Original Article

A comparison of face to face and video-based education on attitude related to diet and fluids: Adherence in hemodialysis patients

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Abstract

Introduction: Adherence to diet and fluids is the cornerstone of patients undergoing hemodialysis. By informing hemodialysis patients we can help them have a proper diet and reduce mortality and complications of toxins. Face to face education is one of the most common methods of training in health care system. But advantages of video- based education are being simple and cost-effective, although this method is virtual.

Materials and Methods: Seventy-five hemodialysis patients were divided randomly into face to face and video-based education groups. A training manual was designed based on Orem's self-care model. Content of training manual was same in both the groups. In the face to face group, 2 educational sessions were accomplished during dialysis with a 1-week time interval. In the video-based education group, a produced film, separated to 2 episodes was presented during dialysis with a 1-week time interval. An Attitude questionnaire was completed as a pretest and at the end of weeks 2 and 4. SPSS software version 11.5 was used for analysis.

Results: Attitudes about fluid and diet adherence at the end of weeks 2 and 4 are not significantly different in face to face or video-based education groups. The patients' attitude had a significant difference in face to face group between the 3 study phases (pre-, 2, and 4 weeks postintervention). The same results were obtained in 3 phases of video-based education group.

Conclusion: Our findings showed that video-based education could be as effective as face to face method. It is recommended that more investment be devoted to video-based education.

Key words: Attitude and patient adherence, instructional films and videos, patient education, renal dialysis

Introduction

Today, chronic renal failure (CRF) is one of the biggest public health problems[1]. Its incidence is increasing owing to the increase of diseases, such as diabetes, hypertension, and malignancies[2]. The prevalence of end-stage renal disease increased from 238 in 2000 to 357 per one million in 2006.[3]

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Treatment methods for patients with CRF include hemodialysis, peritoneal dialysis, and renal transplantation.[4] The most common alternative treatment method for these patients is hemodialysis.[5] US statistics show that by 2010 the number of patients who will require dialysis will reach to 660,000. In Iran the special disease center reported the number of patients undergoing hemodialysis to be 15,000 cases till the end of 2005.[6,7]

Although hemodialysis improves health and survival rate of these patients, it does not fully replace the function of kidneys or change the disease progress.[8] Hemodialysis patients have many problems resulting from the disease itself and treatment process, which change their quality of life, cause depression, and sometimes even lead to suicide and early death.[4,8,9]

Self-care behaviors in these patients includes control of fluids, diet and medication intake, participation in care, effective communication, self-efficacy, and role acceptance.[10] Adherence to diet and fluids, combined with dialysis is the cornerstone of renal failure treatment.[11] Following recommended treatments (diet and fluid

restriction) by the patient is not one of the most important issues in the health care programs. The most difficult stressful factor is fluid adherence.[11]

Adherence to diet and fluid improves health, reduces treatment costs, reduces risk of complications and increases quality of life.[12-14] Some studies show that various factors, such as age, gender, dialysis adequacy, duration of hemodialysis, patient's knowledge about the disease and its treatment, smoking, social support, and patients' knowledge of hemodialysis guideline are related to bad adherence to diet and fluid programs in these patients.[12,13,15]

Accommodation with diet, fluids, and medication is very difficult for many patients and failure to keep them might result in many dangerous consequences.[4]

Different methods of self-control and education have been arranged to help patients keep up with life style modifications.[16] Patient education is one of the most important aspects of nursing care and it can improve health and prevent complications.[17,18] By informing hemodialysis patients we can help them have a proper diet and reduce mortality and complications of toxins.[8]

Face to face education is one of the most common methods of training in health care system. In this method of discussion and facing, a better behavioral change is achieved, but we need to spend more time while it is not possible in the crowded centers.[8-19] On behalf of communication technology and the widespread use of various communication techniques, now we can use video-basededucation. Advantages of video-based education is the ability to create continuity in the data storage and easy application and cost-effectiveness but one of the disadvantages of this modality is that it is virtual and we have no present active educator in the program with no actual effective method in achieving educational goals. Regarding the advances in training films, these defects have been covered.[20,21]

Regarding some issues [the increased incidence of hemodialysis cases, the importance of adherence to diet and fluids in their health, special role of nurses in promoting adherence and interventions, the efficient use of time and human resources in face to face education and the fact that we didn't find any indexed study comparing the two methods (face to face and video-based education)], we should investigate whether video-based education would be effective in changing the patients' attitude and behavior about diet and fluid adherence in those undergoing hemodialysis.

