

A spadework for integrative medicine based critical pathways for facial palsy

Web-based survey from traditional Korean medicine doctors

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Abstract

Patients affected with facial palsy consult both traditional Korean medicine doctors and conventional medicine doctors. Considering that the optimal approach varies depending on the progress of the disease, there is a need for facial palsy management through integrated medical care. However, no critical pathway has been developed to manage facial palsy from an integrated medical perspective. The aims of this study were to (a) explore treatment utilization status and awareness for facial palsy; (b) understand possible traditional Korean medicine modalities; and (c) suggest interventions to be included in integrated medical service for treating facial palsy. Regarding existing papers in relevant field, draft of questionnaire was firstly established. Eight-person development committee was comprised and reviewed the draft and modified the items of questionnaire. As an independent committee, the authors of present study have rechecked the validity and reliability of modified items of questionnaire. A questionnaire was developed comprising 21 items, including demographic characteristics, clinical statement, recognition, and demands and directions to improve the quality of newly developing critical pathways. Using the services of the Association of Korean Medicine and Medistream, the questionnaire was sent via a web-based survey to traditional Korean medicine doctors. A total of 1017 valid questionnaires were collected from traditional Korean medicine doctors. Of the total doctors who responded, over 75% stated that they utilized integrated medical systems in various forms. Acupuncture, herbal medicine, and thermal therapy were presented as key traditional Korean medicine treatments to be included in the critical pathway for the establishment of integrated medical services. Conversely, corticosteroids, antivirals, and blood sugar management were chosen to be critical among conventional medical treatments. Considering the responses collected in the present study and the progressive nature of facial palsy, various interventions in both conventional and traditional Korean medicine services need to be included in relevant critical pathways. If the critical pathway developed based on the present study is established, relevant clinical practice guidelines could be made available in an integrated medical system.

Abbreviations: KHIDI = Korea Health Technology R&D Project through the Korea Health Industry Development Institute, SD = Standard deviation.

Keywords: clinical practice guideline, critical pathway, facial palsy, integrative medicine, Korean medicine, survey

1. Introduction

Facial palsy is characterized by weakness of the mimetic facial musculature and can be caused by malfunction of facial nerve. Functional anatomy of facial nerve is classified in terms of its 4 unique components; special sensory, general sensory, branchial

motor, and visceral motor. These 4 unique parts of facial nerve can represent the trait of voluntary motor fibers, sensory innervation in external ear, taste function at the anterior two thirds of the tongue and parasympathetics to the submandibular, lacrimal and sublingual gland.^[1] Hence, potential spectrum of paralysis can range from paralysis of a single, unilateral facial region

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The datasets generated during and/or analyzed during the current study are not publicly available, but are available from the corresponding author on reasonable request.

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to a dense, bilateral facial paralysis characterized by a loss of dynamic facial expressions and leaking out when drinking or eating.^[2]

Psychological distress and impaired interpersonal communication lead by facial palsy could worsen quality of life of affected patients.^[3,4] High risk of depressive symptoms due to social contact decrease were observed in facial palsy patients.^[5] However, since there is a lack of treatment after steroid administration in the acute phase,^[6] a broader approaches are needed to manage symptoms and prevent possible sequelae.

In terms of Korean traditional medicine, interventions such as acupuncture and herbal medicine have been used to treat facial palsy.^[7–9] Although clinical practice guidelines in each field have been utilized,^[10,11] no guidelines have been developed for integrated models of cooperative treatment so far. For a more comprehensive construction of integrative approaches, the perspectives and interventions of complementary alternative medical fields should be combined with those of conventional medicine.^[12] There is a need to develop evidence-driven critical pathways that reflect both conventional and complementary medicine domain.

