



A Pilot Survey Examining Satisfaction for Integrated Medicine Based on Critical Pathways for Acute Facial Palsy

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Background: The incidence of facial palsy has been increasing. Many patients consult both Korean and Western physicians; however, no critical pathway (CP) for facial palsy has been established based on integrated medicine including Korean medicine, Western medicine, and complementary and alternative medicine. Thus, we developed and implemented an integrated CP for patients with acute facial palsy and investigated the satisfaction with CP.

Methods: Overall, 20 patients who received treatment following the CP and 20 medical staff members involved in their care responded to a questionnaire survey. The questionnaire was developed based on a review of previous studies and focused on the satisfaction with the CP.

Results: Patients' satisfaction score with the integrated CP was ≥ 4.4 for all items using a 5-point Likert-type scale. Smooth and cooperative treatment procedures, time-saving practices, and a clear explanation of the integrated treatment plan were satisfactory factors. Additionally, they preferred incorporating specialized facial massage and receiving education on self-exercise or massage techniques as complementary therapies. The medical staff members expressed a high level of satisfaction with the CP; however, the work division and treatment guidelines must be improved.

Conclusion: An integrated CP program for acute facial palsy was implemented, and the satisfaction levels of patients and medical staff members were assessed. The results revealed high levels of satisfaction, and several improvements identified will be incorporated into clinical practice going forward.

Keywords: Critical pathway; Facial palsy; Integrated medicine; Survey

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INTRODUCTION

Facial palsy affects cranial nerve VII (facial nerve), which innervates the muscles involved in facial expression [1]. The incidence of facial palsy has been increasing, and the Review and Assessment Service in South Korea revealed that between 2012 and 2022, the number of patients seeking medical care for Bell's palsy rose by 77%, from 40,381 to 52,578 [2]. The search used the Korean Standard Classification of Diseases (KCD) code G510 and G51.0 on the International Classification of Diseases (ICD) code.

Studies have reported that 15–30% of patients with facial palsy experience sequelae, such as synkinesis, contracture, crocodile tear syndrome, facial spasms, persisting weakness, and hearing impairment. These sequelae negatively affect facial function and quality of life. To minimize sequelae, facial palsy must be appropriately treated at an early stage [3,4].

According to clinical practice guidelines (CPGs), Western medicine (WM) uses corticosteroids and antivirals for acute facial palsy [5]; however, Korean medicine (KM) uses acupuncture, bee venom pharmaco-acupuncture, and herbal medicine [6]. Several clinical studies have reported the effectiveness of integrated medicine in the treatment of facial palsy [7,8]. However, no CPGs have been established for integrated models of cooperative treatment including WM, KM, and complementary and alternative medicine. Thus, we prepared an integrated critical pathway (CP) program for acute facial palsy.

CP is a systematically developed recommendation for diagnosing and treating medical conditions [9]. It lists the interventions of doctors, nurses, and other medical staff members to standardize medical interventions. It is based on CPGs, and staff members of medical institutions evaluate its suitability for operation and modify it for application [10]. The developed CP can improve the quality of medical care by enhancing the efficiency of organizing the process into individual analyzable steps [11].

Thus, to advance the CP program, this study aimed to evaluate the integrated CP for the treatment of acute facial palsy through a survey of the effectiveness of treatment and satisfaction levels among patients and medical staff members.

MATERIALS AND METHODS

1. Participants

Participants were classified into patients and medical

staff members. Patients who received treatment according to the integrated CP for acute facial palsy at the Otolaryngology Department and Department of Acupuncture and Moxibustion, Kyung Hee University Hospital at Gangdong, participated in the study. Patients with a diagnosis of facial palsy (KCD G510 and ICD G51.0 Bell's palsy; KCD B002.004 and ICD B02.2 Ramsay–Hunt syndrome) and having visited the hospital within 7 days of the onset and started treatment according to the CP were included. Those who did not complete the 4-week CP program, except if full recovery was achieved, were excluded.

Additionally, medical staff members from various departments related to treating facial palsy and using medical services participated in the study. The study enrolled 20 medical staff members, which included doctors, ward nurses, outpatient nurses, and management staff members.

2. Questionnaire development

A review was conducted to establish the basic structure of the questionnaire for evaluating the levels of satisfaction with the CP [12]. The committee members, composed of the CP developers, thoroughly reviewed the draft. The final patient questionnaire included 36 items in Korean, with questions on demographic characteristics (8 items) and satisfaction and demand (28 items). Moreover, medical staff members conducted the satisfaction survey with the CP application questionnaire in common (8 items) and conducted a satisfaction questionnaire (12 items) survey depending on their work (inpatient or outpatient).