Materials and Methods

This study is a randomized clinical trial including 75 hemodialysis patients admitted to 17th Shahrivar and Quaem hospitals' hemodialysis wards in Mashhad. They were divided randomly into face to face and video-based education groups.

Study inclusion criteria were: as follows

1. Age between 18 and 65 years
2. Should be able to read and write
3. Has end-stage renal disease and needs constant hemodialysis treatment
4. No cognitive, hearing, and/or visual disorders
5. Between 6 months and 8 years dialysis
6. Two to three times a week each time for 3–4 h dialysis
7. No formal education about diet.

After determining the educational needs of hemodialysis patients about diet and fluid problems and also reviewing new articles on the basis of Self-Care Model of Orem, a training manual was developed with the help of nephrologists, educationists, and nutritionists. The content of training manual was same in both the groups. After filming with the help of educational technologists, a video tape was prepared which was capable to comply with all media types.

Study was implemented in 4 stages (preintervention, intervention, second week postintervention, and fourth week postintervention). The patients were randomly divided into 2 groups regarding the day of the week and the dialysis shift. After introduction and brief explanation of the purpose and methods of work, eligible cases were selected. In this phase after fulfilling the inclusion criteria, questionnaires about diet and fluids in hemodialysis patients were completed as a pre-test. In face to face group, two 30–45 min sessions were run with 1 week gap during the dialysis. In the other group a tape with 2 totally different episodes were broadcasted with a 1 week gap also during dialysis. Again the questionnaire was completed by interviews at the end of weeks 2 and 4, by the 2 groups. Then, the average of all the measurements were taken in three stages and SPSS software version 11.5 was used for analysis.

Our questionnaire is a framework of 22 questions about attitudes related to diet and fluid adherence in hemodialysis patients and how it affects their lives. It follows the design of the 5 icon Likert scale from "completely disagree""to "completely agree.» Higher scores indicate more positive attitudes in patients with adherence to diet and fluid intake.

The questionnaire was validated by Rouche and McGee (1997), in Ireland.[23]

Results

The mean age of the subjects was 49.8 (11.6) years. Sixty percent of the subjects were men and 78.7% of them were married, 57.4% had just primary education and 30.7% of them were housewives. The average income of subjects was 345.8 dollars. A 75.1% of people had social security insurance, and the source of information of most subjects were physicians and nurses (56% and 49.3%, respectively). An 89.3% of subjects did not smoke. Eighty-four percent of them underwent dialysis 3 times a week. The mean duration of hemodialysis of subjects was 3.4 (2.6) years and mean dialysis adequacy was 0.48 (0.18). For the majority of subjects duration of a dialysis session was 4 h (94.6%).

Statistical tests (Mann–Whitney test, independent *t* test, Chi-square test, Fisher exact test, and Kruskal–Wallis test) showed that the 2 groups did not have a significant difference and were homogeneous regarding the features [Table 1].

Data analysis related to attitudes about fluid and diet adherence in hemodialysis patients with independent t test showed that attitudes related to diet and fluid adherence at the end of weeks 2 and 4 after the training is not significantly different in hemodialysis patients in face to face or video-based education groups ($P = 0.114$ and $P = 0.06$, respectively) [Figure 1].

ANOVA results show that patients' attitude about diet and fluid adherence had a significant statistical difference in face–to-face group between 3 study phases (pre-, 2, and 4 weeks after intervention) ($P = 0.000$) [Table 2]. The same results were obtained in 3 phases of video-based education group. (For 2nd week $P = 0.000$, for 4th week $P = 0.001$) [Table 3].

Discussion

The results of this study revealed that attitudes related to diet adherence in hemodialysis patients 30.31 (6.87) (54.1%) and for fluids, 19.46 (5.32) (60.8%). Almost half of the subjects had a positive attitude toward diet adherence. Our results are consistent with those of Denhaerynck's (2007)[4] and opposite to Kugler's (2005). The results of Kugler (2005) showed that many dialysis patients have problems with diet and fluid adherence.[12]

Several factors are related to failure in adaption with diet and fluid rules in these patients.[12-15] Adherence rate differences might be due to factors, such as environmental differences, intervention time, cultural differences, using various tools, and different inclusion and exclusion criteria.