Critical pathways are generally defined as systematically developed recommendations on how to diagnose and treat medical conditions.^[13] Rigorously developed critical pathways can improve the quality of care and reduce potential harm by assisting the decision-making of clinical practitioners when managing patients.^[14]

Firstly to prepare a critical pathway, it is necessary to collect opinions from Korean traditional medical professionals on the current status of treatment in the field of Korean medicine, possible interventions, and ways to utilize them. In order to realize the relatively less known use of complementary and alternative medicine, it is appropriate to understand the environment in Korea, where the medical system is fully dualized.

The present study aimed to (a) explore treatment utilization status and awareness regarding facial palsy; (b) understand possible treatments for facial palsy; and (c) suggest interventions to be included in the integrated medical service for treating facial palsy.

2. Methods

2.1. Questionnaire development

First, the authors conducted a review to establish the basic structure of the questionnaire that was to be used for the development of the critical pathways of management. To develop the content of the questionnaire, existing papers in this field were retrieved [2–3]. The authors performed a thorough review of previously developed clinical practice guidelines for facial paralysis. Consequently, the authors were able to draft a questionnaire for the development of an integrated medical program for facial paralysis.

Researchers then formed an 8-person development committee with professionals who had no conflict of interest in developing the questionnaire. This committee comprised experts in conventional and complementary medicine. Committee members reviewed the questionnaire draft and critically commented on it. The draft was thoroughly reviewed, and it was finally developed into a 21-item questionnaire in the Korean language, including questions on demographic characteristics (6 items), clinical status (4 items), and recognition and demand (11 items).

2.2. Validation procedure

Validation process of developed questionnaire was based on criteria introduced by Terwee et al.^[15] The authors recruited an independent committee to ensure the validity of the drafted items of questionnaire. Three members of this committee had no

conflict of interest with this project. Informal interviews with a small convenience sample of Korean traditional medical professionals using personal communication devices too place to discuss face validity.^[16] Members of the Committee agreed that the items asked in this questionnaire reflected what was originally intended to be measured. Furthermore, the members assessed the internal validity to ensure the reliability of the questionnaire (Cronbach alpha score = 0.82)

2.3. Distribution and collection of questionnaires

The written questionnaire was converted into a web-based survey form (Google Survey Form) with a system to detect missing responses and prevent redundant responses and was designed to be accessed online through a survey link. The questionnaire was distributed using the services of the Association of Korean Medicine and Medistream, a community of traditional Korean medicine doctors. In the present study, traditional Korean medicine doctors refer to professionals in Korean medicine and do not refer to conventional doctors with Korean nationality. The survey links were sent to 23,909 and 23,905 traditional Korean medicine doctors on 2 occasions, January 12, 2021, and January 19, 2021, respectively, along with guidance on the survey research. Members of the marketing reception group sent the links via e-mail and social media services (KakaoTalk) to the traditional Korean medicine doctors who were members of the Association of Korean Medicine and those who belonged to MediStream, respectively.

The survey responses were collected over 14 days from January 12, 2021 to January 25, 2021. To prevent bias and conflicts of interest, researchers' intervention in collecting survey responses was excluded. Additionally, the survey questionnaire was randomly distributed using a random sampling protocol. The sampling protocol was provided by the Medistream engine itself.

2.4. Data analysis

Raw data collected from the online server on which the questionnaire was uploaded and results from the frequency analysis were provided to the researchers for data analysis. The results for multiple-choice questions are presented as frequencies or populations with proportions of respondents (%). The answers to descriptive questions are presented as actual sentences provided by the respondents. Prior to the analysis, the researchers once again identified and eliminated duplicate responses using spreadsheet software. The analysis process of raw data was repeatedly double-checked by 2 independent researchers. Microsoft Excel version 2016 was used for data analysis.

2.5. Ethical considerations

Prior to the survey, the study was approved by the Institutional Bioethics Review Board at Kyung Hee University Hospital at Gangdong (approval number: KHNMC0H 2020–12-004). All respondents were provided with information on the purpose of the survey through a survey dispatch notice. Only those who voluntarily agreed to participate in the survey clicked on the survey link to complete the questionnaire. Additionally, after clicking on the survey link, they were provided with guidance on how to complete the survey and information on personal data collection and usage. Moreover, only those who voluntarily agreed to the collection of data for research by selecting "I agree" as the response to the first question could answer the remaining questions. In addition, even during the survey, if the respondents did not want to proceed further, they could opt out at any time.