3. Data analysis

The researchers used raw data collected from the questionnaire survey for data analysis. The results of the multiple-choice questions were presented as frequencies or populations with proportions of respondents (%). The answers to the descriptive questions were presented in narrative. The raw data analysis was repeatedly double-checked by 2 independent researchers. Microsoft Excel 2016 was used for data analysis.

4. Ethical considerations

This study was approved by the Institutional Review Board (IRB) of Kyung Hee University Hospital at Gangdong (approval no. KHNMC0H 2021-08-008-001). The IRB waived the requirement for informed consent. All respondents were provided with information on the purpose of the study, and only volunteers participated. The

could opt out any time during the study.

5. Critical pathway

The CP program was developed and implemented according to the time of facial palsy onset and the treatment environment (Fig. 1). The patient groups were divided according to inpatient or outpatient treatment, and each CP program was created accordingly: (1) Outpatient treatment at the Department of Acupuncture and Moxibustion without hospitalization. (2) Outpatient treatment in the Department of Acupuncture and Moxibustion following hospitalization only in the Otolaryngology Department. (3) Outpatient treatment following hospitalization at the Department of Acupuncture and Moxibustion with early cooperation following hospitalization at the Otolaryngology Department.

RESULTS

1. Demographic characteristics of the participants

The demographic data of the participants are summarized in Table 1.

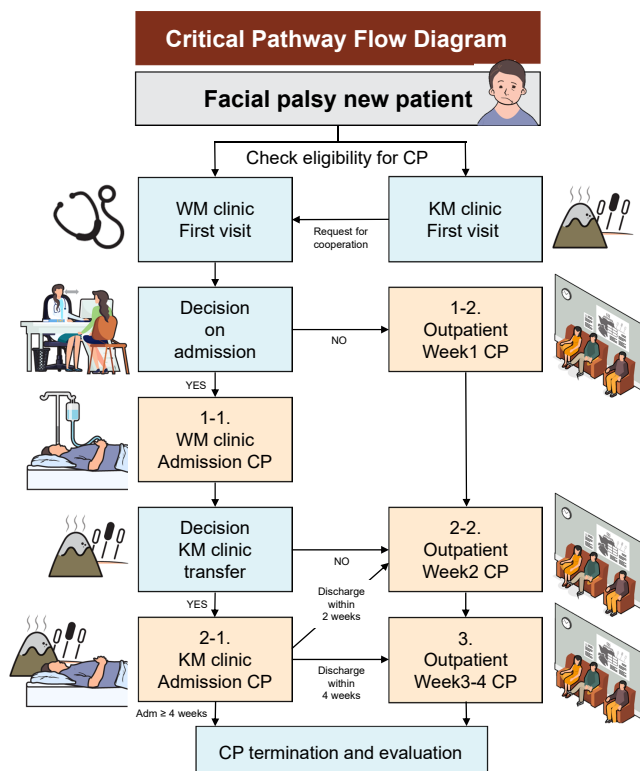


Fig. 1. Critical pathway flow diagram. CP, critical pathway; WM, Western medicine (limited to the department of otolaryngology); KM, Korean medicine (limited to the department of acupuncture and moxibustion); Adm, admission.

Table 1. Demographic characteristics of the participants

2. Patients' satisfaction with the critical pathway

The results of the questionnaire survey on respondents' satisfaction with CP are presented in Table 2. A 5-point Likert-type scale was used, with 5 and 1 indicat-

Table 1. Demographic characteristics of the participants

Characteristic	Participant (n = 20)
Sex	
Male	11 (55.0)
Female	9 (45.0)
Age (y)	
40-49	3 (15.0)
50-59	4 (20.0)
60-69	12 (60.0)
≥ 70	1 (5.0)
Marital status	
Single	1 (5.0)
Married	16 (80.0)
Others	3 (15.0)
Employment	
Yes	17 (85.0)
No	3 (15.0)
Timing of visit	
Immediate	7 (35.0)
Within 1-3 d	7 (35.0)
Within 3-7 d	5 (25.0)
After 14 d	1 (5.0)
Past history of chronic diseases	
None	9 (45.0)
1	5 (25.0)
> 2	6 (30.0)
Past history of facial palsy	
Yes	6 (30.0)
No	14 (70.0)
Patient group	
Outpatient (after hospitalization)	17 (85.0)
Outpatient	3 (15.0)

Values are presented as number (%).

ing very likely and very unlikely, respectively. Scores of “satisfaction with the treatment result” and “recommendation to other patients with facial palsy” were 4.5 each (standard deviation [SD] = 0.61). The item “our hospital’s facial palsy treatment process” was scored 8.55 (SD = 1.32) out of 10.

