

Orem's Nurse Coaching Approach on Interdialytic Weight Gain Changes and Phlebitis in Chronic Kidney Disease Client with Hemodialysis

Shobirun^{*}, Supriyadi, Elisa, Sri Utami Dwiningsih, Heru Supriyatno, Sawab

Politeknik Kesehatan, Kemenkes Semarang, Indonesia

***Corresponding Author:** Shobirun, Nursing Department, Politeknik Kesehatan, Kemenkes Semarang, Jl. Tirta Agung Pedalangan, Banyumanik, Indonesia, **Email:** mshobirun@yahoo.com

Abstract:

Background: Coaching is a learning model applied by nurses in educating sufferers in hopes to change of Interdialytic Weight Gain (IDWG) and phlebitis in the client of chronic kidney disease with hemodialysis.

The Objective: This study aims to determine the effect of the application of Orem's learning model with coaching approach to IDGW changes and phlebitis in the client of chronic kidney disease (CKD) with hemodialysis.

Method: This research used a quasi-experimental design to forty respondents with no equivalent control group design and done in time series. CKD patients were given OREM's method of learning by coaching method using teaching approach, guiding, and environment and health education with the information provided to the patient to change patient behavior in limiting daily fluid intake.

Result: Friedman test results in the coaching group showed no IDWG relationship before coaching treatment until the seventh coaching treatment and no connection before the non-coaching treatment from before treatment until the seventh treatment. The dependent-t test showed no means difference of IDWG between the coaching group and the non-coaching group and the initial IDWG in each cluster. Mann Whitney test results showed no difference in early signs of phlebitis between coaching groups and non-coaching groups.

Conclusion: Orem's learning model with coaching approach found that there was a difference of urea level in coaching group before and after coaching but no difference of pre and post urea level in the non-coaching group. There was no difference in mean creatinine levels before and after treatment between coaching groups and non-coaching groups.

Keywords: Coaching, Interdialytic weight gain (IDWG), phlebitis, Chronic Kidney Disease (CKD), hemodialysis.

1. INTRODUCTION

Chronic Kidney Disease (CKD) is a failure of kidney function to maintain metabolism as well as fluid and electrolyte balance due to progressive destruction of a renal structure with the manifestation of metabolic (urethric) toxic buildup in the blood (Muttaqin & Sari 2011). Patients with CKD are usually given hemodialysis.

According to Suharyanto and Madjid (2009), the purpose of hemodialysis is to remove the toxic nitrogen substances from the blood and remove excess water from the body. A common complication in patients undergoing hemo dialysis is weight gain between two-time hemodialysis known as Inter Dialytic Weight

Gain (IDWG). The increased IDWG can lead to client problems such as hypertension, Interdialytic hypotension, peripheral edema, ascites, pleural effusion, heart failure and decreased the quality of life (Pace, 2007). Also, Levey et al. (2003) explain that IDWG increases are caused by various internal factors such as age, sex, education level, thirst, stress, self-efficacy, and external factors such as family and social support and the amount of fluid intake.

In Indonesia, patients undergoing hemodialysis also experience an increase in IDWG as the study conducted by Riyanto (2011) showed that the distribution of weight gain between two hemodialyses in the mild category was 11.8%,

the means group was 64.5 % and hazard categories of 23.7%. The study was also supported with a case study conducted by Lolyta (2012) showing that the majority of respondents experienced a weight gain of more than 5% of dry weight as much as 25 respondents (52.1%) and that no more than 5% of dry body weight 23 respondents (47.1%).

Nurses as health workers have a role in the provision of nursing care and as well as educators who are responsible for improving the knowledge and compliance of patients and families about the restriction of fluid intake for patients with CKD. The nurse can provide education on the rules used to determine the amount of fluid intake by determining the amount of urine released during the last 24 hours + 500 ml (Suharyanto & Madjid, 2009). Nurses' education on fluid intake restriction has not shown maximum results on adherence level and the quality of life of chronic renal failure patients with hemodialysis in hospitals of Semarang city, Indonesia. Orem's Learning Model with a coaching approach in nursing services is expected to be a partnership approach method with the aim of exploring the hidden potentials that coaches possess to address various problems. Coaching is a learning model applied by nurses in educating which includes teaching method, guiding, and environment (Alligood, 2004.) In hopes can imply to change of Interdialytic Weight Gain (IDWG) and phlebitis in the client of chronic kidney disease (CKD) with hemodialysis.