3. Results

3.1. Demographic characteristics

A total of 1017 responses were collected from 23,905 and 23,909 traditional Korean medicine doctors who received the link through e-mail or social network services. The questionnaire was resent to the same people as a follow-up to remind them to participate in the survey. Given the limited numbers of traditional Korean medicine doctors who was engaged in facial palsy practices, the final response rate was marked at 4.25% after 2 respective distributions. After all possible responses were collected, sample size was reviewed by a panel of external experts majored in survey methodology research. Furthermore, the final sample size was included in the study after the representativeness with the population was once again compared. The demographic characteristics of the respondents are listed in Table 1.

The respondents were engaged in primary traditional Korean medicine clinics (n = 612, 60.2%), medical clinics that

provide integrated medical services (n = 243, 23.9%), health centers or military medical institutions (n = 68, 6.7%), nursing hospitals (n = 50, 4.9%), medical clinics that provide only traditional Korean medicine services (n = 18, 1.8%), specialized clinics for facial disorders (n = 4, 2.24%), and others (n = 2, 2.4%).

There were 311 (30.6%) respondents with <5 years of clinical experience, 258 (25.4%) with more than 5 years, 272 (26.7%) with more than 10 years, and 176 (17.3%) with more than 20 years. Of the total respondents, 300 (29.5%) were traditional Korean medicine specialists.

3.2. Treatment utilization status of respondents and awareness

This section of the survey investigated the respondents' status of care and their awareness of integrated medical services (Table 2). Among the respondents, 81.4% were currently treating patients with facial palsy. Most respondents (764) treated approximately 1 to 10 patients with facial palsy per month, whereas 31 respondents treated 10 to 20 patients, 12 treated 20 to 30 patients, and 21 treated 30 or more patients in a month.

Based on the type of medical consultation used, 53.6% of the respondents reported that they could explain or educate patients based on the need for conventional medical treatment, 20.5% had a cooperative system in their institutions, and 3.6% cooperated with external institutions. Of the total, only 22.3% of the respondents were using the traditional Korean medicine diagnosis and treatment methods, without integrating the conventional medical practices.

Table 1
Demographic characteristics of respondents and all possible Korean medical professionals.

Characteristics	Respondents Total (n = 1017)		Population of Korean medical professionals* Total (n = 23,909)	
	N	%	N	%
Age (yr)				
20–29	117	11.5%	3132	13.1%
30–39	449	44.1%	10,089	42.2%
40–49	279	27.4%	5284	22.1%
50–59	142	14.0%	4136	17.3%
60 or more	30	2.9%	1268	5.3%
Gender				
Male	683	67.2%	15,445	64.6%
Female	334	32.8%	8464	36.4%
Type of institution engaged in:				
Specialized clinic for facial disorder	4	0.4%	48†	0.2%
Primary Korean medical clinic	612	60.2%	15,254†	63.8%
Medical clinics that only provide Korean medical service	18	1.8%	287†	1.2%
Medical clinics that provide integrative medical service	243	23.9%	4399†	18.4%
Nursing hospitals	50	4.9%	1267†	5.3%
Health centers or military medical institutions	68	6.7%	1458†	6.1%
Others	22	2.2%	1196†	5.0%
Clinical experience (yr)				
<5	311	30.6%	8249‡	34.5%
5–10	258	25.4%	5379‡	22.5%
10–20	272	26.7%	5164‡	21.6%
Over 20	176	17.3%	5117‡	21.4%
Trained in a specialized field of Korean medicine				
No	717	70.5%	21,088	88.2%
Yes	300	29.5%	3061	12.8%

*The information of 23,909 Korean medical professionals are provided by the Association of Korean medicine.

†This number seen was investigated as of March 2021.

