

Are we prescribing LTOT appropriately in Pulmonary Rehab- A Retrospective Audit

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INTRODUCTION

Long-term oxygen therapy (LTOT) is an excellent therapy option that has been proven to improve survival in chronic obstructive pulmonary disease (COPD) patients with chronic respiratory failure. It also promises to reduce the number of hospitalizations, increase exercise capacity, and improve health-related quality of life in patients with COPD. According to the guidelines (NICE 2010), the benefits of LTOT depend on correction of hypoxemia. The determination of hypoxia is based on the three major steps:

1. The arterial blood gases (ABG) measured at rest.
2. A maximal or a sub maximal exercise test (e.g. 6 Min walk test).
3. A continuous monitoring of SaO₂ and PaCO₂ overnight.

Pulmonary rehabilitation (PR) in combination with appropriate oxygen therapy greatly improves the functional and psychological aspects of an individual with COPD (Van et al., 2006 and Bardley et al., 2007). However inappropriate oxygen prescription could lead to respiratory depression in these patients (NICE 2010).

GUIDELINES AND EVIDENCE

The assessment for and prescription of LTOT should include the following recommendations;

1. The measurement of ABG should be performed on two occasions at least 3 weeks apart in patients who have a confident diagnosis of COPD and whose medical condition is stable (NICE 2010).
2. Patients receiving LTOT should be reviewed at least once per year by practitioners familiar with LTOT and this review should include pulse oximetry (NICE 2010). There is strong evidence from Guyatt and colleagues (2005) who confirmed that reassessment for LTOT indicated that an appreciable portion of initially eligible patients were no longer eligible.
3. The prescription of LTOT should always include the source of supplemental oxygen (gas or liquid), method of delivery, duration of use, and flow rate at rest, during exercise and sleep (M^a Rosa Güell Rous, 2008)

OBJECTIVE

The objective of this audit is to evaluate the percentage of patients in a pulmonary rehabilitation programme (PRP) receiving appropriate LTOT assessment, prescription and follow up.