2. MATERIALS AND METHODS

This study was an experimental design with no equivalent control group and completed in time series horizon. The population in this study were all CKD patients undergoing hemodialysis therapy at Semarang City Hospital. The number of samples in this study was 40 people divided into two groups. One group was treated with Orem's coaching method while another group consisted of 20 respondents with no coaching provided.

The data collection tools were:

1. Orem's learning model with coaching method.
2. Observation sheets containing bio data, review the form of edema evaluation form, IDWG (weight), and signs of phlebitis.

3. Questionnaire characteristic of respondents which include age, sex, education and the length undergoing hemodialysis.

Friedman test and Mann Whitney test were used to see if there was any difference between those who underwent coaching and those who did not. Paired t-test was used to examine whether there was an average difference of each treatment stage.

3. RESULT AND DISCUSSION

3.1. Result

Characteristics of respondents are presented in the following tables.

Table1. Respondents' characteristic

No	Characteristics of Respondents	Coaching (f)	%	Non Coaching (f)	%
1.	Ages				
	a. 17-25 years	1	5	1	5
	b. 26-45 years	13	65	7	35
	c. 46- 65 years	6	30	12	60
	Total	20	100	20	100
2.	Genders				
	a. Male	8	40	10	50
	b. b. Female	12	60	10	50
	Total	20	100	20	100
3	Education				
	a. not completed elementary	1	5	3	15
		2	10	2	10
		5	25	5	25
	b. Elementary	11	55	8	40
	c. Secondary	1	5	2	10
	d. Junior High				
	e. Degree				
	Total	20	100	20	100
3.	The length of illness				
	a. <1-year	8	40	10	50
	b. 1-3 years	5	25	6	30
	c. c. > 3 years	7	35	4	20
	Total	20	100	20	100
4.	Stadium :				
	a. I	0	0	0	0
	b. b.II	0	0	0	0
	c. c.III	0	0	0	0
	d. d.IV	0	0	0	0
	e. e.V	20	100	20	100
	Total	20	100	20	100

Table 1 showed that in coaching group there were 13 adults (65%) and the remaining 6 (30%) were older adults. In the non-coaching group, there were seven adults (35%), and the remaining 12 people (60%) were older adults.

Most of the respondents were female (12%) (60%) in the coaching group. While in the non-coaching group as much. The education of respondent of coaching group is mostly, 11 people (55%) are SMA while in non-coaching group 8 (40%) have high school education. Period of illness is less than one year in group coaching 8 (40%) whereas in non-coaching group 10 people (50%). All respondents in the coaching group and the non-coaching group had CKD stage V disease (100%).

Table2. Interdialytic Weight Gain (IDWG)

	Coaching Group (N=20)			Non-Coaching Group (N=20)		
	Min	Max	Mean	Min	Max	Mean
IDWG:						
1st	.00	3.20	.7150	.00	8.80	1.7500
2nd	.00	6.20	1.4100	.00	50.00	4.1600
3rd	.00	3.50	.8650	.00	33.30	3.5750
4th	.00	1.80	.4500	.00	25.00	2.7750
5th	.00	2.70	.8750	.00	20.00	3.1700
6th	.00	4.20	1.1050	.00	16.70	2.5550
7th	.00	2.40	.3750	.00	14.30	2.1300

Table 2 showed that the frequency of IDWG group coaching on the first treatment was 0.7150 and to the seventh treatment reached 0.3750. In the non-coaching group the rate of IDWG in the first treatment was as much as 1.7500 and to the seventh treatment was as much as 2.1300. This figure indicated that the IDWG in the coaching group decreased while in the non-coaching group increased.

Table3. Friedman test on IDWG coaching and non-coaching groups

	Coaching Group (N=20)		Non-Coaching Group (N=20)	
	Mean Rank	P-Value	Mean Rank	P-Value
1 st IDWG	3.80		3.72	
2 nd IDWG	4.78	0.043	4.10	.683
3 rd IDWG	4.02		4.62	
4 th IDWG	3.40		3.62	
5 th IDWG	4.20		4.28	
6 th IDWG	4.70		4.05	
7 th IDWG	3.10		3.60	

Table 3 showed that the average IDWG in coaching and the non-coaching group from Friedman test result obtained the p-value of 0.043 and 0.683. Thus, it is concluded that there is an IDWG relationship before the coaching treatment until it is given the seventh treatment and there is no connection before the non-coaching treatment from before treatment until it is given the seventh treatment.