‡Clinical experiences of all possible population are calculated from the year when each was granted a license.

Table 2
Treatment utilization status of respondents and awareness.

Utilization status of respondents and awareness	Total (n = 1017)	
	n	%
Whether they are currently treating patients with facial palsy		
No	189	18.6
Yes	828	81.4
Number of patients with facial palsy treated in a month		
None	189	18.6
1–10	764	75.1
11–20	31	3.0
21–30	12	1.2
>30	21	2.1
Types of medical consultation		
Consultation in clinic	208	20.5
Consultation out of clinic	37	3.6
Referral for consultation	545	53.6
Only Traditional Korean medicine treatments	227	22.3
Awareness of integrated medical services		
Knows very well	172	16.9
Knows well	376	37.0
Moderate	336	33.0
Not familiar with	116	11.4
Have no idea	17	1.7
Are integrative medical services needed		
Needed	956	94.0
Not needed	61	6.0

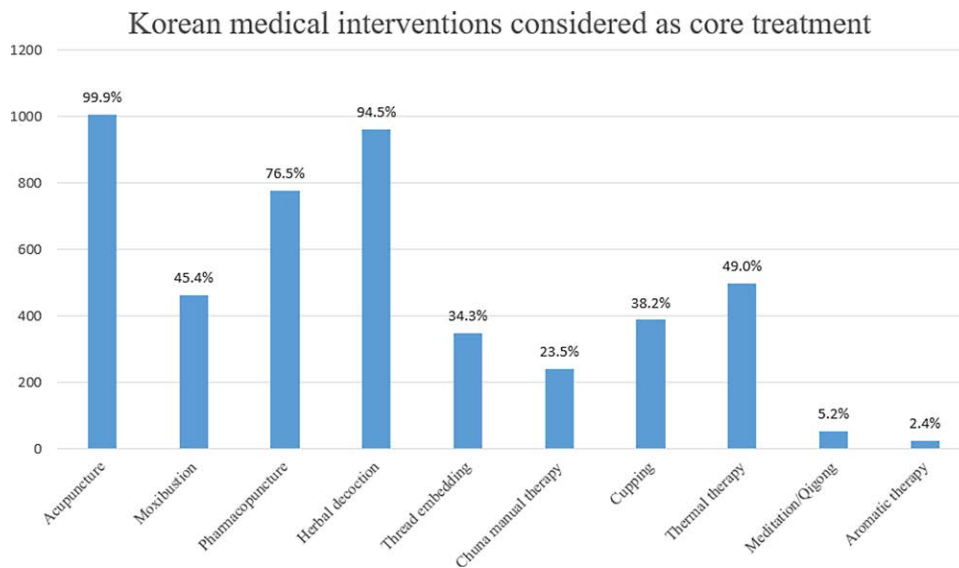


Figure 1. Traditional Korean medicine interventions considered as core treatment.

A total of 172 (16.9%) respondents knew about the concept of integrated medical services, while 376 (37.0%) had heard about it. In contrast, only 133 (13.1%) respondents did not know about the concept, indicating that most traditional Korean medicine doctors were aware of the concept of integrated medical services.

Respondents who affirmed that they did not need integrated medical services explained their reasoning in a reply to a descriptive question on why they thought the current treatment was sufficient and why it was practically difficult to establish an integrated medical system.

3.3. Understanding of treatments available for facial paralysis

When queried with a multiple response question on the core Korean medicine treatments for facial palsy, respondents most frequently selected acupuncture (n = 1007, 99.0%), herbal medicine (n = 961, 94.5%), pharmacopuncture (n = 778, 76.5%), thermal therapy (n = 498, 49.0%), and moxibustion (n = 462, 45.4%) (refer to Fig. 1).

Concerning the role of conventional medical care, 76.7%, 76.1%, and 36.7% of the respondents believed that acute period management, diagnosis, and management of related underlying conditions, respectively, were the crucial stages in which this type of care was needed (shown in Table 3).

