

Knowledge of laryngopharyngeal reflux disease among otolaryngologists in 3A hospitals in Beijing

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Junbo Zhang, Shuifang Xiao , Xiaowan Du, Xin Zhao and Junxiao Jia

Abstract

Objective: This study aimed to evaluate knowledge of laryngopharyngeal reflux disease (LPRD) among otolaryngologists in 3A hospitals in Beijing.

Methods: A cross-sectional questionnaire survey of LPRD knowledge was conducted with otolaryngologists in 40 3A hospitals in Beijing. A response rate of <80% was obtained from one hospital, so data from 331 valid questionnaires from the other 39 hospitals were analysed.

Results: The most common source of LPRD knowledge was academic lectures (80.1%). The most commonly known risk factors, symptoms, clinical signs and associated diseases were unhealthy eating habits (49.2%), foreign body sensation in the pharynx (71.0%), hyperaemia (42.3%) and pharyngolaryngitis (63.7%), respectively. Only 57.7% of otolaryngologists knew about 24-hour pH monitoring as a gold standard diagnostic test for LPRD. The most commonly known treatment option was medication (93.1%). Most physicians (86.7%) had made a clinical diagnosis of LPRD; however, only 59.9% of them had followed up the treatment outcomes. The most common treatment provided was medication (82.6%).

Conclusions: Knowledge of LPRD among otolaryngologists in 3A hospitals in Beijing was insufficient. Educational programs are needed to increase the knowledge of LPRD among otolaryngologists.

Keywords

Cross-sectional survey, diagnosis, laryngopharyngeal reflux disease, otolaryngologists, treatment, China

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Department of Otolaryngology, Head and Neck Surgery, Peking University First Hospital, Beijing, China

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Corresponding author:

Shuifang Xiao, Department of Otolaryngology, Head and Neck Surgery, Peking University First Hospital, Xishiku Street 8, Beijing 100034, China.
Email: xiao_ent@163.com



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Introduction

Laryngopharyngeal reflux disease (LPRD) is characterized by symptoms and clinical signs caused by the retrograde reflux of gastric contents beyond the upper oesophageal sphincter.^{1,2} LPRD has gained increasing recognition over the past two decades. The incidence of LPRD is extremely high; one study showed that approximately 10% of all otolaryngology clinic patients had symptoms consistent with LPRD.³ However, in China, most such patients have never been correctly diagnosed. This is partly because of the nonspecific symptoms and clinical signs of this disease, but may also stem from lack of knowledge about LPRD among medical specialists performing initial diagnoses or treatments. Lechien et al.⁴ found that most European otolaryngologists did not consider themselves sufficiently informed about LPRD. However, the current expertise in LPRD among Chinese otolaryngologists has never been assessed. Therefore, the present cross-sectional study was performed to investigate awareness and knowledge of LPRD among otolaryngologists in several 3A hospitals in Beijing.

Methods

Ethical approval

This study was approved by the ethics committee of Peking University First Hospital. Participants were given a detailed explanation of the study, and all participants provided written informed consent. All study procedures were in accordance with the ethical standards of the institutional and/or national research committee and with the principles of the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Study settings and participants

This descriptive cross-sectional survey aimed to assess awareness of several aspects

of LPRD. Because there have been no similar studies in China, it was hard to evaluate the sample size needed for this explorative study. Therefore, to obtain a representative sample, invitations were sent to all hospitals in Beijing rated as 3A (i.e., the highest quality level) that had an independent otolaryngology clinic. Forty hospitals agreed to participate in this investigation. Because this was more than half of all eligible institutions in Beijing, the sample was considered sufficiently representative to investigate LPRD knowledge among otolaryngologists in 3A hospitals in Beijing.

All licensed otolaryngologists in these hospitals who agreed to be surveyed were included. The exclusion criteria were otolaryngologists who were on vacation or refreshing in other hospitals and those who declined to participate.

Surveys were performed under the supervision of two surveyors. Before filling out the questionnaires, all participants were informed of the purpose and significance of the survey. Questionnaires were filled in a few minutes after distribution. During this time, participants were asked not to consult with others or access related information. All completed questionnaires were collected and stored before being checked by the surveyors for possible missing items.