Table4. Paired wise comparison test of IDWG coaching group

	P-Value
IDWG the first vs. IDWG the second	.055
IDWG the first vs. IDWG the third	.753
IDWG the first vs. IDWG the fourth	.382
IDWG the first vs. IDWG the fifth	.362
IDWG the first vs. IDWG the sixth	.196
IDWG the first vs. IDWG the seventh	.239
IDWG the second vs. IDWG the third	.315
IDWG the second vs. IDWG the fourth	.005
IDWG the second vs. IDWG the fifth	.352
IDWG the second vs. IDWG the sixth	.615
IDWG the second vs IDWG the seventh	.008
IDWG the third vs IDWG the fourth	.103
IDWG the third vs IDWG the fifth	.888
IDWG the third vs IDWG the sixth	.553
IDWG the third vs IDWG the seventh	.168
IDWG the fourth vs IDWG the fifth	.099
IDWG the fourth vs IDWG the sixth	.035
IDWG the fourth vs IDWG the seventh	.644
IDWG the fifth vs IDWG the sixth	.506
IDWG the fifth vs IDWG the seventh	.084
IDWG the sixth vs IDWG the seventh	.014

Table 4 showed that in the first IDWG comparing coaching group vs. the seventh IDWG obtained p value 0.239. Thus, it is concluded no change in the first IDWG vs. the seventh IDWG. On the sixth IDWG comparison vs. IDWG the seventh, the p - value is 0.014. This way, it is concluded there is a difference of sixth IDWG vs. IDWG the seventh.

Table5. Dependent t- test means on IDWG between Coaching and Non-Coaching Groups

	Groups	N	Mean Rank	P-Value
1 st IDWG	Coaching	20	17.95	.156
	Non-Coaching	20	23.05	
	Total	40		
2 nd IDWG	Coaching	20	18.90	.380
	Non-Coaching	20	22.10	
	Total	40		
3 rd IDWG	Coaching	20	16.18	.016
	Non-Coaching	20	24.82	
	Total	40		
4 th IDWG	Coaching	20	17.05	.046
	Non-Coaching	20	23.95	
	Total	40		
5 th IDWG	Coaching	20	17.12	.063
	Non-Coaching	20	23.88	
	Total	40		
6 th IDWG	Coaching	20	17.95	.162
	Non-Coaching	20	23.05	
	Total	40		
7 th IDWG	Coaching	20	16.02	.008
	Non-Coaching	20	24.98	
	Total	40		

Table 5 showed in the initial IDWG in each group obtained p value 0.156, meaning that there was no difference in IDWG average between coaching and non-coaching groups. Each group performed coaching and non-coaching treatment up to seven treatments. The seventh treatment resulted in p value 0.008, meaning that there was an IDWG means difference between coaching and non-coaching group.

Table6. Percentage of Phlebitis coaching and non-coaching groups

	Coaching Groups (N=20)				Non-Coaching Groups (N=20)			
	Phlebitis		Non Phlebitis		Phlebitis		Non Phlebitis	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
0	11	55	9	45	7	35	13	65
1 st	11	55	9	45	7	35	13	65
2 nd	11	55	9	45	7	35	13	65
3 rd	9	45	11	55	7	35	13	65
4 th	7	35	13	65	6	30	14	70
5 th	6	30	14	70	7	35	13	65
6 th	6	30	14	70	6	30	14	70
7 th	6	30	14	70	7	35	13	65

Table 6 showed that the percentage of phlebitis group coaching before coaching treatment was 45% and after being treated until the seventh treatment the rate of phlebitis increased to 70%. In the other hand, in the non-coaching treatment group the percentage of phlebitis incidence before being treated with non-coaching was 65%, and in the seventh treatment, the percentage remained 65%.

Table7. Friedman test on Phlebitis for coaching and non-coaching groups

	Coaching Groups (N=20)		Non-Coaching Groups (N=20)	
	Mean Rank	P-value	Mean Rank	P-value
Initial Phlebitis	3.98		4.45	
1 st Phlebitis	3.98		4.45	
2 nd Phlebitis	3.98	.000	4.45	.947
3 rd Phlebitis	4.38		4.45	
4 th Phlebitis	4.78		4.65	
5 th Phlebitis	4.98		4.45	

6 th Phlebitis	4.98		4.65	
7 th Phlebitis	4.98		4.45	

Table 7 showed Friedman's results of average phlebitis in the coaching group, and non-coaching group obtained p value 0.000 and 0.947. So it can be concluded that there is an average relationship of the incidence of phlebitis before and after the seventh phlebitis in the coaching group and no connection of the incidence of phlebitis before and after seventh phlebitis in the non-coaching group.

