

A Study to Assess the Effectiveness of Balloon Therapy on Lung Capacity of Patients with Lower Respiratory Tract Infections in Selected Hospital of Chitrakoot U.P.

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ABSTRACT

As per 2019 report of the National Health Portal of India, 41,996,260 cases and 3,740 deaths from respiratory infections were recorded across India in 2018.

The main aim of the study was to assess the effectiveness of balloon therapy on increased level of oxygenation of patients with lower respiratory tract disorders. Quasi experimental design was used for this study. Balloon therapy improves pulmonary functions. Daily practice of blowing up balloon, once a day, 10 times per day for 10 days will steadily increase lung capacity. The data pertaining to lung capacity was collected using self-administered questionnaire. Respiratory assessment viz Vital, Tidal and Lung capacity were measured using balloon therapy. The pre-test mean and SD were 6.83 & 1.30 respectively where as posttest mean & SD were 7.16 & 1.26, with t-test value of 6.12. These reading indicate the effectiveness of Balloon therapy on lung capacity in patients with lower respiratory tract infections. The result of this study guides that regular practice of balloon therapy can improve the lung capacity to a greater extent among patients with lower respiratory tract infection. Off course, large sample size is recommended for generalization.

KEY WORDS: balloon therapy, respiratory disease, lower respiratory tract infections, lung capacity

INTRODUCTION:

India is emerging as third largest economy with maximum youth. With emerging industrialization and so scaled advancement, population at large is at risk of inhaling pollutants through air and are vulnerable to develop respiratory diseases like COPD, Bronchitis, Emphysema and Asthma.

Worldwide, Lower respiratory tract infections (LR1) are the most common. The incidence of COPD, acute bronchitis and pneumonia in adults is high, between 30 and 50 per 1000 person per year. In 2002 lower respiratory tract infections was still the leading cause of death among all infectious disease and they accounted for 9 million deaths worldwide. WHO

estimated burden of respiratory tract infections in 2010, estimates four and half million deaths due to respiratory tract infections among children every year. In India, 1.2 million deaths have been reported among children due to RTI among 5.9 million deaths globally. Lower respiratory tract infections are most common causes of death than upper respiratory tract infections.

OBJECTIVES OF THE STUDY:

1. To assess the lung capacity before balloon therapy in patients with lower respiratory tract infections.
2. To assess the lung capacity after balloon therapy in patients with lower respiratory tract infections.
3. To compare the lung capacity before and after balloon therapy in patients with lower respiratory tract infections.

HYPOTHESES:

H0: There is significant difference between the pretest and posttest level of lung capacity among patients with lower respiratory tract infections.

H1: There is significant difference between the pretest and posttest level of lung capacity among patients with

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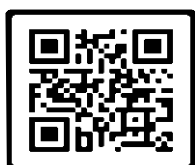
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lower respiratory tract infections.

Assumptions:

1. The balloon therapy will be effective to improve lung capacity in patients with lower respiratory tract infections.
2. Balloon therapy is easy to perform, cost effective, develops intrinsic motivation and brings happiness to patients.

Operational Definitions:

- **Effectiveness:** In this study, the effectiveness means improvement in berating pattern (Rate & Rhythm) and overall lung capacity in patients with LRI after balloon therapy.
- **Balloon therapy:** A simple exercise of emptying the lungs out to blow balloon 10 times per day for 10 days.
- **Lower respiratory tract infection:** Lower respiratory tract infections (LRTIs) are the infection of the lungs, specifically in the lower airway, bronchi and alveolus.

Research Methodology:

Approach: Quantitative research approach

Research Design: One Group Pre test -Post test

Research Design:

Independent variable: Balloon therapy

Dependent variable: Lung capacity

Setting: District Hospital Chitrakoot (UP)

Accessible Population: The population included for this study were patients with lower respiratory tract infections admitted in District Hospital Chitrakoot (UP).

Sample size: 50

Sampling Technique: Purposive sampling

Organization and Presentation of Data:

The data was collected in two section, demographic data & lung capacity before & after balloon therapy.