3. Core factors for evaluating treatment satisfaction

The results of the multiple-response questions on the core factors for evaluating treatment satisfaction are presented in Table 3. The patients were asked to select 3 items according to their priorities. Three points were assigned for the first place, 2 for the second, and 1 for the third, and they were listed in order of rank. According to the respondents, accurate diagnosis (score = 54), sufficient explanation (score = 23), symptom improvement (score = 14), and trust in medical staff members (score = 13) were important factors for assessing treatment satisfaction (Table 3).

Table 2. Patients' satisfaction with the critical pathway

Questions	Mean	Standard deviation
Are you satisfied with the “treatment result (effect)” of facial palsy treatment at our hospital?	4.5	0.61
Are you satisfied with our hospital's integrated cooperative treatment procedure for facial palsy treatment?	4.4	0.68
Are you overall satisfied with our hospital's facial palsy treatment process?	4.45	0.69
Would you recommend our hospital if there are patients with facial palsy among acquaintances?	4.5	0.61
If you gave our hospital's facial palsy treatment process a score out of 10, what would it be?	8.55	1.32

Table 3. Core factors for evaluating treatment satisfaction

Item	1st	2nd	3rd	Score*	Rank
Accurate diagnosis	18 (90.0)	0 (0.0)	0 (0.0)	54	1
Sufficient explanation	1 (5.0)	10 (50.0)	0 (0.0)	23	2
Symptom improvement	0 (0.0)	5 (25.0)	4 (20.0)	14	3
Trust in medical staff	0 (0.0)	3 (15.0)	7 (35.0)	13	4
Duration of treatment	0 (0.0)	0 (0.0)	5 (25.0)	5	5
Economic cost	0 (0.0)	1 (5.0)	1 (5.0)	3	6
Kindness of hospital staff members	0 (0.0)	0 (0.0)	2 (10.0)	2	7
Convenience of medical treatment system such as waiting time	0 (0.0)	0 (0.0)	0 (0.0)	0	8
Others	0 (0.0)	0 (0.0)	0 (0.0)	0	8

Values are presented as number (%).

*We gave 3 points for the 1st place, 2 for the 2nd, and 1 for the 3rd.

tion (Table 3).

4. Satisfactory factors in the critical pathway

When queried with multiple-response questions regarding the factors that contribute to satisfaction with the integrated medical treatment for facial palsy, respondents most frequently selected “smooth cooperative treatment procedure between WM and KM and its efficacy” (n = 12, 60.0%), “saving time compared with visiting multiple medical institutions” (n = 8, 40.0%), “consultation and explanation of integrated treatment plan” (n = 7, 35.0%), “comprehensive examination and diagnosis” (n = 6, 30.0%), “efficacy” (n = 3, 15.0%), and “others” (n = 1, 5.0%) (Table 4).

5. Complementary therapies that may be added to the integrated treatment for facial palsy

Respondents expressed the highest frequency of inter-

Table 4. Satisfactory factors in the critical pathway

Item	N (%)	Rank
Smooth cooperative treatment procedure between Western and Korean medicines and their efficacy	12 (60.0)	1
Saving time compared with visiting multiple medical institutions	8 (40.0)	2
Consultation and explanation of integrated treatment plan	7 (35.0)	3
Comprehensive examination and diagnosis	6 (30.0)	4
Efficacy	3 (15.0)	5
Others*	1 (5.0)	6
Economic cost	0 (0.0)	7

*“Sufficient understanding of the patient by the professor in charge,” a patient replied.

Table 5. Complementary therapies that may be added to the integrated treatment for facial palsy

Items	N (%)	Rank
Specialized facial massage or manual therapy	12 (60.0)	1
Education on self-exercise/massage methods (printed materials, videos, etc.)	5 (25.0)	2
Treatment aimed at psychological support (psychological consultation, meditation, music therapy, etc.)	3 (15.0)	3
Diet/nutrition counseling and education	3 (15.0)	3
Exercise education (yoga, qigong, tai chi, etc.) aimed at improving overall health	2 (10.0)	5
Others*	1 (5.0)	6

*"Nothing to add," a patient replied.

est of adding into the integrated treatment for facial palsy "specialized facial massage or manual therapy" (n = 12, 60.0%), "education on self-exercise/massage methods" (n = 5, 25.0%), "treatment aimed at psychological support" (n = 3, 15.0%), and "diet/nutrition counseling and education" (n = 3, 15.0%) as complementary therapies (Table 5).

6. Medical staff members' satisfaction with the critical pathway

A 5-point Likert-type scale was used to understand the perspectives of the medical staff members on CP (Table 6). On the scale, 5 points refer to very likely or very positive, whereas 1 point refers to very unlikely or very negative. The average Likert-type scale score for improving staff qualifications and educating new staff members was 3.85 (SD = 0.75), and the average score for the item "CP application is necessary in the future" was 4.4 (SD = 0.75).

