Can drugs for Ebola be used to treat COVID-19?

Part of: GS Prelims and GS-III- S&T

Medical research towards the development of drugs and vaccines against the coronavirus infection – COVID-19.

Background:

- The virus, SARS-CoV-2, according to the World Health Organization (WHO), has caused the world’s largest pandemic. Over six lakh are infected and nearly 29,000 dead globally.
- In India, the number of cases is growing despite the unprecedented measures put in place by the Central and State governments.

Details:

Medical strategy:

- Given the long gestation period in the development of a vaccine and WHO observations that it would take over 18 months to be ready for use, “vaccination” as an immediate solution has been ruled out.
- 15% of COVID-19 needs hospitalized care and of these 5% need ICU care. Now with time running out rapidly for the entire world, re-purposed drugs are being aimed at to contain the problem, reducing hospital load, freeing critical hospital beds and allowing people to swiftly return to normal work.
- WHO and other health agencies are re-looking at the efficacy of known therapies and drugs to treat COVID-19. They are considering re-purposed drugs.
- Recently, India has approved the use of the anti-malarial drug, hydroxychloroquine, as a preventive medication for people at high risk, such as health workers and immediate contacts of a person who has tested positive for COVID-19.

WHO-led Solidarity trials:

- WHO Director-General, recently announced the launch of ‘Solidarity’, a giant multinational trial for testing therapies that researchers have suggested may be effective against COVID-19.
- This coordinated push would help generate robust, high-quality scientific evidence from across the world in a short frame of time.
- India too has joined the study after staying away due to its small sample size.

Potential drugs:

- WHO is considering some of the most promising therapies including the following drugs:
  - A combination of two HIV drugs, lopinavir and ritonavir.
    - The combination drug, ritonavir/lopinavir, was introduced two decades ago to treat HIV infections.
    - Doctors in Wuhan, China have used this combination.
    - Although the drug is generally safe it may interact with drugs usually given to severely ill patients, and doctors have warned it could cause significant liver damage.
Anti-malaria medications, chloroquine and hydroxychloroquine.
  - Hydroxychloroquine is being looked at in India and the ICMR has said that it is currently studying the drug action in the Indian population with respect to COVID-19.
  - Its usage in some patients has shown a significantly reduced viral load in nasal swabs.
  - Hydroxychloroquine, in particular, is known to have a variety of side-effects, and can in some cases harm the heart.

Another combination under testing is interferon-beta, which WHO has cautioned might be risky.

An experimental antiviral compound called remdesivir.
  - This drug was developed to treat Ebola and related viruses.
  - It works by shutting down the viral replication.
  - Studies have pointed out that the drug shows that it can be used in high doses without causing toxicities.

Agencies are also looking at unapproved drugs that have performed well in animal studies with the other two deadly coronaviruses, which cause Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS). Given the fact that the novel coronavirus hails from a family on which extensive research work has already been done worldwide after SARS and MERS is a significant advantage.