Section I:

Socio-Demographic Variables

Table 1 and Figure 1 Represent that majority of patients i.e. 21 (42%) were in between the age group of 41 to 50 years, 17 (34%) were in between 31-40 years of age and 12 (24%) were in 20-30 years of age with lower respiratory tract infections.

Table 2 & Figure 2 Depicts that out of 50, 45 patients (90%) were males and 5 patients (10%) were females with lower respiratory tract infections.

Table 1: Distribution of subjects according to age patients (N=50).

Age	Frequency	Percentage
20 – 30 years	12	24%
31 -40 years	17	34%
41 -50 years	21	42%
Total	50	100%

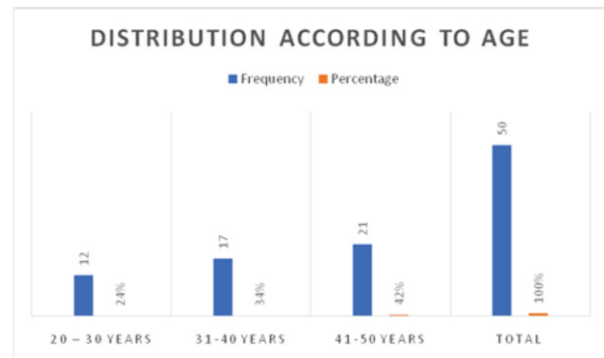


Figure 1: Showing represent that Majority of Patients.

Table 2: Distribution of frequency and percentage of patients according to Gender (N = 50).

Gender	Frequency	Percentage
Male	45	90%
Female	5	10%
Total	50	100%

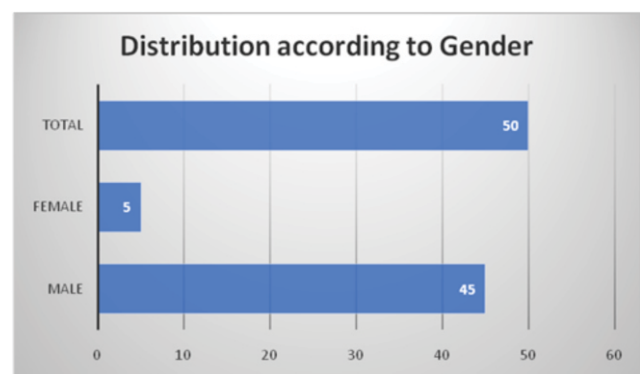


Figure 2: Showing lower respiratory tract infections.

Table 3 & Figure 3 Show that 35 (70%) were not having any previous disease while 15 (30%) had previous disease (not r/t respiratory system).

Table 4 and Figure 4 Represents 34 (68%) patients have the habit of chewing tobacco, 16 (32%) have the habit of Alcohol intake and were smokers.

Table 5 and Figure 5 describe that pre-test mean and SD were 6.83 & 1.30 respectively whereas

Table 3: Distribution of frequency and percentage of patients according to any previous disease.

Any previous disease	Frequency	Percentage
Yes	15	30%
No	35	70%
Total	50	100%

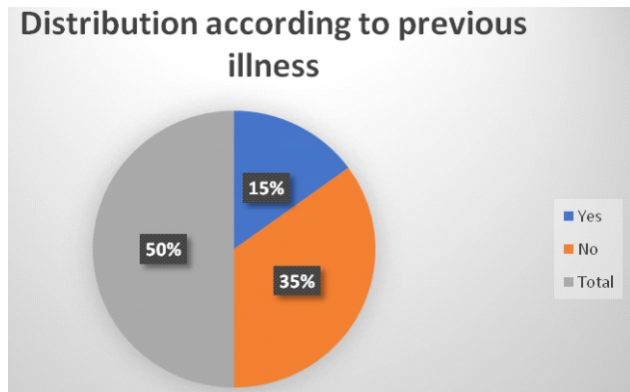


Figure 3: Showing distribution according to previous illness.

post test mean & SD were 7.16 & 1.26, with t-test value of 6.12 and tabulated value at 0.001. These reading indicate the effectiveness of Balloon therapy on lung capacity in patients with lower respiratory tract infections.