7. Satisfaction of inpatient/outpatient medical staff members with the critical pathway

A 5-point Likert-type scale was used to assess the satisfaction level of inpatient/outpatient medical staff members with the CP. Items related to "work division" and "guideline of treatment frequency and termination" scored low, with average scores of 3.7 (SD = 0.80) and 3.35 (SD = 0.93), respectively.

DISCUSSION

This study mainly evaluated satisfaction with the integrated CP for the treatment of acute facial palsy among

Table 6. Medical staff members' satisfaction with the critical pathway

Questions	Mean	Standard deviation
Was CP useful in providing patient and caregiver education and explanation?	3.95	0.83
Was CP useful in improving staff qualifications and educating new staff members?	3.85	0.75
What effect do you think CP has had on the convenience of medical service?	4.25	0.44
What effect do you think CP has had on improving the quality of medical care and nursing and improving clinical treatment outcomes?	4.15	0.59
What effect do you think CP has had on preventing omissions and duplication of essential medical services?	4.05	0.60
Do you think CP application helps increase patient and caregiver satisfaction?	4.1	0.79
Do you think the application of facial palsy CP should continue in the future?	4.4	0.75

CP, critical pathway.

patients and medical staff members. Based on the responses, the patient satisfaction score with the integrated treatment was ≥ 4.4 for all items (Table 2), indicating that facial palsy treatment in WM and KM was well integrated into the CP.

The most important factors in assessing treatment satisfaction included accurate diagnosis, sufficient explanation, and symptom improvement (Table 3). Moreover, the items for which patients were satisfied with CP were nearly the same (Table 4). Through CP, both WM and KM doctors made a diagnosis together, and patients received explanations from both sides and various treatments, which should have improved the treatment efficacy. Similarly, patients were satisfied with what they considered essential and with the smooth and time-saving CP process, thus indicating its convenience in application. A study reported that patient satisfaction increased with the use of the CP because of the promptness of the overall process and the high quality of care [13].

Moreover, the patients preferred adding specialized facial massage, education on self-exercise/massage methods, and psychological treatment as complementary therapies to facial palsy treatment (Table 5). Previous research revealed that a facial muscle exercise program, including facial massage, effectively improves facial muscle function and decreases depression levels in patients with facial palsy [14,15]. Therefore, massage and

exercise therapy videos were developed as an application, and only what patients needed for each period was prescribed for download. Accessibility and ease of use are advantages of exercising with smartphone applications [16].

Medical staff members responded well to most items; however, the item “improving staff qualifications and educating new staff” scored 3.85 (SD = 0.75), which was low (Table 6). This suggests that medical staff education was insufficient before CP implementation, requiring systematic improvement of employee training. Similarly, the lowest scores were given to the items “work division” and “guidelines of treatment frequency and termination,” demonstrating the need to share specific CP procedures with the staff. CP can and should be implemented to decrease variations in care, improve guideline compliance, and potentially improve the overall quality of patient care [13].

The staff also suggested that brochures provided to patients should be more specific. Therefore, brochures must be more concrete, so that staff members can provide patients with common and accurate information. Providing brochures to patients can enhance their understanding of the procedure, leading to increased confidence in the effectiveness of treatment [17,18].

This study has some limitations. First, the application, completion, and satisfaction rates are the criteria for evaluating the effectiveness of the CP program; however, only satisfaction was assessed in this study. Application and completion rates will be investigated in future studies. Second, no comparative analysis with a control group that did not apply CP was conducted, so further studies including comparative analysis are needed.

Patients were highly satisfied with the CP program, and we will continue to use and improve it by supplementing some of its contents. This study could provide insights into the criteria that should be considered in CP programs for the treatment of acute facial palsy. Therefore, other medical institutions can apply CP programs according to their needs.

CONCLUSION

In this study, we developed an integrated CP program for acute facial palsy, incorporated it into clinical practice, and conducted satisfaction surveys.

First, patients were most satisfied with accurate diagnosis, sufficient explanation, symptom improvement, and time-saving procedure in the CP. However, they pre-

ferred the addition of specialized facial massage and education on self-exercise to the CP program.

Second, staff members responded that medical staff education was insufficient before CP implementation, and brochures provided to patients should be more specific.

Third, improvements including exercise therapy videos as an application, employee training, concrete brochures should be realized and continuously used in clinical practice. Other CP assessment criteria and comparative analysis with a control group are warranted in future studies.

AUTHOR CONTRIBUTIONS

Conceptualization: JHK, YCP, SSN. Funding acquisition: SSN. Methodology: BHG, BKS, YHB. Formal investigation: MJK, JHK. Data analysis: MJK, JHK. Writing – original draft: MJK. Writing – review & editing: All authors.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

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ETHICAL STATEMENT

This study is a questionnaire survey with human participants (IRB approval no. KHNMC0H 2021-08-008-001).

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