



Incidence of laryngopharyngeal reflux in COVID-19 patients



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Introduction

- A pandemic caused by coronavirus, originated from China, in the city of Wuhan, has spread to many countries.
- Coronavirus cases are being reported in the whole world. SARS and COVID-19 disease both are caused by coronavirus.
- SARS-COV-2 causing COVID19 is more transmissible because of two main reasons, which include its ability to bind with receptors of host cell and other being viral load in COVID-19 positive patients which is higher, specifically in throat and nose after developing symptoms.
- Laryngopharyngeal reflux (LPR) is defined as the reverse flow of abdominal contents into the oropharynx and or nasopharynx and larynx.
- Recent studies on COVID 19 have documented that LPR may be related with this viral infection. No previous studies have documented incidence of LPR.
- Our study was an effort to establish the incidence of LPR in COVID 19 positive hospital patients.

Methodology

This was a prospective observational study conducted from April 2020 to July 2020 after obtaining clearance from Institutional ethical committee. A total of 402 patients were included in the study by convenient sampling method who satisfied the inclusion criteria.

Inclusion criteria

- Patient who were tested positive for COVID-19 by RT PCR method
- Patients more than 18 years of age
- Category A patients (given by institution infection control department)

Exclusion criteria

- Previous history of LPR
- Patients who come under category B and C
- Other surgical/ structural abnormalities of GIT
- Syndromic patients

Reflux symptom index

(RSI) questionnaire was given to study population on day of admission and were asked to grade from 0-no symptoms to 5-severe symptoms. The same form was filled by the study population on day 3,7,10,14, given in table 1. Patients who had RSI more than or equal to 13 were given proton pump inhibitors and dietary changes. All the results were collected and evaluated

Results

The clinical data was collected from 402 patients who were COVID confirmed cases out of which 102 patients had RSI \geq 13

TABLE 1

| Parameter (n=402) | Value n (%) / m \pm sd |
|--------------------------------------|--------------------------|
| Mean age | 46.03 \pm 13.91 |
| Age range | 21-30 91 (22.7%) |
| | 31-40 106 (26.2%) |
| | 41-50 78 (19.6%) |
| | 51-60 93 (23.1%) |
| | 61-70 25 (6.30%) |
| | 71-80 9 (2.1%) |
| Male : Female | 02:01 |
| Reflux Symptom Index score \geq 13 | 25.37% |
| Comorbidities | 54.30% |

TABLE 2

| Parameter (n=102) | Value n(%) / m \pm sd |
|-------------------|-------------------------|
| Mean age | 41.24 \pm 13.49 |
| Age range | 21 - 30 17 (16.60%) |
| | 31 - 40 24(23.50%) |
| | 41 - 50 21(20.50%) |
| | 51 - 60 26(25.40%) |
| | 61 - 70 10(9.80%) |
| | 71 - 80 4(3.90%) |
| Male : Female | 1.1:1 |
| Comorbidities | 42.10% |

