



International Journal of PharmaO₂

Journal Home Page: <http://www.ijpo.in/>

(IJPO: A Peer-reviewed Bi-monthly online journal)

Review Article

Happy Hypoxia-An Unhappy Threat in Pandemic COVID-19 Disaster

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ARTICLE INFO

Article history:

Received: 24/06/2021;

Revised: 03/07/2021

Accepted: 05/07/2021;

Available online:

05/07/2021.

Key Words:

COVID-19, Hypoxia, Oxygen Saturation, Pandemic, Proning.

Please cite this article as: Ahad et al. Happy Hypoxia-An Unhappy Threat in Pandemic COVID-19 Disaster. . 3(4), 0175-0180.

ABSTRACT

Hypoxia is a situation in which the saturation of blood i.e., red blood cells with oxygen has diminished. The present work is to explore the happy hypoxia during the COVID-19 disaster for that youngsters are getting unknown victims. Youngster were looking active even their blood is not sufficiently saturated with oxygen. The authors collected information electronically from various published the journal and gathered information about happy hypoxia. Among the various tactic to resolve this hypoxia is proning approach. Young people become wounded with hypoxia and they are unaware of it. Youngsters are look active even they have the issue so it is called happy hypoxia. An oximeter is used to quantify the blood oxygen saturation levels and the issue can be early detected and treated accordingly. Proning is an approved and allowed approach where the patients laying down by putting their abdomen on the floor for some time for increasing the blood saturation with oxygen. Care must be taken as this position should not be continued for long period. The article concludes that early detection of happy hypoxia can be done by an oximeter and an approved proning technique should be adopted to resolve the issues related to happy hypoxia.

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INTRODUCTION

Hypoxia is a health issue with the deficit in the amount of oxygen reaching the body tissues. As noted above, there are dissimilar types of hypoxia or reasons that there is not enough oxygen in the tissues of the body (Bickler et al., 2017; Sjöberg & Singer, 2013). These include:

Hypoxic hypoxia (hypoxemic hypoxia): In this, the tissues do not take adequate oxygen for the reason that oxygen is deficient in the blood curving to the tissues. Hypoxic hypoxia can be affected by insufficient breathing as well as other causes (Pettrassi et al., 2012).

Anemic hypoxia: Low hemoglobin levels affect the condensed capability of the blood to transport

oxygen that is breathed in, and hence, a reduced supply of oxygen existing to the tissues. Anemia can, in turn, be triggered by many conditions (Dubin et al., 2004).

Stagnant hypoxia (circulatory hypoxia): This form of hypoxia is instigated by insufficient blood flow, which outcomes in less oxygen obtainable to the tissues (Morita et al., 2003).

Histologic hypoxia: An acceptable amount of oxygen is gaped through the lungs and delivered to the tissues, but the tissues are incapable to use the oxygen that is existent (McPhail & Robinson, 2010).

Metabolic hypoxia: Metabolic hypoxia happens when there is more ultimatum for oxygen by the tissues than usual. Oxygen may be engrossed, elated, and used correctly by the tissues, but owing to a disorder that raises metabolism, it is still not adequate, sepsis (a serious and overwhelming infection) is an example of this (Gonzalez et al., 2019).

The term happy a prefixed as hypoxia comes saliently. The American Lung Association says silent or "happy hypoxia" is a condition where the level of oxygen in our blood is considerably worse than predictable, even when all other vital signs are construing common (Chaudhuri et al., 2020). The works wide pandemic deadly coronavirus disease is familiar to all, that disturbs breathing and the upper respiratory tract, ultimately damaging the lungs in progressive phases of the state (Ahad et al.; Kumar et al.). One of the prime diagnostic approach in Corona patients is suppressed Oxygen saturation (below 90%) (Harch, 2020). Oxygen saturation for a healthy person relics above 94%. It can be dignified by an oximeter, which is one of the highest-selling medical equipment today.

A pulse oximeter is a dense, transportable gadget, that events the oxygen quantities in the system. It is a non-invasive technique, that is used to quickly obtain interpretations of blood oxygen saturation and also heart rate. It is cropped decisively onto the fingertip and examines two wavelengths of light from blood curving through that region. This finds out the oxygen levels in the bloodstream and the pulse rate i.e. how fast the heartbeats (Tomasic et al., 2018). If one tests positive for COVID-19 but doesn't have any severe symptoms, or

asymptomatic, it may be a clever idea to finance a pulse oximeter. Having one on hand is a relaxed way to screen the oxygen levels and find if it's time to head to the hospital. A pulse oximeter is hence, a precious apparatus that can help notice dropping blood oxygen levels in the initial phase of COVID-19, much before the illness establishes in more pathetic forms.