LPRD questionnaire

The questionnaire used in this study was designed by the laryngology group of the Chinese Medical Association and the Department of Otolaryngology, Head and Neck Surgery, Peking University First Hospital, and modified according to the suggestions of the statistical research group at Peking University First Hospital. The questionnaire was anonymous and had four main sections. The first part recorded the following participant personal information: educational background, professional positions and subspecialties. The second

part assessed where participants had obtained information about LPRD. The third part comprised several questions about LPRD-related knowledge: risk factors, common symptoms and clinical signs, associated diseases, current diagnostic methods and treatments. This part emphasized knowledge of the Reflux Symptom Index (RSI), the Reflux Finding Score (RFS) and 24-hour pH monitoring. The RSI and RFS, both developed by Belafsky et al.,^{5,6} are the most commonly used subjective and objective screening scales for LPRD, respectively. The reliabilities of both these scales have been validated.^{7,8} The 24-hour pH monitoring is currently recommended as the gold standard diagnostic test for LPRD.^{2,9} The fourth part of the questionnaire assessed clinical experience of LPRD: whether participants had previously made this diagnosis, the treatment plan they had prescribed and whether they had followed up the treatment outcomes.

Statistical analysis

All questionnaire responses were transformed into categorical data. SPSS Statistics for Windows, Version 17.0 (SPSS Inc., Chicago, IL, USA) was used for statistical analysis. Pearson's chi-squared test was used to compare categorical data among different groups. A *P* value less than 0.05 was considered statistically significant.

Results

A total of 349 questionnaires were distributed in the Departments of Otolaryngology, Head and Neck Surgery of 40 3A hospitals in Beijing. A total of 333 valid questionnaires were collected, a response rate of 95.4%. A response rate of <80% was obtained from one hospital, so the two questionnaires from that hospital were excluded. Therefore, data were analysed for 331 valid

questionnaires with no missing items collected from the other 39 hospitals.

Of the three possible response options for the LPRD information source, the most frequently cited was academic lectures (265 participants; 80.1%), followed by literature (223 participants; 67.4%) and textbooks (200; 60.4%). A total of 207 (62.5%) otolaryngologists had read the first expert guideline for LPRD published in the official journal of *Chinese Otolaryngology, Head and Neck Surgery*.

The most commonly known risk factors, symptoms, clinical signs and associated diseases were unhealthy eating habits (163, 49.2%), foreign body sensation in the pharynx (235, 71.0%), vocal cord hyperaemia (140, 42.3%) and pharyngolaryngitis (211, 63.7%), respectively. The awareness rates for almost all aspects of LPRD knowledge were less than 50%.

A total of 45.9% and 43.5% of participants, respectively, had a correct understanding of RSI and RFS diagnostic values for LPRD. These two rates were significantly higher in pharyngology subspecialty (vs. nonpharyngology subspecialty) and nonprimary professional groups (vs. primary professional group) ($P < 0.05$) (Table 1). Only 57.7% of participants knew about the use of 24-hour pH monitoring as a gold standard diagnostic test for LPRD, and no significant differences were observed among the different groups (Table 1).

The most commonly known LPRD treatment option was medication (308 participants; 93.1%), followed by behavioural modification (159 participants; 48.0%) and surgical treatment (70 participants; 21.1%). Only 47 (14.2%) participants knew about all three treatment methods.

As many as 287 participants (86.7%) had made a previous diagnosis of LPRD; however, only 172 (59.9%) had followed up their patients for treatment outcomes. A total of 237 (82.6%) participants had prescribed

Table 1. Awareness rates for Reflux Symptom Index (RSI) and Reflux Finding Score (RFS) diagnostic values and 24-hour pH monitoring according to personal information.

