



## Original Research Article

## Effect of LTOT on PASP in patients with pulmonary hypertension due to chronic lung disease

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## ABSTRACT

**Aims and Objectives:** To study the response to LTOT in patients with pulmonary hypertension due to chronic lung disease.**Materials and Methods:** This retrospective study was carried out in a tertiary health care centre. Patients with COPD, Post TB OAD and ILD who were on LTOT were included in the study. Records of these patients were reviewed and was analysed.**Results:** Retrospective study of 41 patients who were on LTOT was done. Out of 41 patients 18 were Post TB OAD, 12 were COPD and 11 were ILD. Average duration of LTOT/day was 16hrs and the average drop in PASP was 3.2mm Hg/yr. The average duration of LTOT/day in Post TB OAD, COPD, ILD patients were 16.2, 14.8, 16.8hrs and average drop in PASP in mm Hg/yr was 3.5, 2.5 and 3.4 respectively.**Discussion:** Response to LTOT is better seen in Post TB OAD and ILD than COPD, leading to hope of quality of life improvement.© This is an open access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## 1. Introduction

Patients with chronic lung disease with hypoxemia have poor prognosis in spite of treatment regimens that are aimed at improving lung function. Because of this, such patients are often treated with supplemental oxygen on outpatient basis. But there is lack of knowledge to the response to supplemental oxygen therapy. Hence this study was undertaken in a tertiary health care centre to assess the response of LTOT on PASP in patients with pulmonary hypertension due to chronic lung disease.

## 2. Materials and Methods

This retrospective study was carried out in a tertiary health care centre. Patients with COPD, Post TB OAD and ILD who were on LTOT were included in the study. Records of patients with COPD, Post TB OAD and ILD who were

on LTOT were reviewed. Details of 2D ECHO findings 1yr apart, L/min of LTOT and duration of LTOT/day were obtained from the records and was analysed.

## 3. Results

Retrospective study of 41 patients who were on LTOT was done in whom 2D ECHO was done 1 year apart.

Out of 41 patients 18 were Post TB OAD, 12 were COPD and 11 were ILD.

Among 41 patients, 5 were taking LTOT < 14 hrs/day, 9 were taking 14-16 hrs/day, 23 were taking 16-18 hrs/day, 4 were taking for 18-20 hrs/day. 27 patients were using LTOT for > 17 hrs/day.

The average drop in PASP in Post TB OAD, COPD, ILD patients were 3.5, 2.5 and 3.4mm Hg/yr respectively.

Drop in PASP by 5 mm Hg/yr was noted in patients who have used LTOT for 18-20hrs/day followed by 4.1 and 3.2mm Hg/yr who have used LTOT for 16-18hrs and 14-16hrs/day respectively. Patients who were using LTOT for <

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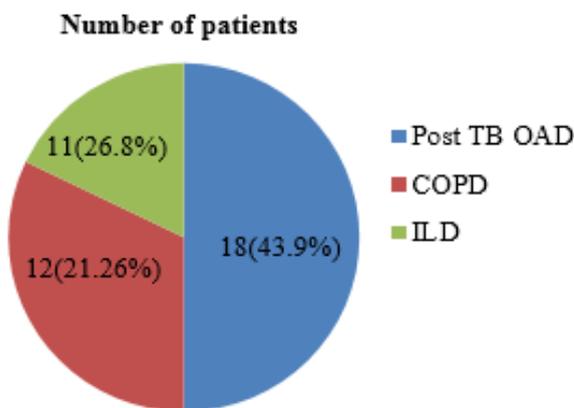