COVID-19 cases globally particularly in India are uncontrollable (as of second-wave) and throwing a challenge to the health care professionals. As the country eyewitnesses a rapidly mounting second peak of contagions, many young people including teenagers of and an age range of 20-30 years are also attaining COVID-19 (Narici et al., 2020).

One disturbing aspect detected in these occurrences is how happy hypoxia progresses in the fresher population as well. Whereas blood oxygen levels below 90% are measured low, adolescents and young age persons with interpretations as low as 80% or less do not display any mutual symptoms of COVID-19 such as cough, fever and even have no encounters in breathing (Combet et al., 2020). Though, this is an unadorned sign of failure of the lungs which involves instant hospitalization and specialized medical care. Certain protruding signs are exhibited by not only young persons but also the elder population, who are either asymptomatic or have just slight symptoms of COVID-19 and still facing a state of happy hypoxia or decreased blood oxygen absorptions.

Happy hypoxia is once the peripheral oxygen saturation remains decent, but the partial pressure of oxygen is very truncated that shows up in the arterial blood gas (ABG) tests. But patients do not impression any symptoms of truncated oxygen, as they feel well, healthy and keep in conversation. Happy hypoxia is typically seen between Day 2 and Day 10 of the beginning of clinical symptoms (Chandra et al., 2020). Patients with lung contribution, like pneumonia, that can be perceived through the computerized tomography scan (CT scan) or X-ray, are more prone. Also, happy hypoxia patients have raised four inflammatory markers namely Ferritin (a blood protein that contains iron.) (Kappert et al., 2020), Lactic Acid Dehydrogenase (LDH) (formed due to tissue damage) (Rahman et al.,

2021), interleukin 6 (IL6) (generated in response to the inflammation) (Legrand et al., 2008) and D- Dimer (a fibrin degradation product) (Karim et al., 2021).

On managing such patients all treating doctors should have an index of suspicion. Doctors would not trust only SpO₂ (oxygen saturation) and must ensure an ABG, which exposes the patient's status. Following is the oxygen supplementation, even if a patient has 93% saturation, but his/her ABG shows a partial pressure of oxygen, then patients need to be given oxygen supplementation. Such patients should be advised awake proning (turning of a patient on his/her abdomen i.e., lying face down) (Dhont et al., 2020) which helps in making the lungs that are underutilized. Lastly, if the inflammatory marker i.e., D-Dimer is raised then blood thinning injections should be given.

Hypoxia could occur due to the condensed capability of the lungs to engross and transference oxygen acknowledged through breathing to blood vessels for stream in all parts of the body. It can also happen when blood vessels cannot circulate blood properly in the body due to some blockages. Unlike normal pneumonia, in which patients will sensation chest pain and substantial breathing difficulties, primarily COVID-19 pneumonia causes oxygen deficiency that is problematic to detect since the patients do not knowledge any perceptible breathing complications, hence producing an illness which terms as "silent" hypoxia.

By the period COVID-19 patients recognize they are petite of breath, their situations have already suggestively worsened into moderate-to-severe stages of pneumonia. Analysis of COVID-19 pneumonia patients exposed that the virus primarily diversely outbreaks the lungs. The air sacs in COVID-19 patients' lungs do not block with fluid or pus as in standard pneumonia contagions but slightly the virus only sources the air sacs to breakdown, tumbling the oxygen levels that prime to hypoxia in these patients but still sustains the lungs' regular capability to eject carbon dioxide (González et al., 2020).

Subsequently, the still-efficient deduction of carbon dioxide is the purpose why COVID-19 patients do not sensation dumpiness of breath in the preliminary stages of COVID-19 pneumonia.

Therefore, the capability to notice this hushed form of hypoxia in COVID-19 patients earlier they begin to knowledge dumpiness of breath is critical for precluding pneumonia from developing to a dangerous level. The key is to be bright to notice this preliminary drop in oxygen saturation levels so that patients diseased with COVID-19 who commence to agonizing from pneumonia can be perceived as very premature and put on a management plan to avert the lungs from worsening further. So, early detection of COVID-19 pneumonia can avert patients from devouring to be conserved with exceptionally aggressive actions such as intubation and mechanical ventilation, a procedure that presently outcomes in an 80% mortality rate for COVID-19 patients.

