The Clinical Characteristics and Impact of Laryngopharyngeal Reflux Disease on Health-Related Quality of Life

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ABSTRACT

Background and objectives: Although it is accepted that reflux of stomach acid causes gastroesophageal reflux disease (GERD), it is less well understood that it also contributes to the clinical signs and symptoms of laryngitis in the form of laryngopharyngeal reflux (LPR). Study objectives were to identify what is known about the impact of LPR on health-related quality of life (HRQL) compared with the impact of GERD on HRQL and to assess whether currently available HRQL instruments adequately measure this impact or if a new disease-specific instrument should be recommended.

Methods: The authors combined a systematic literature review with prospective patient evaluation via focus groups. The review, using MEDLINE, focused on clinical characteristics and HRQL measurement and impact. Focus groups involving a total of 30 patients with LPR provided input on clinical manifestations of the disease and its HRQL impact.

Results: Information gleaned from the literature indicates that less than 40% of patients presenting with symptoms of laryngitis directly attributable to reflux also report experiencing the classic symptoms of heartburn and acid regurgitation associated with GERD. Reflux laryngitis is thus a distinct clinical entity from GERD and may have a unique impact on HRQL. Although multiple instruments are available to assess the impact of GERD on HRQL, no specific instruments are available for LPR. Focus group discussions identified voice problems, chronic cough, throat clearing, and swallowing difficulties to be key concerns of patients with LPR. These manifestations negatively impact HRQL as described by the focus group participants, notably in role functioning, physical well-being, and emotional well-being.

Conclusions: A disease-specific instrument to assess the impact of LPR on HRQL would contribute to clinical care and the evaluation of new therapies. This instrument would ideally be sensitive to the variety of LPR’s symptomatic presentations.

Keywords: extraesophageal reflux, laryngopharyngeal reflux, quality of life.

Introduction

The reflux of stomach acid into the esophagus has long been recognized as the cause of gastroesophageal reflux disease (GERD). Despite the natural upward extension of this anatomical link to the larynx, it was not until 1968 that acid reflux was shown to be a causal factor in laryngitis, now known as laryngopharyngeal reflux (LPR) [1]. Although acid reflux is a common etiologic factor, the signs and symptoms of disease vary considerably between GERD and LPR (Table 1). Both conditions cause significant morbidity and in some cases can lead to more serious complications, such as erosive esophagitis (EE), Barrett’s esophagus (a precancerous condition), laryngeal stenosis, and leukoplakia.

Because of the high prevalence of GERD and, possibly, LPR in Western society [2], it is important to identify overlapping as well as distinct symptoms of the two conditions. Physicians may overlook the laryngopharyngeal implications of acid reflux when accompanying acid damage to the lower esophagus or the symptom of heartburn is absent [2]. Furthermore, the extension of the damaging effects of acid reflux into the laryngeal region coincidentally occurs in a region of the digestive tract where there is a “hand off” between two medical subspecialties. ENTs/otolaryngologists tend to focus above the esophagus and gastroenterologists below. Medical issues like reflux laryngitis, with etiology and effect crossing over two zones, are not handled efficiently [3]. Consequently, the true incidence of LPR is not...
well defined and referral to a specialist does not ensure appropriate therapy [4].

The impact of illness and its treatments on health-related quality of life (HRQL) would seem to be important considerations both for patients with LPR and for their health-care providers [5,6]. Generic and disease-specific HRQL instruments, typically validated and demonstrated to be reliable, can help physicians particularly when the disorder is chronic in nature and primarily diagnosed on the basis of symptoms [7–9]. HRQL measures can quantify treatment effects in ways that are meaningful to patients.

The aims of this article are to: 1) highlight the differences and similarities between GERD and LPR with respect to signs and symptoms; 2) show how the clinical manifestations of GERD affect HRQL and examine what HRQL domains might apply to LPR patients; and 3) evaluate the current availability of HRQL instruments for use in patients with LPR disease.

