



Silent Hypoxia

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Why in News

Amidst the ongoing **Covid-19** pandemic, medical practitioners have reported a condition called **silent or happy hypoxia**, in which patients have **extremely low blood oxygen levels**, yet they do not show signs of breathlessness.

It has left medical practitioners confused and many of them are now advocating for its early detection as a means to avoid a fatal illness called **Covid pneumonia**.

Key Points

- **Hypoxia**
 - It is a condition wherein there is **not enough oxygen available to the blood and body tissues**.
 - Hypoxia can either be **generalised**, affecting the whole body, or **local**, affecting a region of the body.
 - **Normal arterial oxygen** is approximately **75 to 100 millimetres of mercury (mm Hg)** and **normal pulse oximeter readings** usually range from **95 to 100%**.
 - Values under 90% are considered low.
 - When levels fall below 90%, patients could begin experiencing lethargy, confusion or mental disruptions because of insufficient quantities of oxygen reaching the brain.
 - Levels below 80% can result in damage to vital organs.

- **Silent Hypoxia**

- It is a form of oxygen deprivation that is **harder to detect** than regular hypoxia because **patients appear to be less in distress**.
- **Covid pneumonia**, a serious medical condition found in severe Covid-19 patients, is **preceded by silent hypoxia**.
- Many Covid-19 patients with oxygen levels below 80% look at ease and alert. There have been a few cases of oxygen levels below 50% as well.
 - Those with such low levels of oxygen would normally appear extremely ill but not in silent hypoxia cases.
- In many cases, Covid-19 patients with silent hypoxia **did not exhibit symptoms such as shortness of breath or coughing until their oxygen fell to acutely low levels**, at which point there was a risk of **acute respiratory distress (ARDS)** and **organ failure**.
- **Reasons:**
 - The reason why people are left feeling breathless is **not because of the fall in oxygen levels** itself but **due to the rise in carbon dioxide levels** that occur at the same time, when lungs are not able to expel this gas efficiently.
 - In some Covid-19 cases, this was not the response and patients did not feel breathless.
 - It happened because in patients with Covid pneumonia, the **virus causes air sacs to fall**, leading to a **reduction in levels of oxygen**. However, the **lungs initially do not become stiff or heavy with fluid** and **remain compliant** meaning they are **able to expel carbon dioxide** and avoid its buildup. Thus, **patients do not feel short of breath**.
- A medical device called a **pulse oximeter** can be used in the early detection of silent hypoxia.
 - Active Covid-19 or suspected cases can check their oxygen levels early on by using the device.
 - A fall in oxygen levels can serve as a signal for seeking additional treatment immediately.
 - Concerns have been raised against it arguing that the frequent use of the device would lead to increased anxiety.

Pulse Oximeter

- It is a **test used to measure the oxygen level** (oxygen saturation) of the **blood**.
- The device measures the saturation of oxygen in **red blood cells** (RBCs) and can be attached to a **person's fingers, toes, nose, feet, ears or forehead**.
- The method is **easy and painless** and the device can be reused or disposed of after use.

- It is generally used to check the health of patients with known conditions that affect blood oxygen levels like heart and lung conditions.

Covid Pneumonia

- It is a **potentially deadly condition** in Covid-19 patients which affects the **lungs' ability to transfer oxygen** and **causes breathing difficulties**.
- When a person cannot inhale enough oxygen and exhale enough carbon dioxide, the pneumonia can lead to death.
- Covid pneumonia is **especially severe because it is viral** and it **completely affects the lungs instead of small parts**.
Other kinds of pneumonia which are **caused mainly by bacteria** and can be treated using antibiotics are **less severe** than Covid pneumonia.
- Patients are required to be **put on ventilator support** in such severe cases to ensure adequate circulation of oxygen in the body.

Source: IE