Table8. Paired wise comparison Phlebitis on coaching groups

	P-Value
Initial Phlebitis vs First Phlebitis	1.000
Initial Phlebitis vs Second Phlebitis	1.000
Initial Phlebitis vs Third Phlebitis	.157
Initial Phlebitis vs Fourth Phlebitis	.046
Initial Phlebitis vs Fifth Phlebitis	.025
Initial Phlebitis vs Sixth Phlebitis	.025
Initial Phlebitis vs Seventh Phlebitis	.025
First Phlebitis vs Second Phlebitis	1.000
First Phlebitis vs Third Phlebitis	.157
First Phlebitis vs Fourth Phlebitis	.046
First Phlebitis vs Fifth Phlebitis	.025
First Phlebitis vs Sixth Phlebitis	.025
First Phlebitis vs Seventh Phlebitis	.025
Second Phlebitis vs Third Phlebitis	.157
Second Phlebitis vs Fourth Phlebitis	.046
Second Phlebitis vs Fifth Phlebitis	.025
Second Phlebitis vs Sixth Phlebitis	.025
Second Phlebitis vs Seventh Phlebitis	.025
Third Phlebitis vs Fourth Phlebitis	.157
Third Phlebitis vs Fifth Phlebitis	.083
Third Phlebitis vs Sixth Phlebitis	.083
Third Phlebitis vs Seventh Phlebitis	.083
Fourth Phlebitis vs Fifth Phlebitis	.317
Fourth Phlebitis vs Sixth Phlebitis	.317
Fourth Phlebitis vs Seventh Phlebitis	.317
Fifth Phlebitis vs Sixth Phlebitis	1.000
Fifth Phlebitis v Seventh Phlebitis	1.000
Sixth Phlebitis vs Seventh Phlebitis	1.000

In initial phlebitis vs. first phlebitis obtained p value 1.000. This phlebitis was then observed until the seventh coaching treatment. However, the initial phlebitis vs. the seventh phlebitis obtained p-value of 0.025. Thus, it is concluded that there is a significant difference from before treatment to the treatment of seventh coaching in this group.

Table9. Mann Whitney test on Phlebitis between Coaching and Non-Coaching groups

	Groups	N	Mean Rank	P-value
Initial phlebitis indication	Coaching	20	18.50	.209
	Non-coaching	20	22.50	
First phlebitis indication	Coaching	20	18.50	.209
	Non-coaching	20	22.50	
Second phlebitis indication	Coaching	20	18.50	.209
	Non-coaching	20	22.50	
Third phlebitis indication	Coaching	20	19.50	.524
	Non-coaching	20	21.50	
Fourth phlebitis indication	Coaching	20	20.00	.739
	Non-coaching	20	21.00	
Fifth phlebitis indication	Coaching	20	21.00	.739
	Non-coaching	20	20.00	
Sixth phlebitis indication	Coaching	20	20.50	1.000
	Non-coaching	20	20.50	
Seventh phlebitis indication	Coaching	20	21.00	.739
	Non-coaching	20	20.00	

Early phlebitis indication between coaching group and non-coaching group was demonstrated with p-value of 0.209 meaning there was no difference of first signs of phlebitis between coaching group and non-coaching group. Table 9 also showed the seventh signs of phlebitis in each cluster obtained p value 0.739. Thus, it is concluded that there is no difference in phlebitis between coaching and non-coaching groups in the seven treatments.

3.2. Discussion

The results of this study indicate that the majority of respondents are adult and elder adult. These results are consistent with the results of previous studies (Restu & Woro, 2015; Pieter & Ivy, 2015). The results of this study further indicate that between men and women sufferer are balanced different from previous studies conducted by Pieter and Ivy (2015) who found that the incidence of chronic renal failure is more common in women. This phenomenon may occur because the respondents in this study were obese patients, diabetes mellitus, and hypertension in which the number of male and female patients are balanced.

In this study, all respondents in the coaching group and the non-coaching group suffered from CKD stage V. This was by Saniyaty (2015) where the sample used for the study of hemodialysis patients to determine the level of uric and creatinine in pre and post-Hemodialisa is a staging V patient. Therefore in stage V, CKD patients require hemodialysis therapy (Fauci et al., 2012).

In this study, IDWG results obtained in the first IDWG coaching group vs the seventh IDWG received p value 0.239 indicating there is no change in the first IDWG vs. the seventh IDWG. But in the sixth IDWG comparison vs the seventh IDWG produced p-value 0.014. So it is concluded there is a difference of the sixth IDWG vs. IDWG seventh. In this study, IDWG in coaching group is more effective than non-coaching group.

Coaching is a process of coaching to become partnership designed to help clients meet what is desired in their personal and professional lives to improve their performance and improve their quality of life. Trainers provide support to improve clients' skills, resources, and creativity. So in the application, patients have required the self-control for compliance and discipline.