Demographic Data and symptomatology

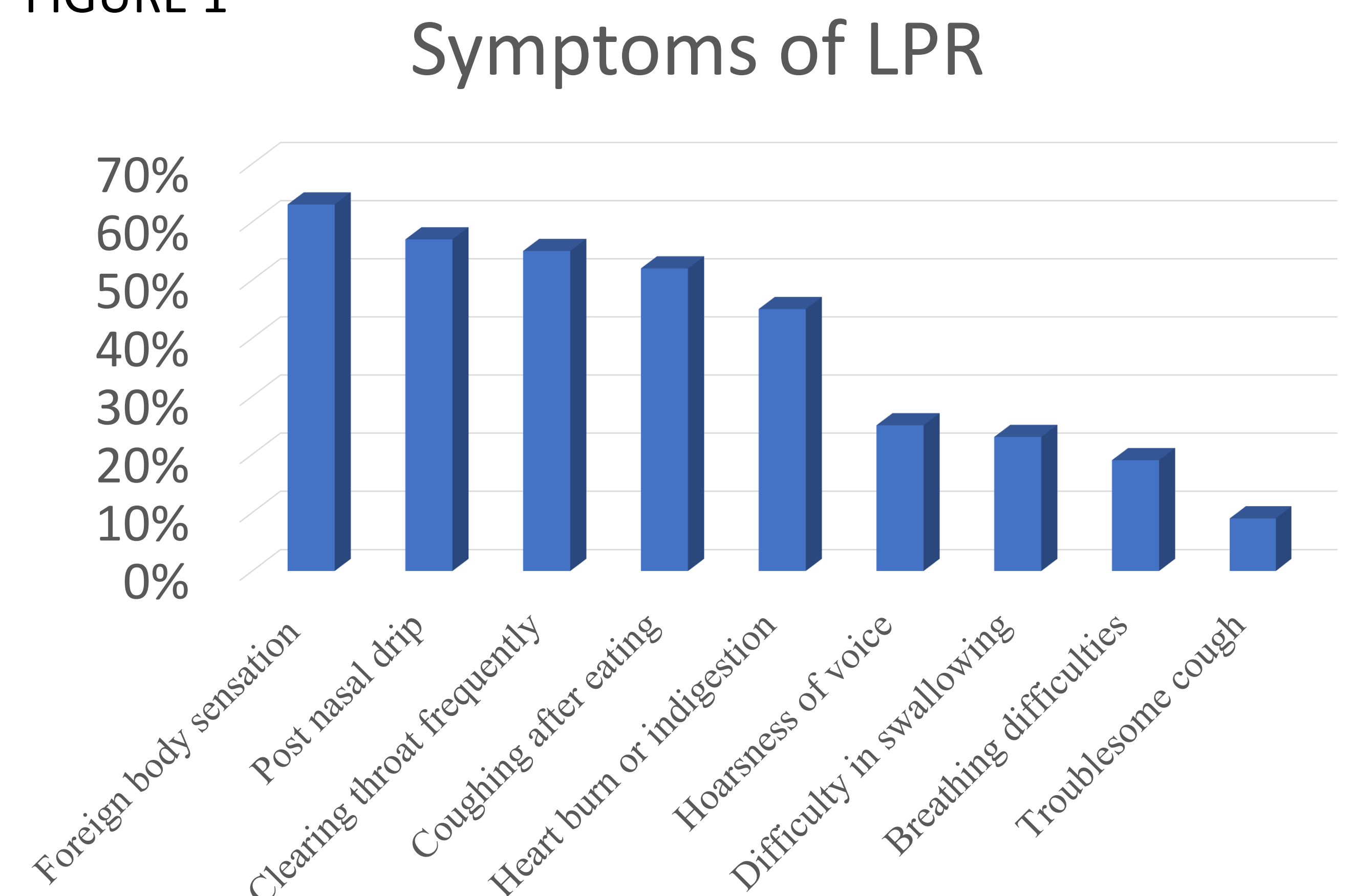
Study group

- Among the study group male female ratio was 2:1 (n=301:101).
- The mean age was 46.03 \pm 13.91 years. 54.30% of them had other comorbidities such as hypertension, diabetes, coronary artery disease.
- 102 (25.37%) of them had RSI \geq 13 and then named as LPR group which is shown in Table 1

LPR group

- Among the LPR group, male female ratio was 1.1:1 (n=54:48).
- Most commonly affected age group was between 51-60years.The mean age was 41.24 \pm 13.49 years.
- 42.1% of patients had other comorbidities such as hypertension, diabetes, coronary artery disease which is given in Table 2.
- The presentation of symptoms of LPR in order of decreasing frequency is shown in figure 1. About 55.8% (n=57) of them had RSI \geq 13 on day 3 of admission.

FIGURE 1



Treatment given

- Of 402 patients, 102 patients were started on treatment for LPR with proton pump inhibitors and dietary changes.

Discussion

Incidence of LPR in hospitalized COVID 19 patients in 3 month duration in our study was 25.37%. A study done by Jiang et al on 95 hospitalized patients gives the prevalence rate which was 38.9% The study conducted by Mishra et al reported a incidence of LPR in general population as 11% ,indicating a higher incidence in COVID population.

All 402 patients in this study were in category A and were given same treatment but only 102 of them developed LPR. Can be this because of the COVID 19 levels? Different dietary and lifestyle habits would also have been a reason for why the 102 patients developed LPR. But the reason behind as of why the remaining study population (300/402) did not develop LPR is not known.

Treatment given for the LPR group in this study is proton pump inhibitors and dietary changes, which is similar to the study done by Lee et al on changes in quality of life of patients with LPR after treatment . In a recent short communication, Kow, C.S. and Hasan, S.S. have suggested trial of melatonin for reducing pro-inflammatory cytokines in COVID19 patients as a treatment for LPR.

Conclusion

- This study helped to assess the hospital-based incidence of LPR in a 3-month duration in COVID19 positive patients.
- Altered dietary habits, lifestyle habits and altered stress level due to the disease might be a reason for this.
- Further studies can be done to identify the reason for why the remaining population did not develop LPR.