Methods

We used a combination of systematic literature review and patient focus group evaluation for this initiative. Specifically, we reviewed the literature using MEDLINE, focusing on LPR’s clinical characteristics and diagnosis, as well as HRQL measurement and impact. In addition, four focus groups of patients diagnosed with LPR were conducted to assess symptom presentation and their impact on the lives of patients with LPR.

For the literature review, we used the following search terms and their combinations: “laryngopharyngeal reflux,” “gastroesophageal disease,” “dysphonia,” and “quality of life.” Clinical characteristics and diagnostic issues associated with LPR were reviewed to understand the distinction between GERD and LPR as well as to identify any existing research on the impact of LPR on quality of life. We hypothesized the impact of LPR on quality of life using existing theoretical frameworks for defining HRQL [10,11]. These frameworks emphasize the multidimensional nature of health-related quality of life and integrate objective aspects of health status with subjective phenomena. The review for potential instruments and scales available to assess LPR included a search for both generic and disease-specific measures designed to assess upper GI disease and related manifestations.

Based on this review, we conducted four patient focus groups to further evaluate the patient-reported impact of signs and symptoms of LPR on the daily lives of patients. Thirty patients who were currently receiving treatment for LPR from one of two otolaryngology clinics were invited to participate in the patient focus groups by the otolaryngologist providing their care. One of the clinics was community-based while the other was affiliated with a major tertiary care teaching hospital. The patients ranged from those newly diagnosed with LPR to those who had been through several treatment cycles over a 2- to 3-year period. One of the authors (W.R.L.) who is a licensed clinical psychologist served as the facilitator for all of the focus groups. A semistructured interview format was employed with each session being audiotaped for later review and qualitative analysis. Each session began with introductions, a discussion of ground rules for the session, assurance that confidentiality would be maintained, and a reiteration of the purpose of the discussion. The facilitator introduced discussion topics, and all participants were encouraged to offer their personal experience and perspectives. Participants were initially asked to describe their own symptoms of LPR, how long they had been experiencing these symptoms, any day-to-day

| Table 1 Characteristic signs and symptoms of GERD and LPR* |
|----------------------------------|---------------------|---------------------|
| Symptom                          | GERD                | LPR                 |
| Heartburn                        | Extremely common    | Somewhat common     |
| Acid regurgitation               | Extremely common    | Extremely common    |
| Epigastric pain                  | Somewhat common     | Not usually         |
| Esophageal dysmotility           | Extremely common    | Very common         |
| Dysphagia                        | Somewhat common     | Very common         |
| Asthma                           | Somewhat common     | Somewhat common     |
| Hoarseness                       | Not usually         | Extremely common    |
| Chronic cough                    | Not usually         | Extremely common    |
| Globus sensation                 | Not usually         | Extremely common    |
| Acid pH                          | pH < 4 in lower esophagus | pH < 5 in upper esophagus and pharynx |
| Inflammation and edema           | Attacks triggered by supine position | Laryngopharyngeal Attacks triggered by upright position |
|                                 | Lower esophageal sphincter dysfunction | Both upper and lower esophageal sphincter dysfunction |

*Signs and symptoms are rated as to whether they are extremely common, very common, somewhat common, or not usually present [13–17].
variation in symptom severity, and what things seemed to trigger their symptoms. The focus group participants were then asked to comment on how LPR affected them in the following ways: cause of emotional distress, impacting energy level, performing work-related activities, and during social interactions. The facilitator also inquired about the participants’ perception of themselves as healthy persons. In closing, the participants were asked whether there were other aspects of LPR not yet discussed that were important to them that they would like to bring up and whether they were comfortable sharing their feelings on LPR.

The resulting audiotapes from the focus group sessions were later reviewed and common themes in responses were identified. The level of importance of single issues was evaluated on the basis of the emotional tone of the speaker who brought up the issue and the amount of concurrence from other participants as to similar experiences.

