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MULTIDISCIPLINARY SELF-MANAGEMENT TELECARE SYSTEM MAY IMPROVE QUALITY OF LIFE IN PATIENTS WITH INTERSTITIAL CYSTITIS / BLADDER PAIN SYNDROME (IC/BPS) – A RANDOMIZED CONTROLLED TRIAL

Hypothesis / aims of study
Interstitial cystitis/bladder pain syndrome (IC/BPS) is a chronic syndrome characterized by bladder pain with irritative lower urinary tract symptoms, such as urinary urgency, frequency, and nocturia. Until now there is no specific treatment demonstrated as sufficient efficacy and evidence-based treatment guideline suggested first-line therapy including patient education, behaviour modification, and stress management should be offered for all patients. Recent studies showed telecare system, especially base on video-tailored, can improve the management of chronic diseases by using mobile and internet to build up self-management system. The telecare system may provide multidisciplinary web-based educational, monitoring, and communication platform and help IC/BPS patients understanding of the interplay between symptom and quality of life, which resulted in increased motivation to follow treatment, awareness of management when symptom flared up, and participation in care. The aim of our study is to develop and investigate a video-based telecare system with contents of health education and communication of emergent outbreak to improve the quality of life for IC/BPS patients

Study design, materials and methods
This is a prospective randomized controlled trial (RCT). A total of 56 IC/BPS patients were recruited from the urological clinic and randomly assigned to either the study group (N=29) or the control group (N=27). In this study, a mobile service designed for providing health education by using video-education system and administrating questionnaires were used for health care and health management of IC/BPS patients. Video-education system was designed as multi-dimensional patient education including avoiding some sensitive food, symptom flare up during and/or before menstrual cycle, the management of sexual pain, relaxation of pelvic floor muscle, and stress management. Instead of patient education, a mobile service also provided monitor and communication platform by checking the health status items. The questionnaires, including SF-36 health survey, visual analogue scales (VAS) for the measurement of pain and urgency, and O'Leary-Sant symptom (ICSI) and problem index (ICPI), were administrated to measure the patient perception of health status before (pre-test) and after (post-test) video-education spanning a period of 8 weeks. Descriptive statistics were used to analyzed the demographic information, disease severity and questionnaires of the recruited patients, while the inferential statistics were applied to compare the improvement of health status and symptoms between the study and control groups, as well as between pre-test and post-test for both groups. General linear model was also used to compare 2 repeated measures (pre- and post-tests) of the questionnaires between the control and study groups.

Results
The results showed that, except the mental health ($p=0.057$), the other 7 constructs of SF-36 survey for the study group with m-health intervention exhibited significant improvement ($p<0.05$) compared with those without intervention, indicating the QOL had been significantly improved (Table 1). Moreover, the video group also showed more significant improvements with regards to O'Leary-Sant (Symptom and Problem) scales (ICSI, $p=0.04$; ICPI, $P=0.02$) and VAS-Urgency ($p<0.01$) compared those without intervention (Table 2). Moreover, by comparing the bladder symptoms between the patients with video group and control group, the video group exhibited higher QOL improvement ($p<0.01$) manifested in 5 SF-36 constructs (physical function, role physical, body pain, social function, and role emotion), while no significant improvement in bladder symptom severity was observed.

Interpretation of results
Changing lifestyle by health education is promising in improving the health status of the patients. The better effectiveness of video-based intervention suggests that patient's trust in physician or better physician-patient relationship can induce the reinforcing effect on preventing disease recurrence and improving QOL for BPS/IC patients.

Concluding message
The intervention of video-based health education is effective in improving the QOL for BPS/IC patients. Moreover, video-based intervention outperformed the text-based intervention in consolidating good lifestyle, improving QOL, and alleviating disease symptoms.

Table 1 SF-36 health survey of control and video groups before and after Video-base health telecare system

	Control Group (N=27)				Video Group (N=29)				Statistics	
	Mean	SD	t	p	Mean	SD	t	p	t	p
Physical Function	9.55	19.58	2.80	0.01	28.04	26.82	5.53	<0.01	3.13	<0.01
Role Physical	25.76	48.20	3.07	<0.01	73.21	41.35	9.37	<0.01	4.13	<0.01
Body Pain	16.91	22.70	4.28	<0.01	37.86	30.11	6.65	<0.01	3.12	<0.01
General Health	13.88	22.28	3.58	<0.01	19.29	25.45	4.01	<0.01	2.89	0.02
Vitality	18.03	22.88	4.53	<0.01	18.39	16.95	2.62	<0.01	3.86	0.04
Social Function	12.12	19.64	3.55	<0.01	35.27	31.92	5.85	<0.01	3.49	<0.01
Role Emotion	32.32	3.69	4.25	<0.01	72.62	42.60	9.02	<0.01	5.42	<0.01
Mental Health	11.03	19.55	3.24	<0.01	5.71	14.42	2.10	0.05	1.21	0.057

Table 2 Disease severity of control and video groups before and after Video-base health telecare system

	Control Group (N=27)				Video Group (N=29)				Statistics	
	Mean	SD	t	p	Mean	SD	t	p	t	p
O'Leary Scale										
Symptom	-3.58	5.61	-1.16	0.25	-4.31	3.54	-3.52	<0.01	3.05	0.04
Problem	-2.30	6.13	-1.71	0.09	-4.48	3.53	-6.84	<0.01	3.68	0.02
VAS Scale										
Pain	-1.88	3.14	-3.21	<0.01	-0.76	3.12	-1.31	0.20	1.41	0.17
Urgency	-1.85	3.03	-3.12	<0.01	-1.95	2.91	-3.47	0.01	0.40	<0.01

References

1. Lee MH1, Wu HC, Lin JY et al :Development and evaluation of an E-health system to care for patients with bladder pain syndrome/interstitial cystitis. Int J Urol. 2014 Apr;21 Suppl 1:62-8

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