METHODOLOGY

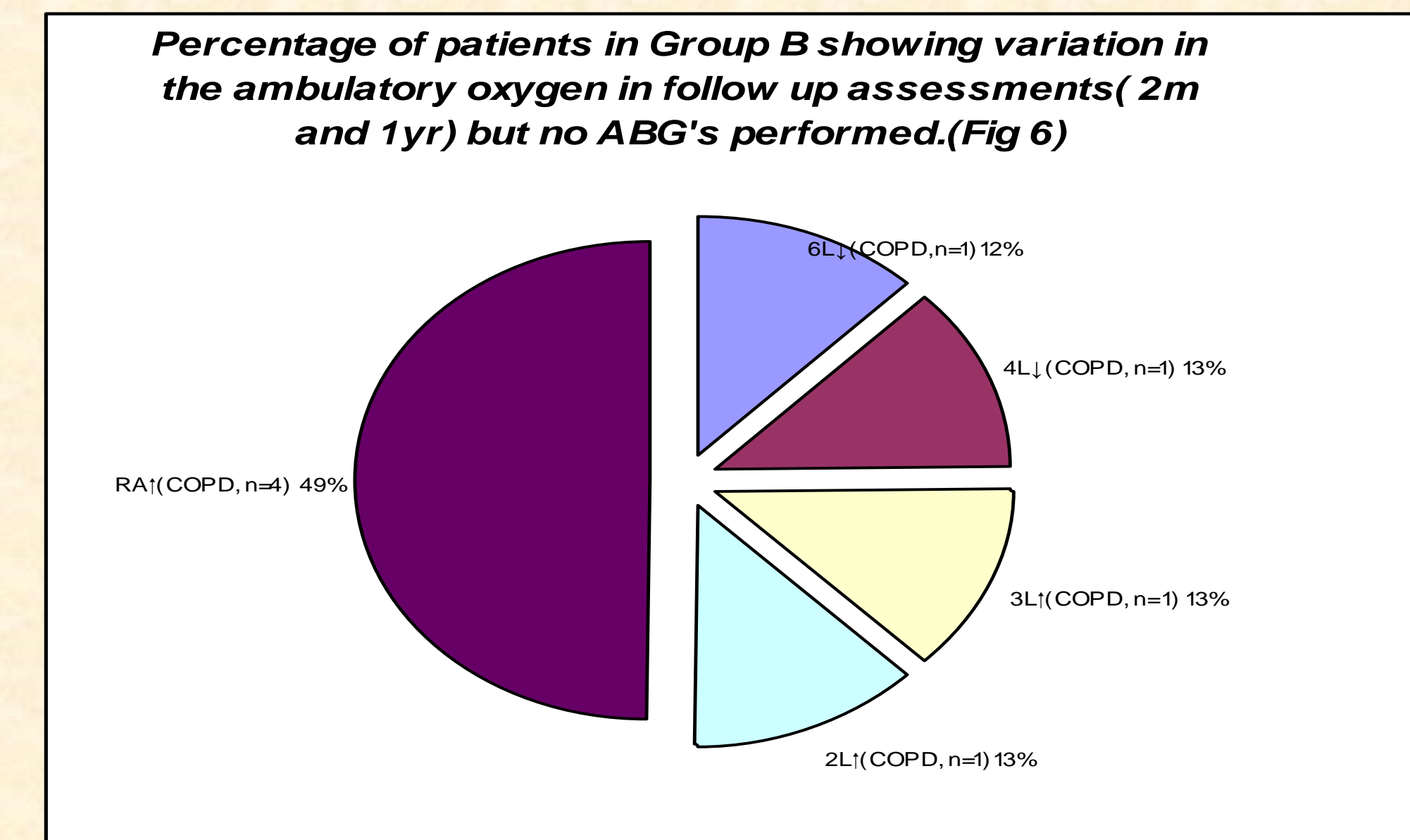
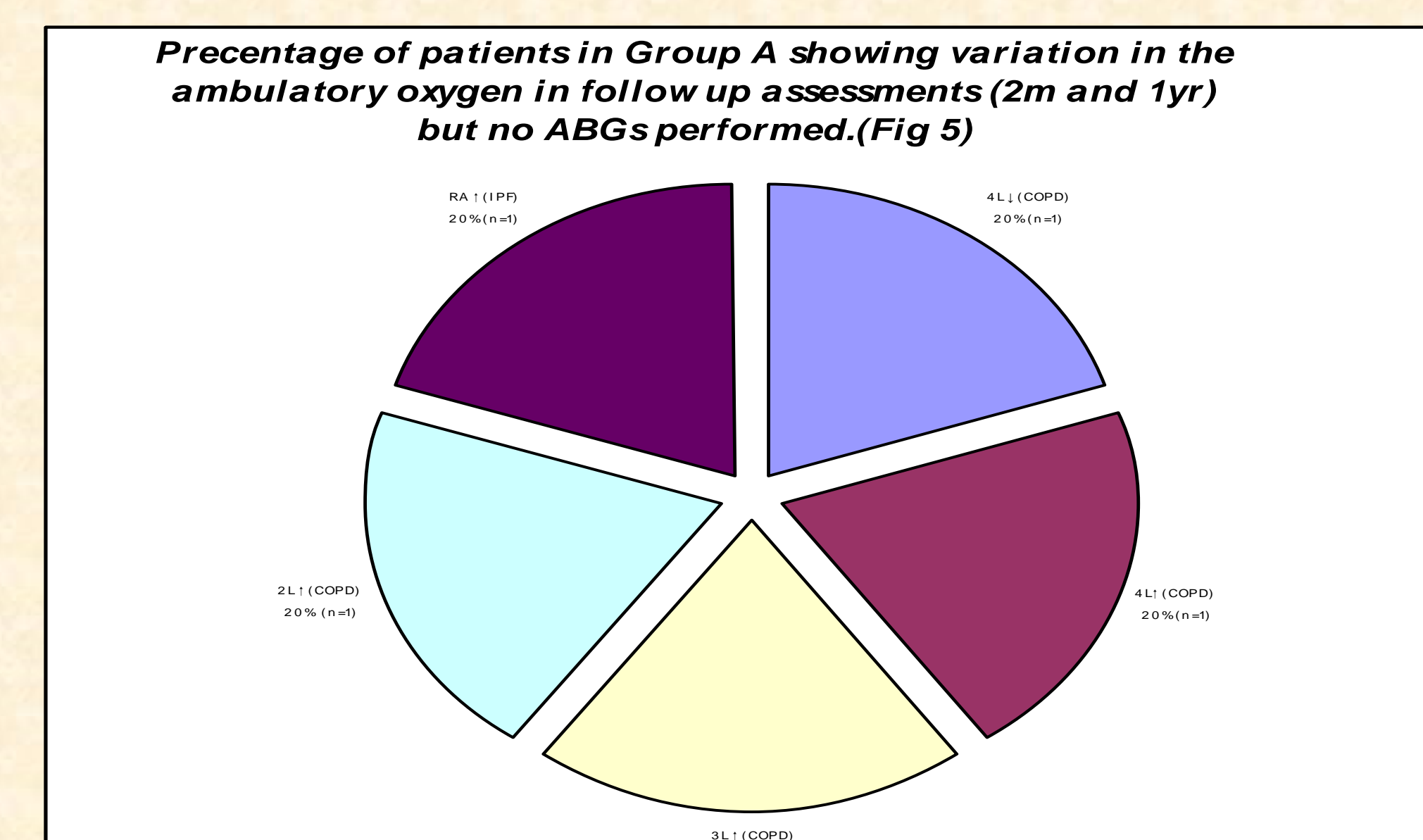