**Results**

The literature review revealed that patients with LPR have different patterns of reflux than patients with GERD. This is expressed in symptom presentation, complications, and response to treatment. The authors of a recently published Position Statement of the committee on speech, voice, and swallowing of the American Academy of Otolaryngology–Head and Neck Surgery have summarized those differences very well [12]. They note that the most significant difference between LPR and GERD is that the majority of patients with LPR do not have esophagitis or its primary symptom, heartburn. In a number of studies, the reported incidence of heartburn in LPR patients is less than 40% and the incidence of erosive esophagitis is approximately 25%. The authors characterized the differences in mechanisms as follows: LPR patients are predominantly upright, daytime refluxers while GERD patients are predominantly supine, nighttime refluxers; there are prolonged periods of acid exposure in GERD but not in LPR; and the primary anatomical defect in GERD is lower esophageal sphincter dysfunction while for LPR it is upper esophageal sphincter dysfunction [12].

The most common clinical manifestations of LPR include hoarseness, chronic cough, throat clearing and sore throat, globus sensation, and vocal cord granulomas (Table 1) [13–17]. Other less common manifestations include buccal burning, halitosis, otalgia, stridor, and abnormal or loss of taste [17]. Thus, it is not surprising that LPR is a common underlying cause of voice disorders [18]. LPR has also been implicated in the development of more serious complications such as leukoplakia and vocal cord squamous cell carcinoma, laryngeal stenosis, intubation granuloma, and aspiration pneumonia [13]. Many patients with head and neck cancers also experience symptoms of LPR [19]. Nevertheless, the variability of LPR presentation may cause difficulty in diagnosing the condition in conjunction with these diseases [4].

**GERD and HRQL**

Published literature indicates that HRQL items of importance to patients with GERD include bodily pain, sleep, vitality, work and social function, anxiety, mood, and self-control. The HRQL of patients with GERD has been reported to be worse than that of patients with other chronic diseases. For example, patients with untreated GERD reported worse pain, social functioning, and emotional well-being than those with diabetes or hypertension [20]. In addition, as measured by the Psychological General Well-Being Index (PGWB), an instrument targeting the psychological and emotional domains of HRQL, untreated patients with GERD reported more impaired general well-being than patients with untreated hypertension, mild heart failure, or angina [21]. Patients with gastrointestinal disorders also rated the impact of their condition on well-being, mental health, and functional status as exceeding that of patients with back problems, diabetes, chronic lung problems, hypertension, and arthritis [22]. While there are multiple disease-specific HRQL instruments for GERD available [5,23], the specificity of anchor references in the questions to heartburn and acid regurgitation reduce their utility in LPR because so few LPR patients also report having heartburn.

**LPR and HRQL**

Although there have been no specific studies on the impact of LPR on HRQL, the impact of voice disorders on HRQL has been addressed in patient populations [24]. Social and occupational factors are likely to exert a major influence on patients with LPR who have voice problems. The more important voice quality is to an individual in a social or occupational setting, such as for a professional voice user, for example, a teacher, salesperson, lawyer, or singer, the more incapacitating can be its symptoms of hoarseness, chronic cough, or throat clearing. Symptoms with a major impact on HRQL include dysphonia in a professional voice user, pachydermia, and chronic cough; the latter can be severe
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enough to be incapacitating at times. Major sequelae include dysplasia and granuloma or ulcers. The impact of these symptoms on the population not so directly affected relative to their occupation or profession should also be considered. Voice problems can adversely affect communication and interaction, and thus self-esteem, in both general occupational and social settings. Because most occupations require verbal interaction, the impact of voice problems may decrease ability to perform one’s functional role, one domain of HRQL. The impact of psychological factors on HRQL may also be considered, but the importance of factors such as anxiety and depression in LPR specifically does not appear to be well studied. Although laryngeal carcinoma is rare, patients with any of the common symptoms of LPR may worry that the symptom could be an early warning sign of cancer.

Voice and vocal quality are part of a person’s identity and our judgments of others may be influenced by these characteristics. Thus vocal problems can precipitate negative psychological, emotional, and social consequences for affected individuals. The Voice Handicap Index (VHI) is the only instrument that has been validated for assessing the impact of voice disorders on HRQL [24]. Although patients with voice disorders overlap with the LPR population, these patients also have problems not typically associated with LPR, including vocal fold paralysis, and spasmodic dysphonia. Researchers concluded that the HRQL impact associated with voice disorders is greater than expected based on the specific functional limitations associated with the voice disorder [25]. These results are similar to those found in patients with GERD, who had significantly worse scores on all eight dimensions measured by the SF-36 when compared with the general US population [20]. Thus, it is reasonable to expect that a similar negative impact on HRQL may also occur in patients with LPR.