Fig. 1: Post TB, OAD and COPD

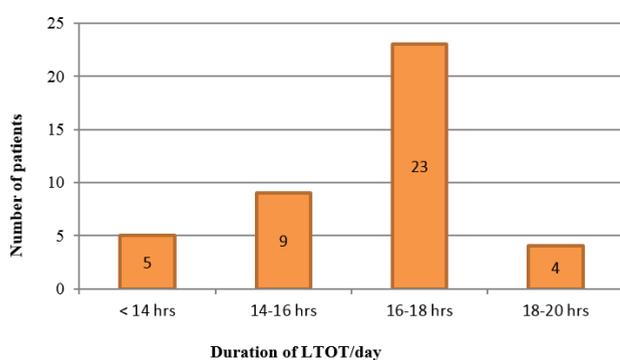


Fig. 2: Duration of LTOT/day

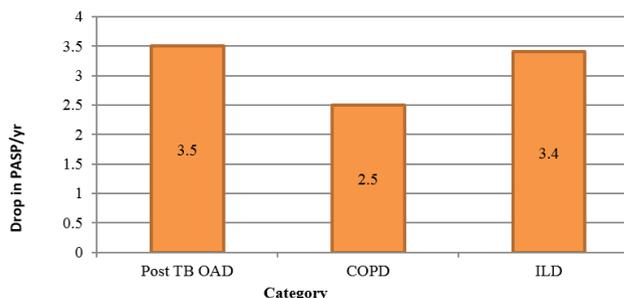


Fig. 3:

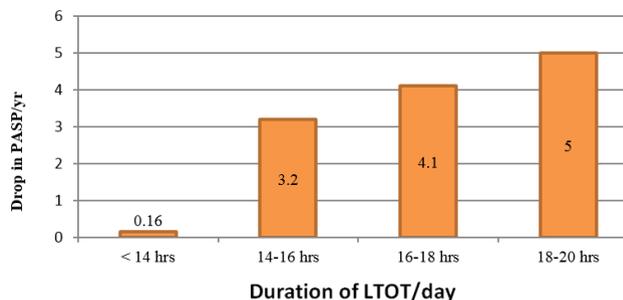


Fig. 4:

took LTOT for more than 16 hrs/day.<sup>1,2</sup> In our study the average duration of LTOT/day was 16hrs and the average drop in PASP was 3.2mm Hg/yr. In a study by Emmanuel et al, LTOT reverse the progression of pulmonary hypertension in patients with COPD.<sup>3</sup> In a similar study by Omar et al, LTOT improves pulmonary hypertension which in turn improves quality of life in COPD patients.<sup>4</sup> The average duration of LTOT/day in Post TB OAD, COPD, ILD patients were 16.2,14.8,16.8hrs and average drop in PASP in mm Hg/yr was 3.5,2.5 and 3.4 respectively (Fig-III). Drop in PASP by 5mm Hg/yr was noted in patients who have used LTOT for 18-20hrs/day followed by 4.1 and 3.2mm Hg/yr who have used LTOT for 16-18hrs and 14-16hrs/day respectively. Patients who were using LTOT for < 14hrs/day did not show a significant drop in PASP (Fig-IV). Greater the duration of hours of LTOT/day, more is the drop in PASP.<sup>2</sup>Response to LTOT is better seen in Post TB OAD and ILD than COPD. In this study the duration of LTOT(14.8hr/day) in COPD patients are less when compared to Post TB OAD and ILD, hence further studies are needed for proper assessment of response to LTOT in COPD patients.

### 5. Conclusion

There is a definite drop in PASP of 3.2mm Hg/yr with LTOT usage of 16hrs/day. The average drop in PASP in Post TB OAD, COPD and ILD were 3.5, 2.5 and 3.4mm Hg/yr respectively. Patients who were using LTOT for < 14hrs/day did not show a significant drop in PASP. Greater the duration of hours of LTOT/day, more is the drop in PASP.

### 6. Abbreviations

1. LTOT-Long term oxygen therapy
2. PASP-Pulmonary artery systolic pressure
3. PostTB OAD-Post TB obstructive airway disease
4. COPD-Chronic obstructive pulmonary disease
5. ILD-Interstitial lung disease.

14hrs/day did not show a significant drop in PASP.

### 4. Discussion

Retrospective data of 41 patients who were on LTOT were reviewed and analysed. Among 41 patients, 27 patients were using LTOT for > 17 hrs/day (Fig-II). The NOTT(Nocturnal oxygen therapy trial) and MRC(Medical research council) trial showed considerable survival benefits and drop in pulmonary artery pressures by 4 mm Hg in patients who

## 7. Source of Funding

None.

## 8. Conflict of Interest

The authors declare they have no conflict of interest.

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