	Number	Percentage	RSI	RFS	24-hour pH monitoring
Educational background					
Postgraduate or above	277	83.7	127 (45.8%)	119 (43.0%)	155 (56.0%)
Undergraduate or below	54	16.3	25 (46.3%)	25 (46.3%)	36 (66.7%)
Professional positions					
Senior	88	26.6	43 (48.9%)*	42 (47.7%)*	55 (62.5%)
Intermediate	128	38.7	69 (53.9%)*	65 (50.8%)*	71 (55.5%)
Primary	115	34.7	40 (34.8%)	37 (32.2%)	65 (56.5%)
Subspecialties					
General ear, nose and throat	205	61.9	85 (41.7%)	81 (39.5%)	108 (52.7%)
Pharyngolaryngology	41	12.4	26 (63.4%)*	26 (63.4%)*	27 (65.9%)
Otology/rhinology/head and neck surgery	85	25.7	41 (48.2%)	37 (43.5%)	56 (63.5%)

*The rates of correct understanding of RSI and RFS diagnostic values were significantly higher in the pharyngolaryngology subspecialty and nonprimary professional groups (Pearson's chi-squared, $P < 0.05$).

medication, 27 (9.4%) a combination of medication and behavioural modification, 20 (7.0%) no treatments and 3 (1.0%) behavioural modification alone.

Discussion

LPRD has been recognised as an independent disease since Koufman systematically reported its symptoms in 1991.³ The number of LPRD publications has progressively increased over the past decades.¹⁰ At present, the diagnosis and treatment of LPRD have become more standardized based on basic and clinical data. The Chinese Medical Association developed the first consensus guidelines for LPRD diagnosis and management in 2015.⁹ However, the present findings suggest that LPRD knowledge among first-line clinical otolaryngologists in Beijing remains insufficient.

Regarding LPRD knowledge sources, a high percentage of participants gained their knowledge through academic lectures, reflecting the excellent work done by academic associations in publicising this disease.

In contrast, a relatively low percentage of participants learnt about LPRD through textbooks, indicating the inadequacy of current textbooks in covering the disease and a need to add or update LPRD-related information in textbooks.

The awareness rates for nearly all aspects of LPRD knowledge (i.e. risk factors, symptoms, clinical signs and associated diseases) were below 50%. The low awareness rates found here may be the main reason otolaryngologists ignored the possibility of LPRD diagnosis based on patients' history, physical examination and other examinations, leading to a high rate of missed or wrong diagnoses.

Knowledge of the RSI and RFS diagnostic values and 24-hour pH monitoring was relatively low, a pattern more obvious in the nonpharyngolaryngology subspecialties and the primary professional group. A clinical consequence of this was the failure to provide an accurate diagnosis and effective advice to patients with suspected LPRD. Behavioural modification, medication and surgery were the most commonly used treatment methods,^{1,2,9} however, there

were large differences in the percentages of otolaryngologists with knowledge of these methods. Consequently, some otolaryngologists were unable to provide effective clinical advice to patients, especially patients who responded poorly to medication.

A large percentage of otolaryngologists who diagnosed LPRD did not follow up the treatment outcomes, hindering further understanding of the differential diagnosis and treatment effect of LPRD. The otolaryngologists mainly recommended medication treatment. This may be because of the lack of expertise in other treatment methods, although medication is the most common treatment for LPRD.

In China, many patients with LPRD have never been diagnosed or received timely, correct treatment. Reflecting findings from European studies,⁴ the present findings provide a potential explanation for the insufficient awareness of LPRD among otolaryngologists at triage or first consultation over and beyond the difficulty caused by the unspecific symptoms and clinical signs of LPRD.¹The clinical implication is that future efforts are needed to improve awareness of LPRD among Chinese otolaryngologists at all levels. A thorough knowledge of the disease among medical specialists is a primary requirement. This may facilitate timely diagnosis and suitable treatment for a large patient population.

One of the most important study limitations was the limited geographical scope of the samples. The results may not fully reflect knowledge of LPRD among otolaryngologists nationwide. Therefore, a multi-centre study involving more participants from different areas of China is needed. Additionally, problems inherent to survey designs may reduce the reliability of the results. However, this was a preliminary exploratory study for which the survey design seemed appropriate.

In summary, an accurate diagnosis of LPRD needs a comprehensive understanding

of the disease because of its nonspecific risk factors, symptoms, clinical signs and associated diseases. This study found that even in 3A hospitals in Beijing, LPRD expertise among specialist physicians was insufficient. More efforts are needed to increase understanding of LPRD among relevant specialists, which may facilitate timely diagnosis and effective clinical treatment of this disease.

Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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ORCID iD

Shuifang Xiao  <https://orcid.org/0000-0003-1554-9859>

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