Based on the literature review, the authors hypothesized that the greatest impact of LPR is likely to be in the area of social functioning, although emotional and psychological well-being and role performance might also be significantly affected. The patient focus groups were structured to investigate whether these hypothesized constructs of HRQL were affected by LPR.

Four key symptom complaints were identified that affected LPR patients in the focus groups: voice problems, chronic cough, throat clearing, and swallowing difficulties. These were major concerns for these patients, primarily in the context of social and occupational environments. Based on feedback from the patients, these LPR symptoms appear to lead to substantial psychological, emotional, and social problems. Significantly, their negative impact on self-esteem and relationships was pronounced. Fatigue, frustration, strain, and generally increased stress levels all appear to contribute to a lower HRQL in these patients. The reader can see this illustrated in quotes from the focus group participants, which are summarized in Table 2.

### Conclusions

The medical literature and patient focus groups have yielded a variety of clinical and HRQL-related information that provides a better, though preliminary, understanding of the major HRQL-related information that provides a better, though preliminary, understanding of the major HRQL impact of LPR. This is aided by a more comprehensive understanding of: 1) the similarities and differences between GERD and LPR; and 2) the comparable diagnoses and symptoms, e.g., voice disorders. The literature and the focus groups have helped to identify: 1) key drivers of patient-perceived burden, such as signs and symptoms; and 2) key HRQL domains that seem to be most adversely affected. These in turn could serve as the basis for a new LPR HRQL instrument.

### Table 2

Patient descriptions of the impact of LPR sorted by probe topics used by the focus group facilitator

<table>
<thead>
<tr>
<th>Social functioning</th>
<th>Psychological</th>
<th>Emotional well-being</th>
<th>Role performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting new people has become difficult.</td>
<td>It’s frustrating when you can’t speak and make yourself understood.</td>
<td>I don’t feel sick but people ask if I am sick when they hear me coughing.</td>
<td>My raspy voice gives the wrong impression that I am upset or being harsh toward others.</td>
</tr>
<tr>
<td>Can’t go places where quiet is expected (church, movies) because of the coughing.</td>
<td>I’m anxious about permanently losing my voice.</td>
<td>Coughing takes a lot of energy out of me.</td>
<td>Had to resign my position as music minister at my church.</td>
</tr>
<tr>
<td>Don’t take an active role in social situations; feel inhibited in conversations.</td>
<td>I was embarrassed when a coworker told me they could recognize me by my cough.</td>
<td></td>
<td>It’s not just what you say but how you say it to get others to do things. My hoarseness handicaps me.</td>
</tr>
<tr>
<td></td>
<td>Afraid to eat because of feeling of lump in throat.</td>
<td></td>
<td></td>
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</table>
Overall, LPR is an atypical manifestation of acid reflux that is characterized by hoarseness, chronic cough, excessive phlegm leading to chronic throat clearing, difficulty in swallowing, and laryngospasm. Although most individuals with LPR symptoms do not have the classic heartburn symptom of GERD, there are some commonalities between the two disorders in regard to cause and treatment. As with many chronic illnesses, LPR can have a minor, major, or life-threatening impact on an individual. The extent of disruption of HRQL depends upon the type and severity of symptoms experienced, and partly on factors extrinsic to the disease, particularly the importance of voice use to the individual’s occupational and social involvement and self-image.

As confirmed with input from focus groups of patients with LPR, the greatest HRQL impact of LPR is in the area of social functioning, though psychological and emotional well-being and role performance are also significantly affected. It is important that these domains be integral to any new HRQL measure for LPR.

The development of a new measure to assess the comprehensive impact of LPR on patient HRQL will help to increase awareness within the medical community of the burden of LPR and can contribute to the appropriate evaluation of new and existing therapies and patient management strategies.

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