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# Study of Magnesium Levels in Acute Exacerbation of Copd and Its Correlation in Tertiary Care Hospital, Kakinada

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**ABSTRACT**

Chronic obstructive pulmonary disease (COPD) is one of the most common disease that affect many people around the world

COPD is now the fourth leading cause of death and is the only disease state that is rising in morbidity and mortality among the top five killers

COPD exacerbation was defines as an acute worsening of respiratory symptoms ( increased dyspnea ,cough or change in amount and purulence of sputum that was beyond normal day to day variations of symptoms

magnesium is involved in important functions as bronchodilation and contraction in respiratory tract smooth muscles ,mast cell stabilization and neuro numeral mediator release and muco ciliary clearance

The potential mechanism for the direct relaxing effects of magnesium on bronchial smooth muscles include calcium channel blocking properties ,inhibition of cholinergic Neuromuscular junction transmission with decreased sensibility to the depolarizing action of acetylcholine ,stabilization of mast cells and T lymphocytes and stimulation of nitric oxide and Prostacyclin

Therefore decrease in magnesium level in COPD patients represents a factor which is detrimental to respiratory function as low magnesium levels induces muscle fatigue

Magnesium deficiency contributes to exacerbation of COPD and asthma

**KEYWORDS:** COPD ,hypo magnesemia

**AIMS AND OBJECTIVES**

To study the correlation between the levels of serum magnesium in acute exacerbation of COPD and stable cases of COPD

This is based on prospective study conducted on 50 patients who were known cases of COPD who presented with exacerbation from September 2021 to June 2022.2 in GGH,KAKINADA.

**INCLUSION CRITERIA**

Diagnosed case of COPD [clinically and Spirometry ] who presented with exacerbation

Age 40 years and above

**EXCLUSION CRITERIA**:

Patients with Bronchial Asthma

Other Co morbid conditions like hypertension, DKA ,HIV, pulmonary tuberculosis.

Other conditions causing hypomagnesaemia like alcoholism, renal Causes (ATN) chronic diarrhea , vomiting ,Crohns disease ,ulcerative colitis and drugs were excluded from the study

Serum magnesium levels were sent at the time of admission during acute exacerbation and again at 30 day follow up and were compared severity of dyspnea is scored by modified MMRC scale

The demographic data like age and she were collected for analysis

**STATISTICAL ANALYSIS**

Statistical analysis was performed on SPSS version 21 software.

Constant variables were expressed as mean +/- standard deviation

Correlation between variables was investigated using Pearson correlation analysis for parametric variables and spearman correlation analysis for non parametric variables.

**RESULTS**

| Total number of patients | males | Females |
|---|---|---|
| 50 | 39 | 11 |

| Total number of patients | 55-60 age group | 61-70 age group |
|---|---|---|
| 50 | 21 | 29 |

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| Total number of patients | Current smokers | Ex smokers |
|---|---|---|
| 50 | 9 | 41 |

| Serum magnesium levels in mg per dl at admission | Number of patients |
|---|---|
| 1-1.4 mg per dl | 24 |
| 1.5-2.4 mg per dl | 26 |

| Serum magnesium levels at 30 day follow up in mg per dl | Number of patients |
|---|---|
| 1.8-2 mg per dl | 10 |
| 2.1 -2.4 mg per dl | 40 |

| MMRC Dyspnea scale | Number of patients |
|---|---|
| 0 | 0 |
| 1 | 0 |
| 2 | 8 |
| 3 | 25 |
| 4 | 17 |

Our study is a prospective study , where we studied serum magnesium levels at tha time of admission and 30 days follow up and compared both values

The mean serum magnesium values at 30 day follow up was 1.9 mg per dl where as at admission with acute exacerbation was 1.5 mg per dl. This showed significant co relation between hypo magnesemia and acute exacerbation of COPD

This is in accordance with studies conducted by aziz et al and singh et al

Low levels of serum magnesium may serve as a risk factor for acute exacerbation of COPD

Bhatt s.p.et al in their series of 100 patients admitted with a diagnosis of acute exacerbation of COPD was retrospectively followed from the time of index admission until next admission, the sole predictor of frequent readmissions is low serum magnesium levels

**CONCLUSION:**

THE PREVALENCE OF HYPOMAGNESEMIA IN ACUTE EXACCERBATION OF COPD IS HIGH

Low serum magnesium which is a modifiable risk factor may predict acute exacerbation of COPD

**LIMITATIONS:**

The sample size is less in the study , further studies may be required to assess the role of magnesium in the treatment of acute exacerbation of COPD

## REFERENCES

[1]. Chunk Yip, M.D., COP RF D : State of the art – Common Medical Diseases (II) the Eleventh Health Conference.36-43.

[2]. Thomas L. Petty. The History of COPD. International Journal of COPD 2006:1(1): 3-4.

[3]. Aziz et al ., Serum magnesium levels and acute exacerbation of COPD,:123-124

[4]. Bhatt,S.P., et al ., serum magnesium is an independent predictor of frequent readmissions due to acute exacerbation of COPD. Respiratory Medicine,2008;102(7):999-1003

[5]. Sajjad Rajab et al., relationship between serum magnesium levels and acute exacerbation of COPD,,2009:63-65

[6]. Corradi M et al., metallic elements in exhaled breath condensate and serum of patients with acute exacerbation of COPD.CHEST. 2006;129(5):1288-1297

[7]. Nagomi-Obradovic L et al.,Evaluation of magnesium in serum and urine in patients with pulmonary diseases.Clin Lab. 2005;51(11- 12):647-52.