According to the respondents, administration of antiviral drugs (n = 754, 74.1%) and corticosteroids (n = 703, 69.1%), blood sugar management (n = 581, 57.1%), physical therapy (n = 488, 48.0%), and blood pressure management (n = 472, 46.4%) were the conventional treatments that were considered as core treatments for facial palsy (Refer in Fig. 2).

3.4. Interventions to be included in the integrated medical service for facial palsy

To understand the respondent’s perspective on different interventions that need to be included in an integrated medical service for facial palsy, a 7-point Likert-type scale was used (shown in Table 4). On the scale, 7 refers to what you think is very important, and 1 refers to what you think is almost unimportant.^[17] The average Likert-type scale scores for traditional Korean medicine interventions necessary for the integrated medical programs for facial palsy were 6.5 (standard deviation

Table 3

Recognition of treatments available for facial palsy.

Question	Responses (multiple response available)	Total (n = 1017)	
		n	%
Which of the following traditional Korean medicine treatments do you consider to be a core treatment in integrated medical care for facial palsy?	Acupuncture (all kinds of techniques are included)	1007	99.0
	Moxibustion	462	45.4
	Pharmacopuncture	778	76.5
	Herbal medicine	961	94.5
	Thread embedding	349	34.3
	Chuna manual therapy	239	23.5
	Cupping	388	38.2
	Thermal therapy	498	49.0
	Meditation/Qigong	53	5.2
	Aromatic therapy	24	2.4
Which part of conventional medicine plays a crucial role in facial palsy treatment?	Diagnosis	774	76.1
	Acute stage management	780	76.7
	Chronic stage management	97	9.5
	Management of sequelae	108	10.6
	Management of underlying conditions	373	36.7
	Prevention	72	7.1
	Which of the following conventional medical treatments do you consider to be a core treatment in integrated medical care for facial palsy?	Corticosteroids	703
Antivirals		754	74.1
Blood circulation enhancer		317	31.2
Facial nerve decompression		258	25.4
Physical therapy		488	48.0
Protective ophthalmic medication		463	45.5
Blood sugar management		581	57.1
Blood pressure management		472	46.4
Botulinum toxin injection		125	12.3
Neuro-resuscitation		111	10.9
Stellate ganglion block	59	5.8	
Eyelid suture	37	3.6	
Laser therapy	48	4.7	
High-pressure oxygen therapy	22	2.2	

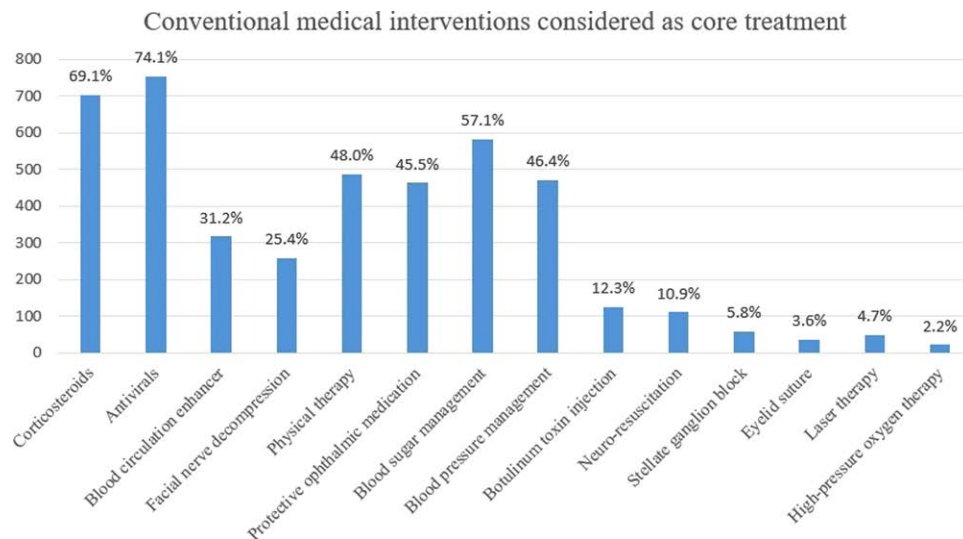


Figure 2. Conventional medicine interventions considered as core treatment.