According to Arditawati (2013), obedience is disciplined and disciplined behavior. Someone is said to obey the hemodialysis diet when consuming the food that has been determined by the amount that has been set and willing to carry out what is recommended.

In initial phlebitis vs. first phlebitis obtained p value 1.000. This phlebitis was observed until the seventh coaching treatment. But, phlebitis before vs. seventh phlebitis received p value of 0.025. This way, it is concluded that there is a significant difference from before treatment to the treatment of seventh coaching in this group.

4. CONCLUSION

Comparison of the first IDWG vs the seventh IDWG in coaching group produced p- value = 0.239 indicating there was no change in the first IDWG vs. the seventh IDWG. But on the sixth IDWG comparison vs the seventh IDWG p -value generated was 0.014 denoting there is a difference of the sixth IDWG vs. the seventh IDWG. Initial phlebitis vs the first phlebitis produced p- value = 1.000 where as in initial phlebitis vs the seventh phlebitis, the p - value was 0.025 confirming there is significant

difference from before treatment until treatment of the seventh coaching in this group.

From this result, Orem's Learning Model with a coaching approach on renal failure clients with hemodialysis is expected to be a goal to explore hidden potentials in improving patient and family compliance with fluid intake restriction and quality of life for patients with chronic renal failure with hemodialysis.

REFERENCES

- [1] Alligood, M. (2004). Self- Care Theory in Nursing: Selected Papers of Dorothea Orem. *Journal of Advanced Nursing*, 45(5), 549-549.
- [2] Arditawati, S. (2013). *Pengaruh Pendidikan Kesehatan Terhadap Kepatuhan Pasien CKD Untuk Mempertahankan Kualitas Hidup di RSUD Pandanarang Boyolali*. Surakarta: Universitas Muhammadiyah Surakarta.
- [3] Fauci AS, Kasper DL, Longo D, Braunwald E, Hauser S, Jameson JL, dkk. 2012. *Harrison's principles of internal medicine. Edisi ke-18*. USA: The McGraw-Hill Companies.
- [4] Levey, A.S., Coresh, J., Balk, E., Kaustz, A.T., & Levin, A. (2003). *National kidney foundation practice guidelines for chronic kidney disease: evaluasi, klasifikasi, and stratification. Ann Intern Med*. 139. 137-147
- [5] Muttaqin, A., & Sari, K. (2011). *Asuhan keperawatan gangguan sistem perkemihan*. Jakarta: Salemba Medika
- [6] Pace, R.C. (2007). *Fluid management in patient on hemodialysis. Nephrology Nursing Journal. September-Oktober 2007*. 34(5). 557-559
- [7] Pieter Henfkesa, Ivy Violan Lawalata (2014). *Faktor Risiko Penyakit Gagal Ginjal Kronik. Molluca Medica, Volume 8, Nomor 1, Oktober 2015, Hml 72-81*
- [8] Riyanto, W. (2011). *Hubungan antara penambahan berat badan di antara dua waktu hemodialisis (Interdialysis Weight Gain = IDWG) terhadap kualitas hidup pasien penyakit ginjal kronik yang menjalani terapi hemodialisis di unit hemodialisa IP2K RS Fatmawati Jakarta*. Jakarta: FIK UI
- [9] Restu Pranandari, Woro Supadmi (2015). *Faktor Risiko Gagal Ginjal Kronik Di Unit Hemodialisis Rsud Wates Kulon Progo. Majalah Farmaseutik, Vol 11 No 2 Tahun 2015*
- [10] Saniyaty, Nisa. (2015). *Hubungan Antara Karakteristik Pasien Gagal Ginjal Kronik Terhadap Kadar Ureum dan Kreatinin pada Pre dan Post Hemodialisis*. Bandung: Universitas Islam Bandung.
- [11] Suharyanto, T., & Madjid, A. (2009). *Asuhan Keperawatan pada Klien dengan Gangguan Sistem Perkemihan*. Jakarta: TIM.

Citation: Shobirun, Supriyadi, Elisa, Sri Utami Dwiningsih, Heru Supriyatno, Sawab. *Orem's Nurse Coaching Approach on Interdialytic Weight Gain Changes and Phlebitis in Chronic Kidney Disease Client with Hemodialysis. ARC Journal of Nursing and Healthcare*. 2017; 3(2):9-14. doi: [dx.doi.org/ 10.20431/2455-4324.0302003](https://doi.org/10.20431/2455-4324.0302003).

Copyright: © 2017 Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

