

3. Silent or Happy Hypoxia

Prelims Syllabus: Medicine and Pharmaceuticals

Mains Syllabus: GS-III Awareness in the fields of IT, Space, Computers, Robotics, Nano-Technology, Bio-technology and Issues Relating to Intellectual Property Rights.

Context:

- Recently, 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.
- Many of them are now advocating for its early detection as a means to avoid a fatal illness called Covid Pneumonia.

About Hypoxia:

- It is a condition wherein there is not enough oxygen available to the blood and body tissues.
- It can either be Generalised, affecting the whole body, or local, affecting a region of the body.
- The Normal arterial oxygen is approximately 75 to 100 Millimetres of mercury (mm Hg) and normal pulse oximeter readings usually range from 95 to 100%.
- When levels fall below 90%, patients could begin experiencing lethargy, confusion or mental disruptions because of insufficient quantities of oxygen Reaching the Brain.
- When Levels below 80% can result in damage to Vital Organs.

About Silent Hypoxia:

- It is a form of oxygen deprivation that is harder to detect than regular hypoxis because patients appear to be less in distress.
- **Covid pneumonia** is a serious medical condition found in severe Covid-19 patients, is preceded by silent hypoxia.
- There are 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.
- 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.

- Reason why people are left feeling breathless
- It 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.

About Pulse Oximeter:

- It is a test used to measure the oxygen level (oxygen saturation) of the blood.
- It 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.
- It 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.

About 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.
- It is especially severe because it is viral and it completely affects the lungs instead of small parts.
- The Patients are required to be put on ventilator support in such severe cases to ensure adequate circulation of oxygen in the body.