SD = 1.05) for acupuncture, 4.5 (SD = 1.55) for herbal medicine, 6.0 (SD = 1.26) for moxibustion, 5.3 (SD = 1.26) for pharmacopuncture, 4.1 (SD = 1.53) for embedded threading, 3.7 (SD = 4.41) for Chuna manual therapy, 4.4 (SD = 1.68) for cupping, 5.1 (SD = 1.51) for thermal therapy, 3.0 (SD = 1.44) for meditation or qigong, and 2.7 (SD = 1.37) for aromatic therapy (Table 4).

The Likert-type scale scores for conventional medical interventions that were deemed necessary for the integrated medical programs for facial palsy were 4.6 (SD = 1.90) for adrenal cortex hormone, 4.6 (SD = 1.71) for antivirals; 3.6 (SD = 1.54) for blood circulation enhancer, 3.2 (SD = 1.49) for facial nerve decompression, 4.3 (SD = 1.13) for physical therapy, 4.5 (SD = 1.82) for protective ophthalmic medication, 5.0 (SD = 1.70) for blood sugar management, 4.9 (SD = 1.70) for blood pressure management, 3.0 (SD = 1.45) for Botulinum toxin injection, 3.1 (SD = 1.44) for neuro-resuscitation, 2.8 (SD = 1.36), for stellate ganglion block, 2.7 (SD = 1.30) for eyelid suture, 2.8 (SD = 1.39) for laser therapy, and 2.5 (SD = 1.29) for high-pressure oxygen therapy.

The Likert-type scale scores for complementary and alternative medical interventions that were deemed necessary for inclusion in the integrative medical programs for facial palsy were 5.7 (SD = 1.53) for self-work out and massage education, 4.6 (SD = 1.64) for cognitive behavioral therapy, 5.3 (SD = 1.54) for hot packs, 5.2 (SD = 1.52) for massage, 2.9 (SD = 1.22) for music therapy, 3.2 (SD = 1.52) for vitamin supplementation, and 3.3 (SD = 1.56) for taping.

4. Discussion

4.1. Summary of findings

Facial palsy is one of the widespread diseases observed in patients receiving integrated medical care.^[18] Although the revised version of the traditional Korean medicine practice guideline and widely accepted conventional medicine guidelines regarding facial palsy are available, there are no established critical pathways that can be implemented in the integrated medical environment.

The present study investigated the utilization status and opinions of traditional Korean medicine doctors regarding the status of current medical care and various interventions needed for the treatment of facial palsy in an integrated medical environment. A total of 1017 traditional Korean medicine doctors responded to our questionnaire. The result of comparing the characteristics

of the respondents and the entire population of traditional Korean medical doctors confirms that most of the respondents were appropriate targets for the survey as they could be the users of the critical pathway.

According to the responses, 53.6% of the respondents were aware of the need to use integrated medical care when treating patients with facial paralysis, but 22.3% of the respondents stated that they did not use medical cooperation and focused only on traditional Korean medicine diagnosis and treatment practices. This proves that a desirable cooperative model has not been established despite the widespread awareness of integrated medical services, with only 13.1% of respondents being unaware of the concept of integrated medical services.

In addition, when asked about the need for an integrated medical program, the majority of the respondents were aware of the need. Those who did not see the need for such a system stated that the traditional Korean medicine treatment was enough to manage patients with facial palsy or found it difficult to incorporate an integrated medical system. These negative responses are partly consistent with the findings of existing studies dealing with the diverse perceptions of healthcare professionals on integrated healthcare systems.^[19] Hence, to increase implementation, efforts to convert research-based evidence into practically usable forms, such as critical pathways, should be considered.

