lower now, but we should keep following these patient and prescribing HCV treatment if indicated to prevent advance liver disease or HCC in this patient group.

Table 1 Incidence of HCV infection of Taiwan hemophilia patients

Hepatitis markers	Study period				
	1979 -1981	1984 -1989	1995 -1998	2004 –2007	2007-2010
No. of patients studied	82	208	128	61	96
HBsAg(+)	16 (19.5)*	33 (15.9)	11 (8.6)	6 (9.8)	9 (9.4)
Anti-HCV(+)	NA	104 (82.5)	115 (89.5)	32 (52.5)	45 (46.9)
Anti-HCV(+) and/or HCV RNA(+)	NA	NA	116 (90.6)	NA	NA
Anti-HAV(+)	50 (62.5)	111 (93.3)	NA	42 (68.9)	72 (75.8)
Anti-HIV(+)	NA	42 (20.2)	18(14.1)	0 (0)	0 (0)
Anti-HGV(+) and/or HGV RNA(+)	NA	NA	45 (35.2)	NA	NA
Anti-B19(+) and/or B19 DNA(+)	NA	NA	122 (95.3)	NA	NA

Table 2 Clinical information of patients received HCV treatment

	Age (mean- 47.4)	Diagnosis	HCV serotype	HCV viral load (IU/mL)	Treatment course (PEG interferon+Ribavirin)
Case 1	73	Hemophilia A	1b	4600233	2010/8/28-2011/7/30
Case 2	43	Hemophilia B	1b	1763966	2010/10/23-2011/4/4
Case 3	43	Hemophilia A	1b	2240840	2010/11/23-2011/10/25
Case 4	37	Hemophilia A	3a	477929	2011/1/8-2011/6/25
Case 5	41	Hemophilia A	1b	1629912	2011/3/1-2011/8/16
Case 6	64	Hemophilia A	1b,3a	1280101 3500754	2011/4/26-2011/10/11 2012/5/8-(relapse)
Case 7	59	Hemophilia B	1b	4572578	2011/4/27-2011/5/25
Case 8	42	Hemophilia A	1b,2a,3a	1937725	2011/6/11-2012/5/12
Case 9	32	Hemophilia B	1b	1396270	2012/3/29-2012/2/28
Case 10	42	Hemophilia A	1b,2a,3a	3057496	2012/5/12-2013/4/13
Case 11	44	Hemophilia A	1a	2380062	2012/10/9-2013/9/10

Table 3 Treatment outcome and adverse effects

Treatment outcome and adverse effect	Proportion of patients
RVR (Rapid Viral Response)	18.2%(2/11)
EVR (Early Viral Response)	72.7%(8/11)
SVR (Sustained Viral Response)	80%(8/10)
Grade 1 hematological adverse effect	36.4%(4/11)
Grade 2 hematological adverse effect	54.5%(6/11)
Discontinuation of treatment	9.1%(1/11)

Table 4 Cause of death in Taiwan hemophilia patients

	Study period		
Causes of Death	1979 - 1981	1984 - 2002	2003-2010
AIDS-related	0	23 (54.8)	0
Intracranial bleeding	11 (50.0)	4 (9.5)	4 (36.4)
Traffic accident	0	6 (14.3)	1 (9.1)
Massive bleeding	8 (36.4)	4 (9.5)	1 (9.1)
Suicide	0	1 (2.4)	0
Acute myelogenous leukemia	0	1 (2.4)	0
Renal failure	0	1 (2.4)	0
Acute myocardial infraction	0	1 (2.4)	0
Hepatocellular carcinoma	0	0	2 (18.2)
Oral cancer	0	1 (2.4)	1 (9.1)
Neck synovial sarcoma	0	0	1 (9.1)
Infection	1 (4.5)	0	0
Snake bite	0	0	1 (9.1)
Unknown	2 (9.1)	0	0
Total	22 (100)	42 (100)	11 (100)
Mean age of death (ranges) (year)	8.7 (<5 ~ <40)	34.2 (8 - 63)	