



Letter to the Editor

Patients' preference and satisfaction for a nasally administered herbal ointment in rhinitis patients



Pharmaceutical formulation is one of the most important factors determining the absorption rate of nasally delivered treatments. In the Republic of Korea, herbal ointments are prepared by Korean Medicine doctors (KMDs) using modified traditional manufacturing methods and are prescribed by Korean Medicine clinics and hospitals. KMDs are, thus, completely responsible for these formulations.^{1,2}

A better understanding of patient preferences and satisfaction regarding these formulations is essential, because patient satisfaction strongly affects both treatment compliance and adherence.^{3,4} Several surveys have been conducted to evaluate consumer preferences for internal herbal medicine formulations.^{5,6} However, to date, no study has surveyed herbal formulation preferences for nasal use. The present study surveyed patient satisfaction and preferences for a nasally administered herbal ointment and established a formulation development strategy for nasally administered treatments.

The survey included subjects who completed a prospective observational study that evaluated the safety and effectiveness of nasal application of an oil-based herbal ointment on rhinitis.⁷ A total of 56 rhinitis subjects were surveyed after a 4-week course of herbal ointment application. The questionnaire included the following items: satisfaction with the herbal ointment, priorities for formulation improvement, preferred container type, and inconvenience experienced while using the nasal herbal ointment (Supplement 1).

A majority of patients were satisfied with the portability, and ointment texture (Table 1). Patients were not satisfied with the duration of action or scent of the ointment. Accordingly, patients identified the duration of action and scent of the ointment as the first priorities for ointment improvement. Moreover, patients pre-

ferred the ointment container type used in the study (33, 58.9%). The next most popular containers were the tube (16, 28.6%) and stick (15, 26.8%) types.

When patients were asked to describe other inconveniences noted while using the herbal ointment, nine complained about the use of a cotton swab for application. Patients mentioned that it was inconvenient to carry both the herbal ointment and cotton swab, and that it was bothersome that they were not permitted to apply the herbal ointment without the cotton swab. Six patients complained about the scent, describing it as strong (people nearby could smell the ointment) and long-lasting. Three patients suggested that a spray-type formulation would be better for nasal use. Three patients complained of nasal discomfort due to irritation of the mucosal membrane by the herbal ointment, and two patients experienced a subjective increase in rhinorrhea due to ointment-related irritation. Two patients complained about the ointment consistency in the nasal cavity when it was over-applied or applied in warm environments. Lastly, one patient complained that after applying the ointment, their nasal discharge turned yellow.

The present study had several limitations. We only included patients with rhinitis, whose results may not be consistent with the responses of healthy individuals. Moreover, as our questionnaire was limited to a specific herbal ointment, we could not compare the responses to formulations such as other herbal ointments, distilled herbal decoction sprays, and herbal gels.

The present study showed that surveyed patients who used the nasally administered herbal ointment were generally unsatisfied with the duration of action and scent, identifying these two features as priorities for improvement. Herbal medicines have distinct scents, which depend on the herbs used, the use of scent additives, and individual taste.^{8,9} Normal and reduced scent options may be useful for increasing patient satisfaction in those who are not accustomed to a strong herbal scent. Future studies will need to conduct drug formulation research based on user feedback.

Table 1
Satisfaction with the nasal herbal ointment and priorities for formulation improvement.

Items N (%)	Satisfaction with the herbal ointment for nasal use			Priorities for improving the herbal ointment
	Not satisfied	Modestly satisfied	Satisfied	Agreement rate
Overall satisfaction	1 (1.8%)	29 (51.8%)	26 (46.4%)	–
Effectiveness	3 (5.4%)	29 (51.8%)	24 (42.9%)	12 (21.4%)
Duration of action	9 (16.1%)	39 (69.6%)	8 (14.3%)	21 (37.5%)
Texture	3 (5.4%)	23 (41.1%)	30 (53.6%)	9 (16.1%)
Scent	9 (16.1%)	23 (41.1%)	24 (42.9%)	17 (30.4%)
Portability	5 (8.9%)	9 (16.1%)	42 (75.0%)	7 (12.5%)
Container	5 (8.9%)	15 (26.8%)	36 (64.3%)	6 (10.7%)

<https://doi.org/10.1016/j.imr.2020.03.001>

2213-4220/© 2020 Korea Institute of Oriental Medicine. Publishing services by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Conflict of interest

The authors declare no conflicts of interest.

Funding

This study was supported by grants from the Korea Institute of Oriental Medicine (K17790, KSN2013210). The sponsor played no role in the conduct of the study.

Ethical statement

The prospective observational study protocol with this survey questionnaire was approved by the Institutional Review Board of the Woosuk Korean Medicine Medical Center (WSOH IRB 0611-04).

Data availability

The datasets are available upon request.

CRediT authorship contribution statement

Mi Ju Son: Conceptualization, Data curation, Formal analysis, Funding acquisition, Methodology, Project administration, Software, Visualization, Writing - original draft, Writing - review & editing. **Dong-Hyo Lee:** Investigation, Resources, Supervision, Validation, Writing - review & editing.

Acknowledgements

The authors thank So Young Jung and Ojin Kwon at the Korea Institute of Oriental Medicine for monitoring trial and capturing data from scanned documents.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.imr.2020.03.001>.

References

1. Korea Institute for Health and Social Affairs. 2011 National survey on Korean medicine health care utilization and herbal medicine consumption. Seoul: Ministry and Health and Welfare; 2011:11-1352000-000547-12.
2. Korea Health Industry Development Institute. 2014 National survey on Korean medicine health care utilization and herbal medicine consumption. Seoul: Korea Health Industry Development Institute; 2014:11-1352000-000547-12.
3. Kassirer J. Incorporating patients' preferences into medical decisions. *N Engl J Med* 1994;330:1895-6.
4. Jahng K, Martin L, Golin C, DiMatteo M. Preferences for medical collaboration: patient-physician congruence and patient outcomes. *Patient Educ Couns* 2005;57:308-14.
5. Kim Y, Kim S, Chang H, Park J, Jeong M, Park Y. Survey on the preference formula for the improvement of oriental herbal medicine insurance. *Korea J Herbal* 2009;24:17-23.
6. Choi H, Bhang N, Song B, Kim N, Ryu B. Survey on the preference for the dosage forms of oriental herbal medicine. *J Kyung Hee Univ Med Cent* 2004;20:46-57.
7. Son MJ, Jung J, Kim YE, Yeum CS, Lee SM, Jung SY, et al. Treating nasal symptoms associated with rhinitis using the intranasal herbal ointment Biyeom-go: a prospective observational study. *Clin Otolaryngol* 2019;44:997-1003.
8. Auvray M, Spence C. The multisensory perception of flavor. *Conscious Cogn* 2008;17:1016-31.
9. Spence C. Multisensory flavor perception. *Cell* 2015;161:24-35.

Mi Ju Son  *

Clinical Medicine Division, Korea Institute of Oriental Medicine, Daejeon, Republic of Korea

Dong-Hyo Lee

Department of Ophthalmology, Otolaryngology, and Dermatology, College of Korean Medicine, Woo-Suk University, Jeonju, Republic of Korea

* Corresponding author at: Korea Institute of Oriental Medicine, 1672, Yuseong-daero, Yuseong-gu, Daejeon, 34054, Republic of Korea
E-mail addresses: mj714@kiom.re.kr (M.J. Son), drleedh@naver.com (D.H. Lee).

27 February 2020

Available online 6 March 2020