Table 5: Represents 34 (68%) patients have the habit of chewing tobacco, 16 (32%) have the habit of alcohol intake and were smokers.

Table 4: Distribution of frequency and percentage of patients according to Habit (N=50).

Habit	Frequency	Percentage
Smoking and Alcohol	16	32%
Tobacco chewing	34	68%
Any others	0	0%
Total	50	100%

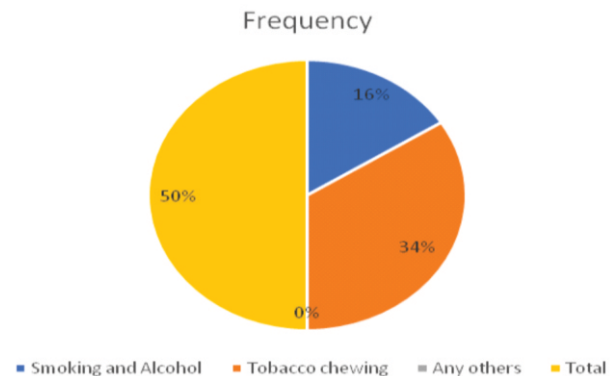


Figure 4: Represents patients habit of chewing tobacco.

DISCUSSION:

The Balloon therapy is found to be effective in increasing the lung capacity in patients with lower respiratory tract infections. It is a simple, cost effective and easy measure that can be used by patients with

Section II & Table 5: Analysis of Difference Between Pre-Test and Post-Test Lung Capacity.

	Mean	SD	t test value	df	Tabulated value	Significant
Pre test	6.8300	1.30576	6.129	49	2.00	Significant at p value 0.05
Post test	7.1620	1.26812				

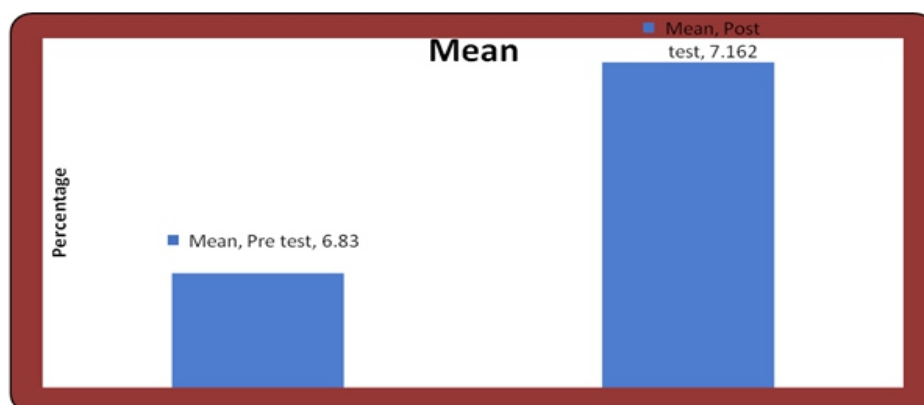


Figure 5: Describe that pre-test mean and SD.

LRTI. Nursing personals must be encouraged to utilize their knowledge on promotive measure by health education and demonstration in hospital.

Implications:

Nursing Practice:

In Nursing practice, Nurse can teach patients regarding effectiveness of balloon therapy.

Nursing services department can arrange health education program for teaching patients regarding balloon therapy.

Nursing Education

Nursing students must be encouraged to utilize their knowledge on promotive measure by health education and demonstration in hospital.

Nursing Administration

Administrators should take initiative action to update the knowledge of nursing personnel regarding breathing exercise in improvement of lung function and reducing the sign of respiratory illness by in-service education.

Nurse administrators can conduct workshop and seminar on breathing exercise for lower respiratory tract to all level of nursing personnel in the hospital.

Nursing Research

Evidence based practice helps the nurses to enrich them in knowledge and practice. Nursing researcher should be directed to toward exploring the advantages of balloon therapy so that the lung capacity can be improved.

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