A critical pathway is a systematic treatment plan developed by multidisciplinary members, which is designed to ensure optimal treatment effectiveness, including standardizing treatment outcomes and predicting adverse events.^[20] For the critical pathway to be used efficiently in clinical practice, essential therapeutic options need to be considered during its development process.^[21]

In addition, for a comprehensive understanding of clinical needs, various opinions from relevant stakeholders should be collected through methods, such as surveys or qualitative approaches.^[22] In present study, there have been a number of notable open-ended answers collected and will be addressed in future implementations.

The researchers in this study found that most respondents believed that traditional Korean medicine treatments, such as acupuncture and the use of herbal medicine, should be included as key treatments in the critical pathway of integrated medical management for facial paralysis.

Acupuncture is primarily considered an efficient practical intervention with few adverse effects.^[23] In recent years, several Cochrane systematic reviews have reported acupuncture interventions as effective for the treatment of facial paralysis.^[24,25]

Table 4

Perspective regarding the clinical use of and the importance for interventions in an integrated medical program (7-point Likert-type scale).

Interventions	Likert-type scale score (total n = 1017)							Mean
	1	2	3	4	5	6	7	
Traditional Korean medicine interventions								
Acupuncture (all kinds of techniques are included)	1	3	15	83	54	40	821	6.5
Moxibustion	28	86	135	252	238	152	126	4.5
Pharmacopuncture	12	44	89	159	194	231	288	5.3
Herbal medicine	0	10	40	111	135	204	517	6.0
Thread embedding	60	109	169	270	230	118	61	4.1
Chuna manual therapy	108	168	160	250	166	102	63	3.7
Cupping	49	131	123	206	233	162	113	4.4
Thermal therapy	13	47	81	209	194	236	237	5.1
Meditation/Qigong	195	226	205	248	97	40	6	3.0
Aromatic therapy	248	263	202	210	67	22	5	2.7
Conventional medicine interventions								
Corticosteroids	66	122	122	147	170	168	222	4.6
Antivirals	53	93	113	168	244	193	153	4.6
Blood circulation enhancer	97	183	181	236	207	89	24	3.6
Facial nerve decompression	132	244	208	227	138	49	19	3.2
Physical therapy	57	128	149	200	183	184	116	4.3
Protective ophthalmic medication	68	123	115	181	182	190	158	4.5
Blood sugar management	30	69	113	141	189	214	261	5.0
Blood pressure management	32	83	119	150	199	221	213	4.9
Botulinum toxin injection	185	228	211	238	105	41	9	3.0
Neuro-resuscitation	162	239	214	247	106	33	16	3.1
Stellate ganglion block	193	271	214	229	80	24	6	2.8
Eyelid suture	220	288	220	216	48	20	5	2.7
Laser therapy	194	279	220	215	69	28	12	2.8
High-pressure oxygen therapy	259	290	209	189	50	19	1	2.5
Complementary and alternative medicine interventions								
Self-exercise and massage education	5	36	93	88	148	191	456	5.7
Cognitive behavioral therapy	33	99	123	210	215	190	147	4.6
Hot packs	12	49	100	117	205	266	268	5.3
Massage	12	53	98	121	226	270	237	5.2
Musical therapy	212	248	206	214	104	25	8	2.9
Vitamin supplementation	169	225	183	241	133	50	16	3.2
Taping	152	218	182	224	159	64	18	3.3

In a study by Zhang et al on randomized controlled trials, acupuncture application was found to be more effective than medication in treating idiopathic facial paralysis.^[26]

Oral consumption of herbal medicines can be effective in managing neurological symptoms of facial nerve disorders^[27] and is widely used as a primary approach in Korean medicine.^[28] Lee et al reported that herbal medicines could suppress inflammation and prevent neurodegeneration in facial palsy.^[29]

Acupuncture and herbal medicine usage can be considered as an alternative to overcoming the limitations of conventional medication use, which is mainly used in acute periods.^[30] Corticosteroids combined with antiviral drugs are widely used in the acute stage of the disease to accelerate the healing process and reduce the risk of complications.^[31] After an acute period in which corticosteroids combined with antiviral drugs can have great effect, practitioners must then target physical rehabilitation afterwards.^[32]