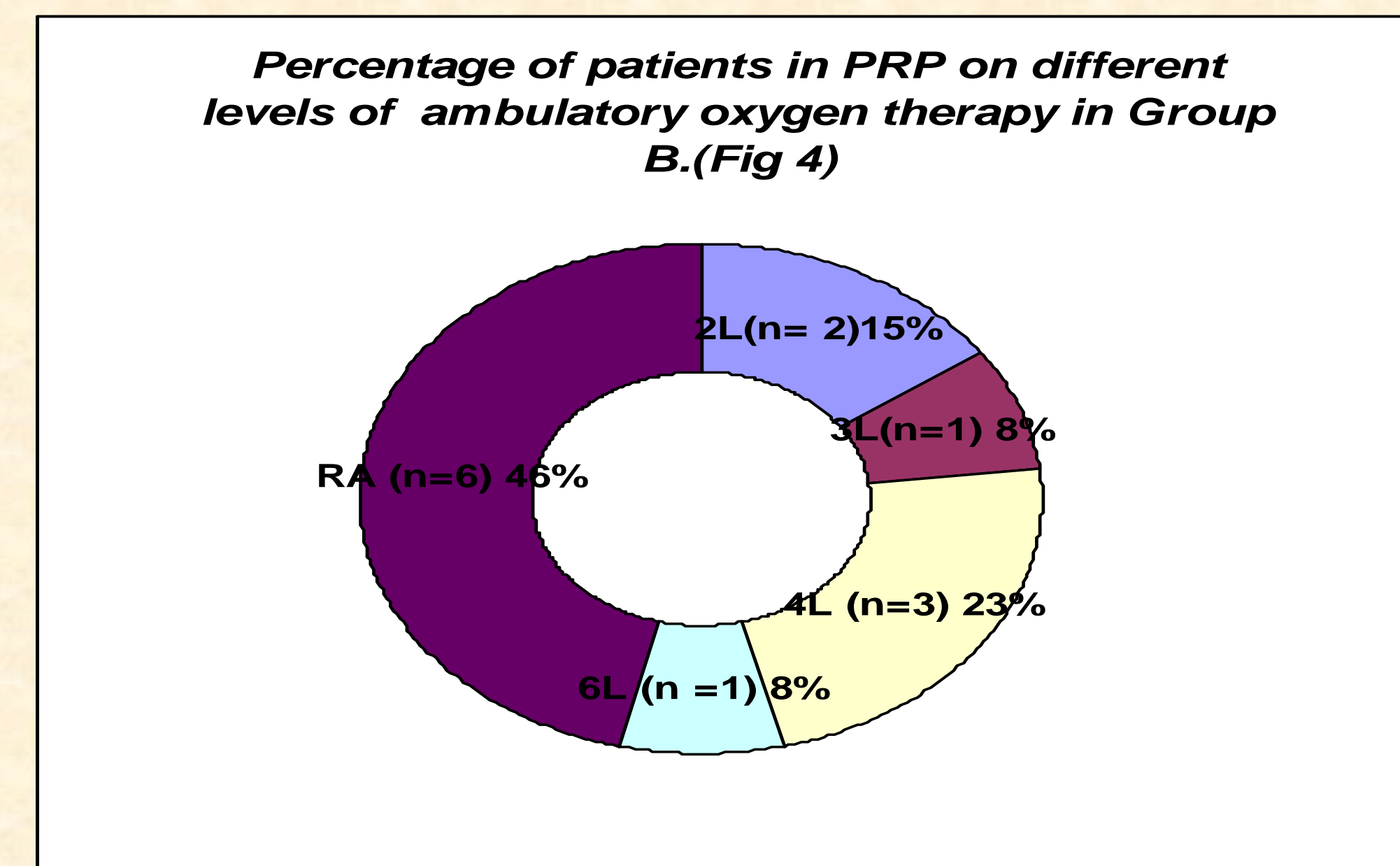
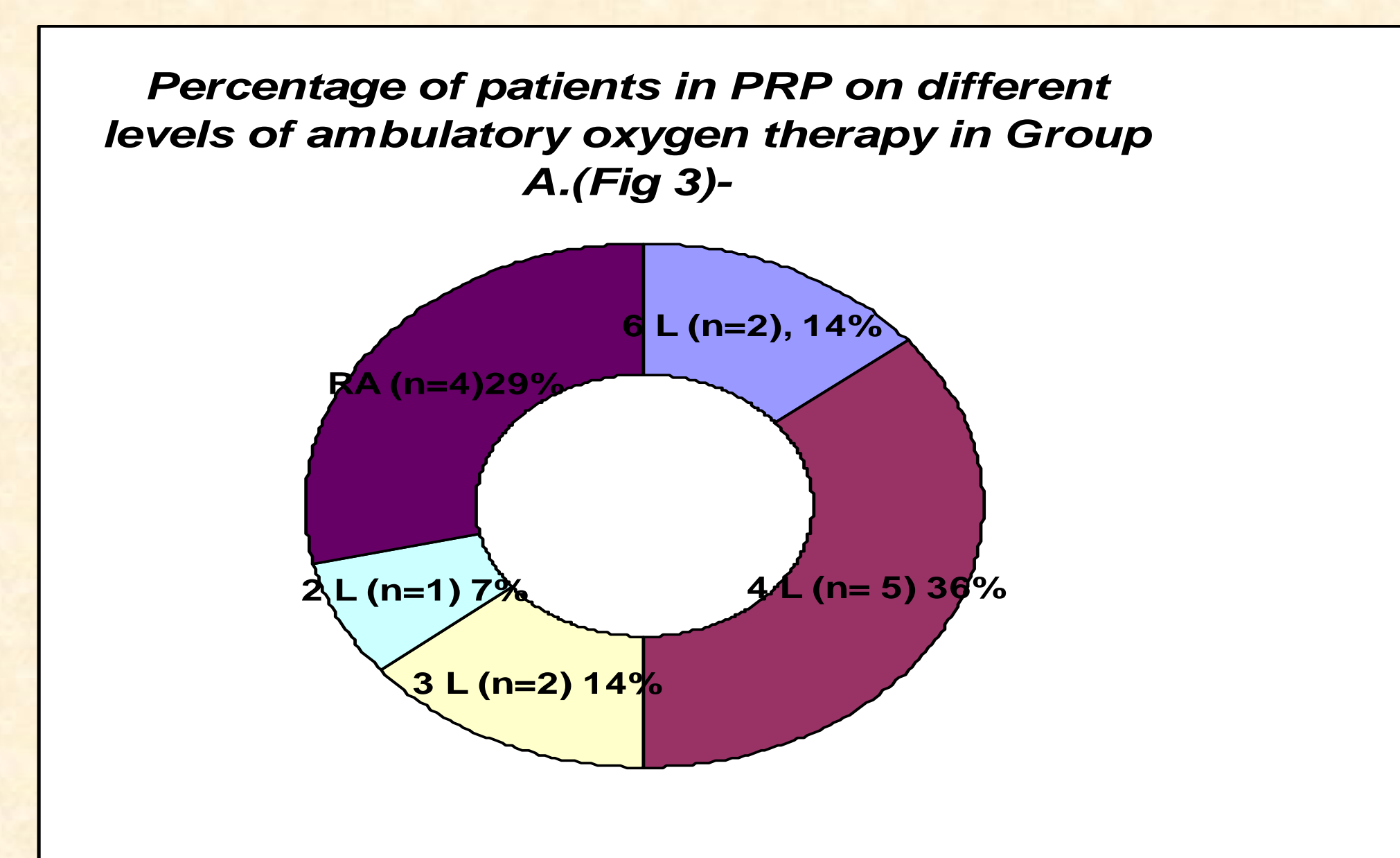
