

1. Cytokine Storm

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:

- Cytokine storm is recently seen in news, which is feared as a compounding effect of COVID 19

About Cytokine Storm:

- It is an overproduction of immune cells and their activating compounds (cytokines), which, in a flu infection, is often associated with a surge of activated immune cells into the lungs.
- It resulting in lung inflammation and fluid build-up can lead to respiratory distress and can be contaminated by a secondary bacterial pneumonia – often enhancing the mortality in patients.
- It can occur due to an infection, auto-immune condition, or other diseases.
- Its symptoms include high fever, inflammation (redness and swelling), severe fatigue, and nausea.
- It is not exclusive to coronavirus patients. It is an immune reaction that can occur during other infectious and non-infectious diseases as well.

About the Role of Cytokines in the Immune System:

- It signals proteins that are released by cells at local high concentrations, which is characterised by the overproduction of immune cells and the cytokines themselves because of a dysregulation in the process.
- The severe immune reaction, leading to the secretion of too many cytokines in the bloodstream, can be harmful since an excess of immune cells can attack Healthy Tissue as well.

About the Functions of Immune System:

- It protects us from bacteria, viruses, and parasites by removing them from our systems.
- It gets activated by things that the body does not recognise as its own. These things are called antigens, and include bacteria, fungi and viruses.
- Its response involves inflammation, an important and indispensable part of the process.

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- Its Inflammation has an important protective function. The release of inflammatory mediators increases the blood flow to the area, which allows larger numbers of immune system cells to be carried to the injured tissue, thereby aiding the repairing process.
 - If this inflammatory response is not regulated, a 'cytokine storm' can be triggered.
 - Impact a COVID-19 patient: In the case of any flu infection, a cytokine storm is associated with a surge of activated immune cells into the lungs, which, instead of fighting off the antigen, leads to lung inflammation and fluid build-up, and respiratory distress.