Physical rehabilitation for facial palsy starts from weeks 2 to 4 and lasts until weeks 26 to 42 after onset. After medication treatment in the acute stage, exercises, such as proprioceptive

neuromuscular facilitation and neuromuscular reeducation are initiated.^[33] In this phase of management, a growing number of practitioners consider complementary and alternative interventions to reduce the possibility of sequelae and augment the effect of reeducation programs.^[34]

In response to our survey, the respondents stated that education and the application of interventions, such as exercise, massage, and hot pack application are necessary. These interventions are not standardized in terms of their application and efficacy. Although there is an insufficient validation of the risk factors and effectiveness of the treatment,^[35,36] these alternatives should be considered to broaden the health care options of patients with facial palsy.

In terms of ways to promote the use of critical pathways developed in the future, the responses received from our participants were similar to those reported in previous studies.^[21,37,38] The respondents reported that there are numerous barriers to critical pathway implementation, including lack of awareness, familiarity, agreement, and confusion about outcome expectancy. Therefore, multifaceted strategies, such as decision

support systems, educational outreach visits, audits, and feedbacks should be applied to maximize implementation.^[39–42]

4.2. Limitations and future implications

The first limitation of our study was the use of convenience sampling. Although the representativeness of selected samples is double-checked by expert panels, the current results may not apply to traditional Korean medicine doctors working in all settings. This is why the response rate was only 4.25%. Also, this low response rate is due to a Korean medical environment in which there are not many Korean medical professionals are managing facial paralysis in clinical practice. Considering these 2 aspects mentioned, delicate interpretation is needed to handle the results of the present study. No efforts were applied to follow up with nonresponders. In addition, the survey asked participants to respond “Yes” or “No” regarding the knowledge of integrated medical services. While this made the response quick and easy for the respondents, the use of a scale that yielded interval-level data would have enriched the research.

Second, the questionnaire asked for responses to broad categories of interventions, and these responses may not reflect the knowledge, attitude, or the use of selected items. For example, there is a multitude of medicines, and a respondent may have in-depth knowledge about a selected few that are recommended for use. Furthermore, some of the possible modalities can be missing. Photobiomodulation or low-level laser therapy is potential modalities for managing facial palsy. However, in Korean medical environment, Korean traditional medical professionals are prohibited from using low-level laser modalities, so practitioners in present study were not asked about this issue. In future studies, if doctors with conventional medicine, which is an opposite concept with Korean medical doctors in Republic of Korea, can be participated in future survey, it is believed that more in-depth comparisons of intervention and treatment will be possible.

Lastly, this research did not clarify how knowledge regarding integrated medical interventions was gained; the underlying environmental factors that may have influenced a respondent’s knowledge of, attitudes towards, and use of such interventions; as well as it did not verify their actual knowledge. Hence, to gather more balanced opinions, it is important to collect feedback on integrated health care from conventional doctors as well as traditional Korean medicine doctors.

5. Conclusion

When optimal management is provided, facial palsy can be treated with fewer sequelae. Patients with facial palsy are likely to suffer for a long time, and the development of an integrated medical procedure-focused critical pathway that recommends a variety of options for practitioners to choose from is crucial.

Nevertheless, this present study was the first study to collect opinions of traditional Korean medicine doctors on the integrated medicine system incorporating a variety of therapeutic options. This study could provide insight on what criteria should be considered for possible interventions in the management of facial palsy. The authors anticipate that this work will serve as a foundation for critical pathway development for facial palsy management.

Author contributions

All research was conducted by the authors.

S.S.N. and B.G. were responsible for the survey design. S.S.N. obtained the rights for the corresponding funding. B.G. and J.H.K. analyzed and interpreted the survey data. J.H.K. was a major contributor in writing the manuscript. All authors read and approved the final manuscript.

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