



# Home-based Factor Infusion Therapy in Hemophilic Children

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## PURPOSE

The purpose of this study is to provide basic information for home infusion education by analyzing current state of hemophilic children's home infusion and, through this, improve hemophilic children's quality of life by reducing complications of home infusion.

## METHODS

The patients under 20 years and their families performing home-based factor infusion who participated in the 2014 camp of Korea Hemophilia Association were asked to fill out self-report questionnaires.

## RESULTS

Those who practiced home infusion among hemophilic children were 86.6% (39/45) with their average age of  $11.66 \pm 4.80$  (2~20 years of age) and it was mainly practiced by their parents 82% (32/39). Those who received education on home infusion at hospitals were 61.5% (24/39) and those at Hemophilia patient organization were 79.4% (31/39), while 71.8% had experience of injection supervised by health care provider. Complications related to home infusion were bruise with  $2.37 \pm 1.18$  points which occurred more often than hematoma, vasculitis, cellulitis and necrosis. Although appropriate preparation and infusion of factor concentrate was practiced in generally high proportion, the score of injecting medication with injection needle fixed by their own hands or adhesive tape was  $3.97 \pm 1.46$  points, showing a low practice compared with other items. As for places and methods of education, those who received home infusion education in the hospitals had significantly higher cases of cellulitis ( $P=0.04$ ), but did not have significant relationship with the appropriate preparation and infusion of factor concentrate. Regular change of infusion vessels had statistically significantly higher number of infusion failures than repeated infusion on one same vessel ( $P=0.039$ ).

## CONCLUSION

A more active, regular education and management of home infusion are required to be practiced by hemophilia medical centers.

Table 1. Characteristics of hemophilic patients.

Variable	Numbers(%)
Home factor infusion	45(100)
Yes	39(86.6)
No	6(13.4)
Factor deficiency	45(100)
Factor 8	31(68.8)
Factor 9	14(31.2)
Severity of hemophilia	45(100)
Mild	6(13.3)
Moderate	5(11.1)
Severe	34(75.5)
Inhibitor	45(100)
No inhibitor	42(93.4)
Low titer	1(2.2)
High titer	2(4.4)

Table 2. Factors related with treatment

Variable	Average	SD
Age of patient	11.66	$\pm 4.80$
Age to be diagnosed with hemophilia	1.69	$\pm 1.76$
Age when started factor treatment	2.13	$\pm 2.18$
Age when started prophylaxis	6.07	$\pm 4.29$
Age when started self-injection	17.57	$\pm 1.40$
Number of factor injections per month	9.33	$\pm 3.31$

Table 3. Relationship between home infusion education and complication of factor injection

		Bruise		Hematoma		Vasculitis		Cellulitis		Necrosis		Inconvenience associated with injection		Failed IV attempts per month	
		Mean	P	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P		
Hospital	Yes	2.30	.892	1.91	.764	1.45	.059	1.48	.040	1.39	.065	1.83	.093	1.43	.239
	No	2.21		1.93		1.00		1.00		1.00		1.29		1.00	
Hemophilia Patient organization	Yes	2.37	.131	2.03	.087	1.34	.245	1.37	.204	1.30	.253	1.73	.128	1.40	.334
	No	1.86		1.43		1.00		1.00		1.00		1.14		.71	
Injection Practice Supervised by healthcare provider	Yes	2.25	.664	2.00	.177	1.30	.681	1.32	.881	1.25	.610	1.64	.812	1.32	.596
	No	2.09		1.55		1.18		1.18		1.18		1.45		1.00	

Table 4. Relation of home infusion education and proper factor infusion

		Proper storage temperature		Washing hands before procedure		Cleansing of the vial septum		Mixing diluent and factor powder		Removal of air from needle		Proper cleansing of injection site		Fixation of injection site		Compression after injection	
		Mean	P	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P		
Hospital	Yes	4.65	.445	4.78	.769	4.70	.165	4.73	.058	4.77	.253	4.23	.051	4.00	.895	4.96	.713
	No	4.71		4.86		5.00		5.00		5.00		4.71		4.07		4.71	
Hemophilia Patient organization	Yes	4.73	.845	4.83	.363	4.77	.390	4.79	.244	4.83	.481	4.48	.780	4.03	.852	4.83	.481
	No	4.43		4.71		5.00		5.00		5.00		4.14		4.00		5.00	
Injection Practice Supervised by healthcare provider	Yes	4.79	.485	4.86	.690	4.96	.112	4.85	.602	4.96	.480	4.70	.051	4.26	.269	4.81	.360
	No	4.45		4.73		4.45		4.82		4.64		3.82		3.64		5.00	