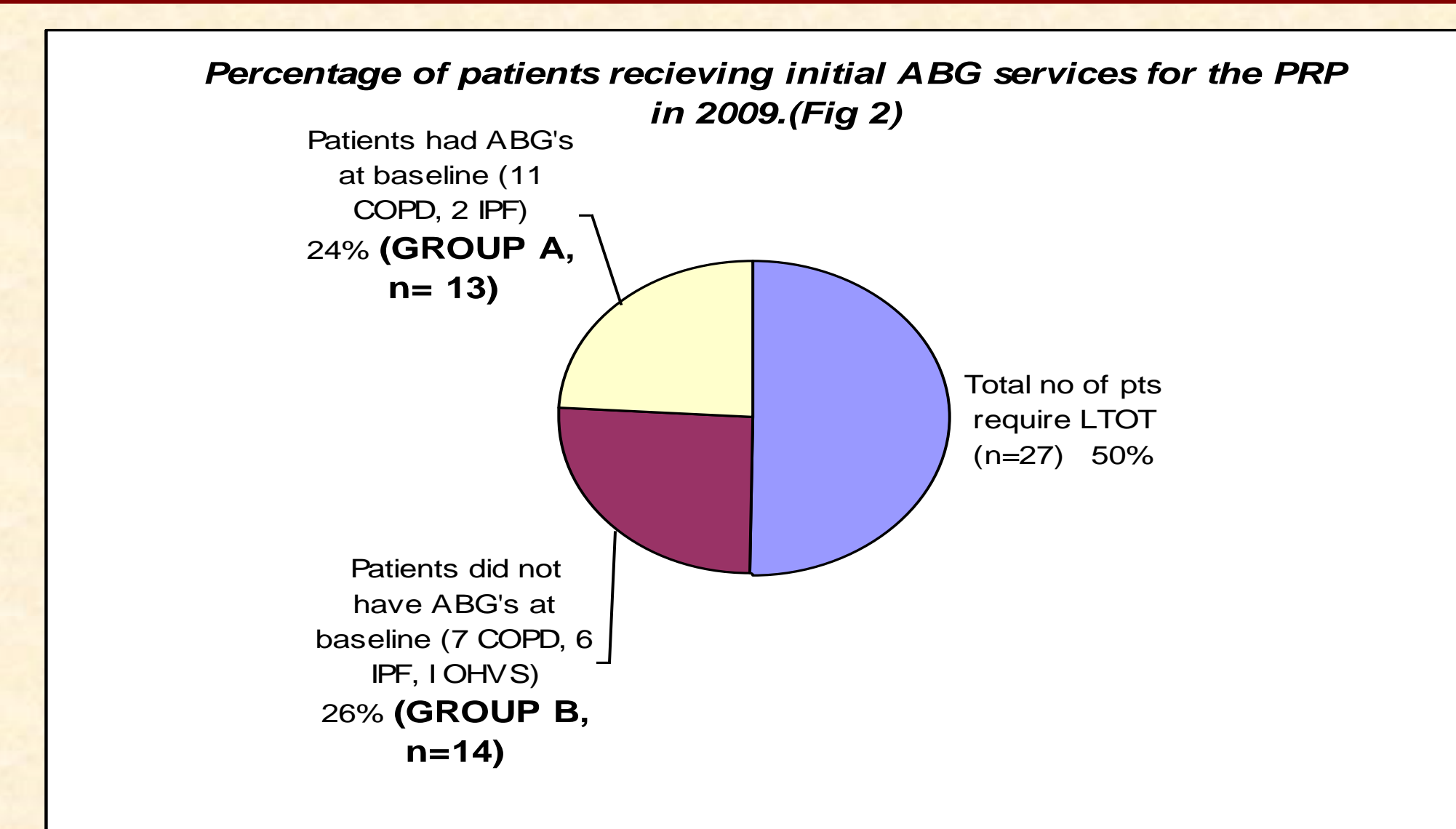
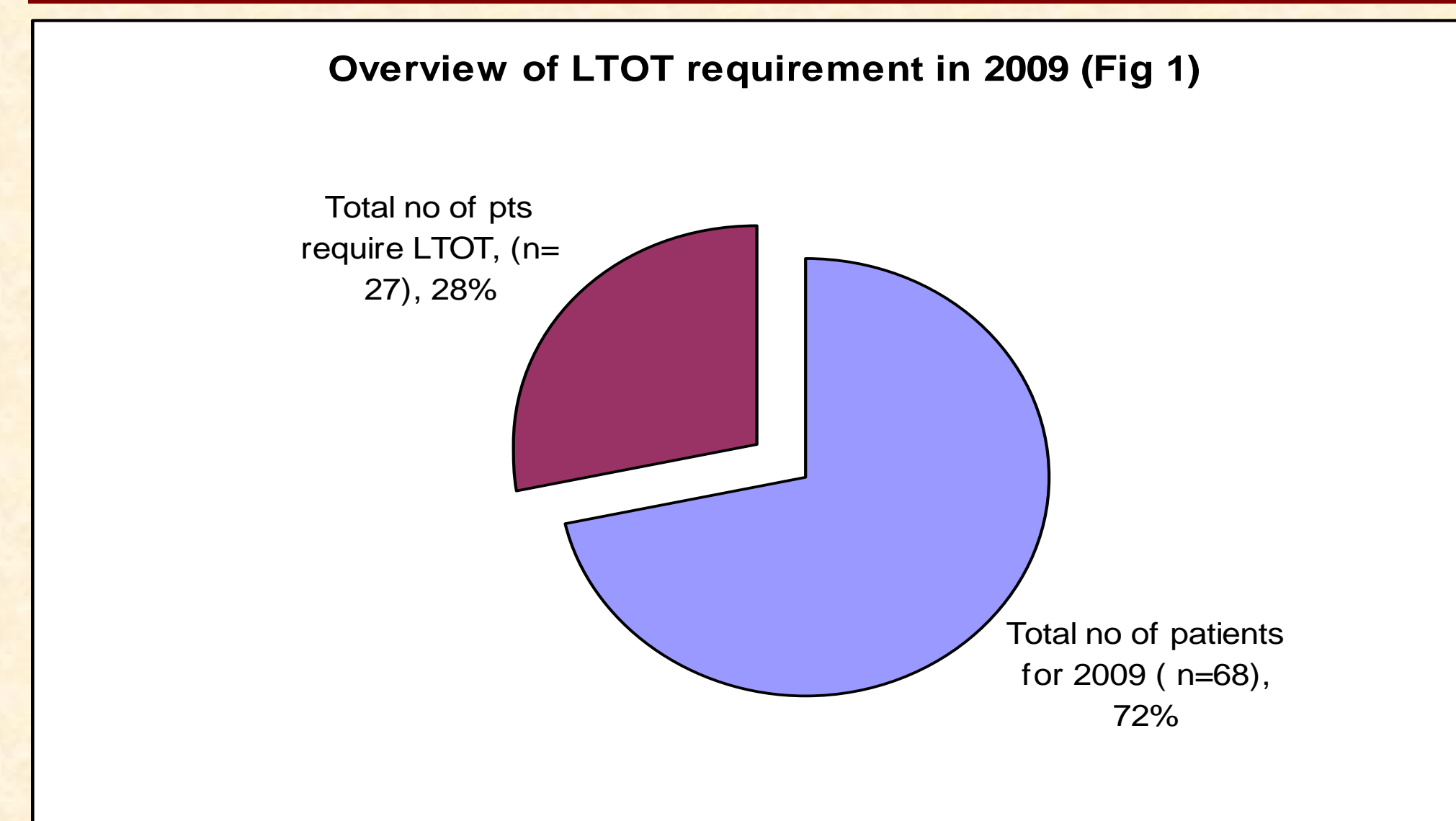
Patients enrolled in PRP initially received a thorough assessment of their functional exercise capacity, ABG, overnight oximetry, pulmonary function test, quality of life and nutritional status.