COVID-19 primarily affects the respiratory system counting lungs and blood vessels. What is up-to-the-minute in COVID-19 is that the contagion is tumbling the functioning capability of the lungs, and causing infection in the blood vessels prominent to clotting hindering the flow of blood. This situation puzzles medical experts as it challenges the very logic of biology. In normal circumstances, the body gives sturdy symptoms of hypoxia counting intense headaches, short snuffles and gasping. But in happy hypoxia, which is being seen amongst COVID-19 patients, they remain to function usually till a much-advanced phase. In some cases of happy hypoxia, oxygen saturation had plummeted to 20-30%. This has remained a foremost reason for deaths amongst COVID-19 patients in hospitals (Golubnitschaja et al., 2020). Happy hypoxia is being seen in youngsters and seen in the second wave of COVID-19 (in India). Many accused that this is causal to higher demises amongst the younger people likened to the first wave of the pandemic in India. Even though describing only slight symptoms of COVID-19, such as cough, sore throat, fever, headaches, deprived of any perceivable breathing struggle, it is recommended to uninterruptedly quantity blood oxygen stages using a pulse oximeter. Likewise, the colour of the lips changes from the normal shade to appear blue, while skin discoloration arises from the unique tone to a red/purple arrival. Determined dripping even when not accomplishing hard bodybuilding

habits or in a hot nearby is yet added red signal for stumpy blood oxygen levels. Observance an eye out for these cautionary signs of happy hypoxia guarantees quick management in a hospital setting; reinstating lung capacity and usual breathing in the pretentious individual and facilitating them recuperate from COVID-19. This is where oxygen saturation observing helps. If oxygen saturation falls below 94%, the person must seek crucial medical advice. Doctors recommend proning for home-isolation patients as an instantaneous medication. However, if the oxygen level drops below 90%, such cases cause hospitalization as patients may necessity medical oxygen enhancement or ventilator care (Widysanto et al., 2020).

The Union Health Ministry has suggested the technique of "proning" to help raise oxygen levels for persons in home isolation (Rabin et al., 2020). Proning is a technique in which the patient deceits on the stomach, face down, to improve the oxygen stages in the body. Oxygen level (SpO₂) between 94-100 is measured fit.

COVID-19 patients panting for oxygen insert up outside hospitals crossways the country has been the crucial image of the coronavirus contagion in the second wave. Shortness of breath and changeable oxygen levels are the foremost symptoms of COVID-19. However, not all patient-facing breathing issues necessitate hospitalization. Coagulation, or more simply, widespread clotting, that takes place in the multifaceted system of small blood vessels in the lungs, is measured, by mainstream investigators and medical experts, to be the chief cause of happy hypoxia.

The fundamental feature behind this, is a provocative response in the body, maximum probable triggered by SARS-CoV-2 contagion and the succeeding onset of COVID-19. This, starts cellular protein responses that procedure blood clots and prevent cells and tissues in the lungs from getting a satisfactory oxygen supply.

TREATMENT

Proning-a medically approved position that increases oxygen saturation. The details are as described.

Requirements for pronation

For proning, one will essential five pillows and a plane surface to lay down. One pillow should be reserved below the neck, one or two below the chest over the upper thighs and two below the shins. One should not employ over 30 minutes in each location (Maharaj et al.,2017).

Importance of Prone lying

– Prone positioning increases ventilation, preserves alveolar components open and breathing relaxed.

– Proning is compulsory only after the patients' sensations struggle in breathing and the oxygen level goes beneath 94.

– Regular observing of SpO₂, laterally with additional signs like temperature, blood pressure and blood sugar, is significant throughout home isolation.

– Omitted out on hypoxia (compromised oxygen circulation) may principal to deteriorating of difficulties (Genaze, 2000).

Cautions while Proning

– Avoid proning for an hour afterward meals

– Continue proning for only as numerous times as effortlessly tolerable

– Keep pathway of any pressure sores or damages, particularly about bony prominences

– One might prone for up to 16 h a day, in numerous cycles, as handled contented

– Pillows may be accustomed somewhat to alter pressure areas and for comfort (Evans et al., 2006).

Avoid Proning

– During pregnancy

– Major cardiac situations

– Profound venous thrombosis (treated in less than 48 h)

– Uneven spine, femur, or pelvic fractures (Ray & Trikha, 2018).

Steps for non-self-proning patients (an emergency)

– An extra flat sheet is located on the bed and placed underneath the patient. This sheet will pull complete as rotating the patient.

– By utilizing the sheet, turn the patient over and location the patient prone. The arm and sheet will pull across the bed.

– For persons who cannot do it by themselves, now is a five-step method to a residence in a

patient in the prone spot by a regular bed and plain sheet.

– Place the flat sheet about the arm that will wrench over (the side turning toward).

– Pull and center the patient. Abandon the sheet that was cast-off to place the patient in a flat situation.

– Using a smooth sheet, wrench the patient to one cross of the bed (Meredith et al., 2021).

CONCLUSION

This paper concludes that youngsters are prone to happy hypoxia with less oxygen saturation. An oximeter is used to measure the blood saturation with oxygen. An approved proning technique of laying down by putting stomach on the floor, that will enhance the blood saturation with oxygen. So, youngsters should check their oxygen saturation. The article concludes that early detection of happy hypoxia can be done by an oximeter and an approved proning technique should be adopted to resolve the issues related to happy hypoxia.

ACKNOWLEDGMENTS

None

CONFLICT OF INTERESTS

None

FUNDING

None

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