

통증 및 근골격재활

게시일시 및 장소 : 10 월 18 일(금) 08:30-12:20 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 10:00-10:45 Room G(3F)

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Pain distribution in maintenance hemodialysis patients

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Introduction

There were numerous studies regarding the characteristics, location, and causes of pain in maintenance hemodialysis (MHD) patients. However, limited information still remains about pain distribution pattern, the association between vascular access site and pain, and timing of emerging/aggravating pain.

Materials and Methods

MHD patients were interviewed and asked to complete a questionnaire including a pain drawing system by Margolis et al. Patients were allocated into three groups according to the presence of pain and the timing of the emerging/aggravating pain: Group 1 as those who does not have any pain; Group 2 as those who have dialysis-associated pain but no pain reported in daily living; Group 3 as those who have pain not associated with dialysis session. Pain distribution patterns were divided further by vascular access sites: site 1 as of right upper arm; site 2 as of right forearm; site 3 as left upper arm; site 4 as a left forearm. We used the heatmap to visualize pain distribution according to vascular access and the timing of emerging/aggravating pain.

Results

Total 107 patients were enrolled and there was no significant difference in demographics and clinical characteristics among the groups (Table 1). About 17.4 % of the patients reported pain emergence less than an hour during MHD in Group 2. Pain occurred between one and two hours in 15.2 % and two and three hours in 30.4 % of the Group 2 patients. 23.9 % of the Group 2 patients reported pain after three hours of the MHD session. In the case of a proximal portion of the upper limb (sites 1 and 3), the tendency of the pain to spread to the proximal part of the body including the shoulder was higher than that of the distal sites (sites 2 and 4). This tendency was more pronounced in Group 3 than in Group 2. The pain felt by the dialysis patients showed a tendency to be

distributed mainly in the shoulder and hand as well as the location of the vascular access. The pain in the hands was present in the contralateral side to the vascular access as well as the ipsilateral side, but in all cases, the pain rate was higher in the side of the hand where the vascular access was located. Similarly, pain in the shoulder was higher in the six cases of the eight combinations than in the non-dialysis patients on the side of the vascular access.

Conclusion

Pain during MHD is an important factor that can be easily neglected and has variable patterns associated with vascular access in MHD patients. This study shows detailed characteristics of pain in MHD patients and further study with a large sample size should be required to clarify these tendencies.

Table 1. Demographic and clinical characteristics of participants

	Total (n = 107)	Group 1 (n = 31)	Group 2 (n = 46)	Group 3 (n = 30)	P value
Gender: male / female (n and %)	38/69 (35.5/64.5)	13/18 (41.9/58.1)	11/35 (23.9/76.1)	14/16 (46.7/53.3)	0.089
Age (years, mean ± SD (range))	61.8 ± 10.4 (30 - 83)	61.5 ± 10.5 (40 - 83)	62 ± 9.4 (37 - 81)	61.8 ± 11.7 (30 - 82)	0.953
Height (cm, mean ± SD (range))	158.8 ± 8.8 (140 - 180)	160.1 ± 10.4 (140 - 176)	157.4 ± 8.5 (140 - 180)	159.8 ± 6.8 (148 - 174)	0.205
Weight (kg, mean ± SD (range))	58.3 ± 13.7 (34 - 125)	57.6 ± 11.8 (37.7 - 84.3)	58.3 ± 14.2 (34 - 125)	59.1 ± 14.6 (38 - 107)	0.975
BMI (kg/m², mean ± SD (range))	23 ± 4.2 (15.2 - 40.8)	22.3 ± 2.9 (17.5 - 27.2)	23.4 ± 4.2 (17.3 - 40.8)	23.1 ± 5 (15.2 - 37.5)	0.687
Causes of ESRD (n and %)					N/A
Type1 DM	1 (0.9)	1 (3.2)	0 (0)	0 (0)	
Type2 DM	35 (32.7)	12 (38.7)	14 (30.4)	9 (30)	
PCKD	4 (3.7)	0 (0)	3 (6.5)	1 (3.3)	
Glomerulonephritis	4 (3.7)	1 (3.2)	2 (4.3)	1 (3.3)	
HTN	24 (22.4)	6 (19.4)	12 (26.1)	6 (20)	
Others	28 (26.2)	9 (29)	10 (21.7)	9 (30)	
Comorbidities (n and %)					
DM	49 (45.8)	17 (54.8)	17 (37)	15 (50)	0.265
HTN	82 (76.6)	26 (83.9)	30 (65.2)	26 (86.7)	0.053
Ischemic heart disease	12 (11.2)	5 (16.1)	3 (6.5)	4 (13.3)	0.389
CVD	15 (14)	5 (16.1)	6 (13)	4 (13.3)	0.923
Malignancy	3 (2.8)	0 (0)	2 (4.3)	1 (3.3)	0.518
Time on HD (months, mean ± SD (range))	134 ± 137.8 (3 - 864)	138 ± 172.5 (7 - 864)	150.4 ± 126.2 (5 - 480)	104.6 ± 105.9 (3 - 356)	0.402
< 60 months (n and %)	42 (39.3)	13 (41.9)	15 (32.6)	14 (46.7)	
≥ 60 months (n and %)	65 (60.7)	18 (58.1)	31 (67.4)	16 (53.3)	