Except ABG's and overnight oximetry all other assessments are reviewed at 2 months and 1 year.

The resting oxygen therapy is determined by ABG and overnight oximetry provided by the respiratory nurses. The ambulatory oxygen therapy is determined by assessment of functional exercise capacity provided by the respiratory physiotherapist.

A retrospective audit of LTOT assessment, prescription and follow-up was performed on the patients enrolled in the PRP in 2009.

RESULTS



Discussion

- a. Of the 72% of patients enrolled in PRP (2009) only 24% (Group A) received the initial ABG analysis compared to 26% (Group B) not receiving an initial ABG analysis (Fig 1 & 2). However both the groups received the assessment for ambulatory oxygen therapy. The percentage of patients on different levels of ambulatory oxygen in their initial assessment is shown in Fig 3 and 4.
- b. In the follow up period (Fig 5 & 6) there was a huge variation in the levels of the ambulatory oxygen in both groups whilst none of them received ABG analysis to confirm their resting saturation levels.

The lack of initial ABG analysis for the Group B and follow up in both groups was mainly due the following reasons:

1. Insufficient no of personnel in respiratory care trained to do ABG analysis.
2. Lack of time for the current personnel to perform ABG due to other responsibilities.
3. Lack of timely update on the guidelines due to absence of in service within the respiratory team.

Recommendations

A positive way to keep abreast of the guideline and deliver a renowned quality of care would be possible if:

- a. Both physiotherapist and nurses involved in PRP were trained to do ABG analysis.
- b. Bi-monthly in-service to update on the guidelines and recent advances in respiratory care with in the respiratory team.

Conclusion

In sum, this audit demonstrates that we need to improve our LTOT assessment, prescription and follow up for patients enrolled in PRP. In future, new initiatives (e.g. staffing and training) will be required to manage the LTOT prescription and follow-up for patients in PRP.

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