Table 1: Comparison of demographic and general characteristics of cases in 2 groups

Demographic and general characteristics	*P* value
Mean age	0.592
Sex	0.073
Marital status	0.518
Education	0.161
Career	0.233
Monthly income	0.061
Insurance type	0.565
Information source	>0.05
Smoking	0.340
Number of dialysis sessions	0.226
Duration of hemodialysis	0.408
Adequacy of dialysis	0.360

Table 2: Comparison of attitudes related to diet and fluid adherence in hemodialysis patients before, end of the second and fourth weeks after of face-to-face training

Time	Attitudes related to diet and fluid adherence		
	Diet Mean (SD)	Fluids Mean (SD)	Total Mean (SD)
Before intervention	31.2 (6.0)	17.2 (6.0)	48.4 (8.0)
End of second week	38.5 (11.1)	19.8 (6.0)	57.9 (13.9)
End of fourth week	38.4 (8.7)	20.0 (5.5)	57.8 (14.1)
Results of ANOVA with repeated measures	*P*=0.000 df=2 f=18.6	*P*=0.046 df=2 f=3.2	*P*=0.000 df=2 f=12.3

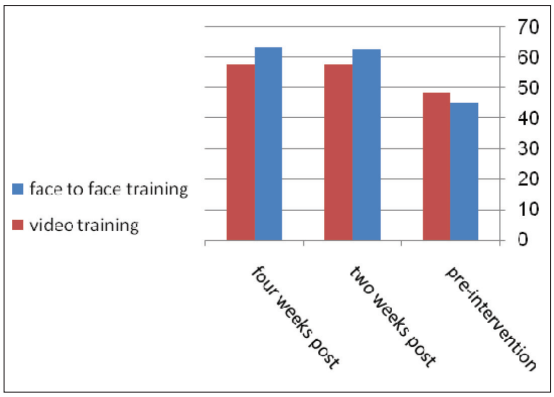

Figure 1: Comparison of mean attitude to diet and fluid adherence at the end of weeks 2 and 4 after the intervention

The results of this study showed that in a face-to-face training group, attitude related to diet and fluid adherence in weeks 2 and 4 after intervention improved in 41% and 39.6%, respectively, in hemodialysis patients. These results are consistent with the results of Barnett's (2007) study, which assessed the effect of a face-to-face training program on fluid adherence in hemodialysis patients. They used a self-report fluid adherence questionnaire. Fluid adherence rate of 47% increased to 71.5%.[24]

Table 3: Comparison of mean scores of attitudes related to diet and fluid adherence in hemodialysis patients before, end of the second and fourth weeks after of video-based education

Time	Attitudes related to diet and fluid adherence		
	Diet mean (SD)	Fluids mean (SD)	Total mean (SD)
Before intervention	29.4 (7.7)	15.7 (4.7)	44.9 (11.0)
End of second week	41.5 (8.4)	21.2 (5)	62.7 (12.2)
End of fourth week	40.9 (7.6)	21.1 (4.7)	63.3 (10.8)
Results of ANOVA with repeated measures	*P*=0.000 df=2 f=47.8	*P* = 0.000 df = 2 f=30.3	*P* = 0.000 df = 2 f= 51.6

Our results showed that attitude in the video-based education group in weeks 2 and 4 after the training increased significantly in 19.5% of patients.

The mean improvement in attitude in the 2 groups isn't significantly different. These results can be compared with Vaez-Zadeh and Ismail's (2001) results. They showed that the video-based education was as effective as the face-to-face training on learning self-breast examination.[25] Karimi Moonaghi'sstudy (2003) proved that demonstration (live show training) is superior to video-based education. The difference observed between their study results and ours may be the because of the different training methods and content [26].

Conclusion

The effectiveness of the 2 methods (face to face and video-based education) on the attitude of patients about diet and fluid adherence was not significantly different. It means that if an educational program is designed with scientific preassessment of patients' needs and problems, based on a scientific model, it can be as effective as face-to-face method.

Finally, regarding the increase in hemodialysis patients' number, time-consumption, and practical difficulties of face-to-face training, it is recommended that more attention be paid to video-based education, and organizations should invest in this field of using qualified specialists.

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