



## EVALUATION OF DIFFERENT CAUSES OF DESATURATION IN PATIENTS ON OXYGEN SUPPORT AT A TERTIARY CARE HOSPITAL

### Medicine

**Piyu jain**

Junior Resident, Department Of Pulmonary Medicine, Rohilkhand Medical College & Hospital, Bareilly

**Rajesh Agrawal\***

Professor & Head, Department Of Pulmonary Medicine, Rohilkhand Medical College & Hospital, Bareilly \*Corresponding Author

### ABSTRACT

Most patients presenting with dyspnoea tend to have low Spo<sub>2</sub> on room air and thus require supplemental oxygen to correct hypoxemia. Patients on oxygen support either via face mask, nasal prongs, BiPaP, NIV or invasive mechanical ventilation often have sudden drop in the oxygen saturation which is dangerous requiring immediate action. In this study we try to evaluate different causes for sudden drop in the Spo<sub>2</sub> in patients already on oxygen support.

### KEYWORDS

dyspnea, hypoxemia ,desaturation

#### INTRODUCTION :

- Most patients presenting with dyspnoea tend to have low Spo<sub>2</sub> on room air and thus require supplemental oxygen to correct hypoxemia. Patients on oxygen support either via face mask, nasal prongs, BiPaP, NIV or invasive mechanical ventilation often have sudden drop in the oxygen saturation which is dangerous requiring immediate action. In this study we try to evaluate different causes for sudden drop in the Spo<sub>2</sub> in patients already on oxygen support.
- Low oxygen saturation or hypoxemia is associated with conditions or diseases involving ventilation-perfusion mismatch in the lungs, hypoventilation, right-to-left shunts, reduced diffusion capacity, and reduced oxygen partial pressure in inspired air. There is no clear cut-off point for abnormal oxygen saturation, but SpO<sub>2</sub> ≤ 95% is used in most adult studies.(1)
- The severity of COPD and pulmonary diseases, and death by respiratory failure seem to be predicted by low SpO<sub>2</sub> in the general population.

**AIM & OBJECTIVE :** To evaluate different causes of sudden desaturation in patients previously maintaining adequate levels on oxygen support.

#### MATERIALS AND METHOD:

A cross sectional observational study was done constituting 110 patients from the ward and ICU of Department of Pulmonary Medicine Rohilkhand Medical College, Bareilly. Oxygen saturation was measured using pulse oxymeter. Chest X ray, ECG and ABG analysis were done if required.

#### Inclusion criteria:

All Patients maintaining spo<sub>2</sub>>90% with oxygen and undergoing sudden desaturation with spo<sub>2</sub><90%

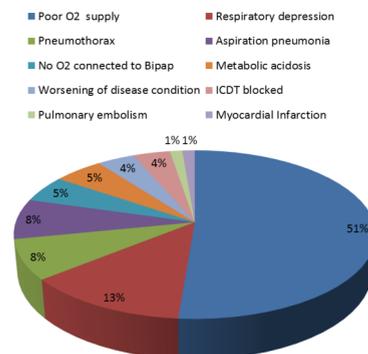
#### Exclusion criteria:

- Patients maintaining spo<sub>2</sub>>90% on room air.
- Patients consistently maintaining spo<sub>2</sub>>90% on supplemental oxygen.
- Patients not willing to participate in the study.

#### RESULTS:

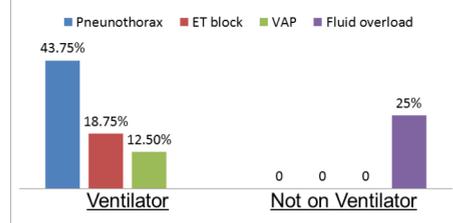
Out of 110 patients 78 patients were in ward while 32 were in ICU. In ward 40 patients had poor oxygen supply due to leakage from oxygen source, 10 developed respiratory depression manifested as respiratory acidosis, 6 developed pneumothorax, 6 developed aspiration pneumoniae, 4 had no oxygen connected to BiPaP, 4 developed metabolic acidosis, 3 had worsening of present disease condition, 3 had ICDT blocked, 1 had Myocardial infarction and 1 had pulmonary embolism as a cause of their sudden desaturation. While in 32 patients of ICU, 24 were on ventilatory support of which 14 developed pneumothorax, 6 had ET tube blocked, 4 developed VAP and 8 patients had fluid overload.

Causes of desaturation in patients of ward



While in 32 patients of ICU, 24 were on ventilatory support of which 14 developed pneumothorax, 6 had ET tube blocked, 4 developed VAP and 8 patients had fluid overload.

Chart Title



#### CONCLUSION:

This study reflected leakage from oxygen source as the main cause of sudden desaturation in patients on oxygen support in wards and pneumothorax as the main cause in ICU patients on mechanical ventilation.

Oxygen saturation has been shown in risk score models to predict mortality in emergency medicine(2)

Low oxygen saturation was independently associated with increased all-cause mortality and mortality caused by pulmonary diseases.(3)

Therefore we should rule out these mentioned causes in every patient of ward/ICU having sudden fall in SpO<sub>2</sub> despite of oxygen support in form of face mask/nasal cannula/BiPAP/Mechanical Ventilator.

Prompt assessment and action may prevent adverse outcomes in such situations.

#### REFERENCES

- (1) BMC Pulm Med. 2015 Feb 12;15:9. doi: 10.1186/s12890-015-0003-5 BMC Pulm Med.
- (2) BMC Pulm Med v.15; 2015 PMC4342789
- (3) Respir Med. 2012 Nov;106(11):1551-8. doi: 10.1016/j.rmed.2012.06.016. Epub 2012 Jul 13