Table 5. Relation of factor treatment and complication of injection

		Bruise		Hematoma		Vasculitis		Cellulitis		Necrosis		Inconvenience associated with injection		Failed IV attempts per month	
		Mean	P	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P		
Age when started prophylaxis	$\leq 5$	2.50	.064	2.15	.065	1.26	.655	1.30	.929	1.30	.681	1.75	.270	1.30	.233
	$> 5$	1.89		1.58		1.26		1.26		1.16		1.42		1.16	
Age when started self-injection	$\leq 5$	2.39	.107	2.00	.196	1.06	.211	1.11	.419	1.11	.698	1.56	.856	1.44	.054
	$> 5$	2.05		1.76		1.43		1.43		1.33		1.62		1.05	
Change of IV site	Yes	2.13	.967	1.70	.446	1.22	.587	1.22	.587	1.13	.891	1.43	.343	1.61	.039
	No	2.15		1.92		1.08		1.08		1.08		1.62		.62	
Number of veins used for IV access	$\leq 2$	2.06	.529	1.89	.490	1.06	.297	1.06	.179	1.06	.337	1.56	.614	.89	.103
	$> 2$	2.20		1.70		1.26		1.30		1.20		1.45		1.60	

Figure 1. Complications after injection of clotting factor

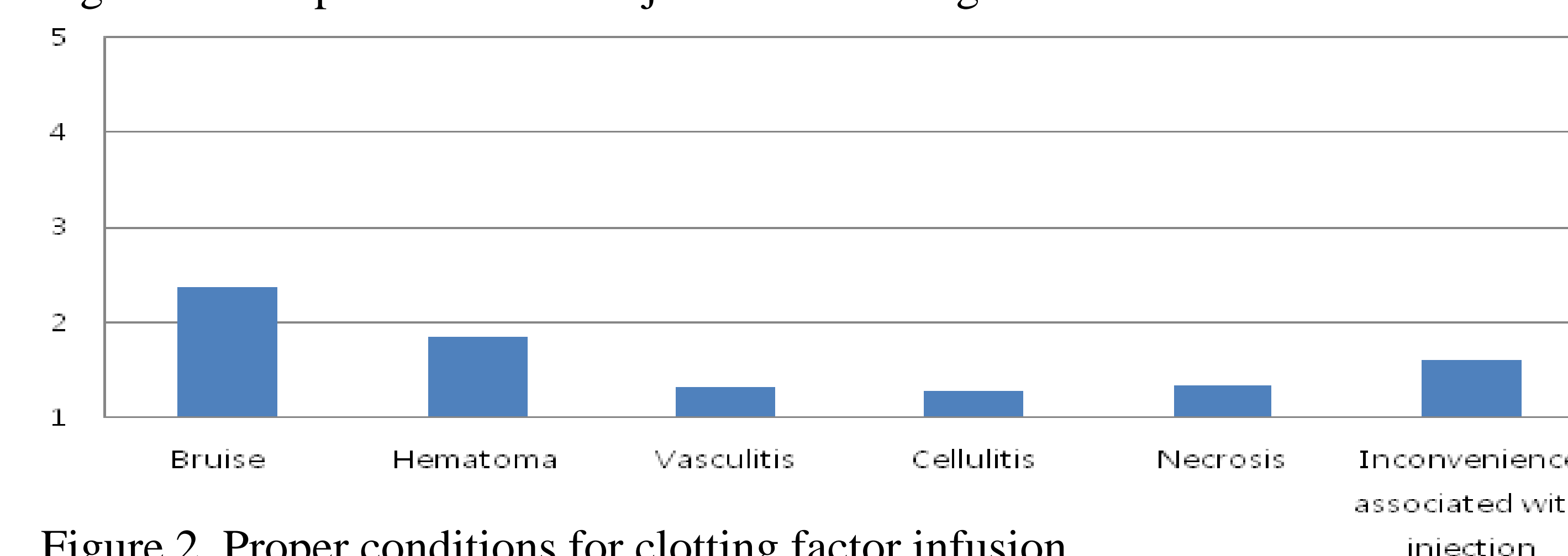
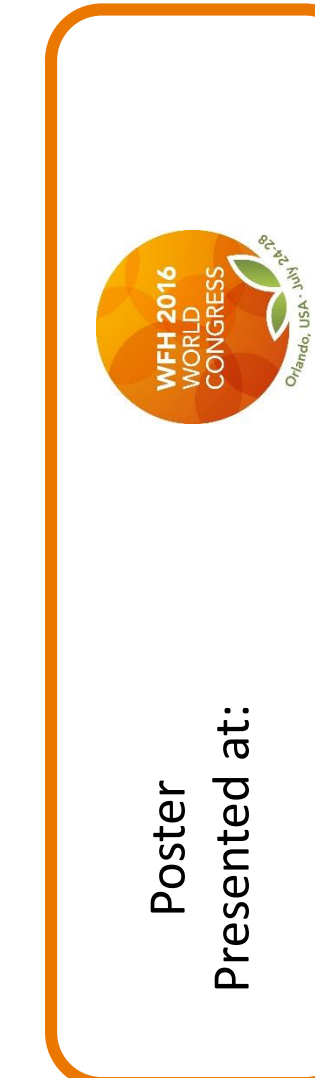
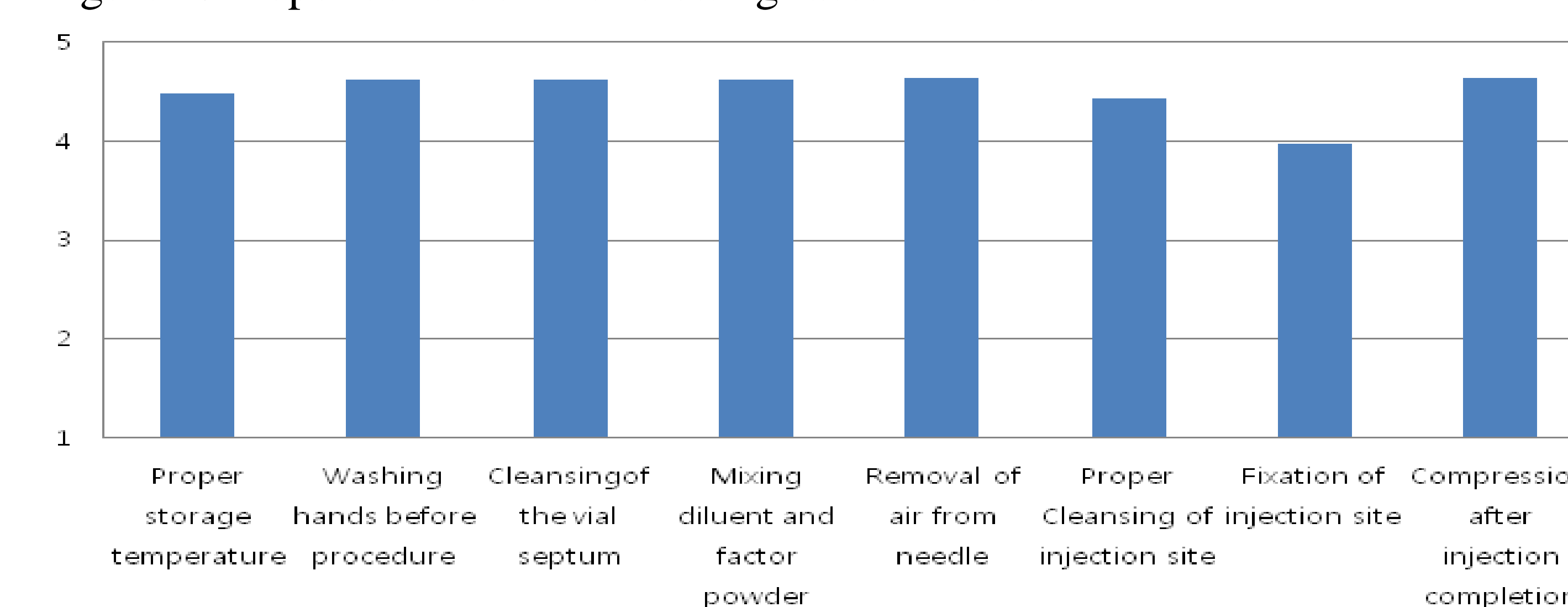


Figure 2. Proper conditions for clotting factor infusion



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