BMI, body mass index; NHIP, national health insurance patients; ESRD, end stage renal disease; DM, diabetes mellitus; PCKD, polycystic kidney disease; HTN, hypertension; CVD, cerebrovascular disease; HD, hemodialysis; N/A, not applicable

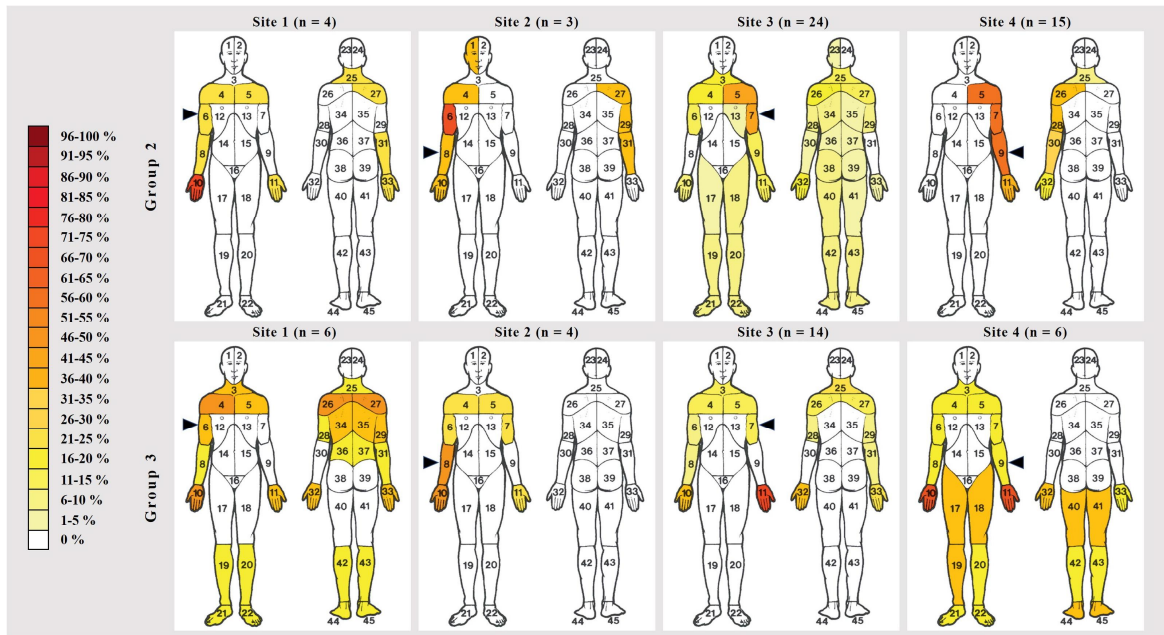


Figure 1. Pain distribution patterns among different vascular access sites