Hybrid Immunity

Why in News?

A recent study in the journal The Lancet Infectious Diseases held that “hybrid immunity” provides better **protection against severe** Covid-19, while all immunity against a re-infection wane within a few months.

- The study is based on a meta-analysis of 11 other studies on the protective effectiveness of previous **SARS-CoV-2 (Covid)** infection and 15 studies on the protective effectiveness of hybrid immunity.

What is Hybrid Immunity?

- Hybrid immunity from an infection is a combination of natural protection along with the immunity provided by the vaccine.
- It appears to result in stronger protection than just infection or vaccination alone.
- In the case of Covid-19, hybrid immunity is when someone recovers from a Covid infection before getting vaccinated.

What are the Highlights of the Study?

- **Better Protection:**
  - A hybrid immunity offers a **“higher magnitude and durability”** of protection as compared to infection alone, emphasizing the need for vaccination.
  - However, with the faster-spreading omicron variants leading to more infections and consequently **more people developing this hybrid immunity.**
- **Efficacy of Hybrid Immunity:**
  - Protection against severe disease and hospitalisations from a Sars-CoV-2 infection alone was found to be **82.5% at three months after the last shot or infection.**
    - This protection stood at 74.6% at 12 months and 71.6% at 15 months.
  - Protection against reinfection declined faster, standing at 65.2% at three months and dropping to 24.7% at 12 months and 15.5% at 15 months.
  - In comparison, **hybrid immunity with just the primary vaccine doses** was found to be **96% at three months and 97.4% at 12 months.**
    - The same can offer 69% protection against reinfection at three months, dropping to 41.8% at 12 months.
  - The effectiveness of hybrid immunity gained from infection coupled with the primary as well as a booster dose stood at **97.2% at three months and 95.3% at six months.**
- **Implications:**
  - It can be used to **tailor guidance on the number and timing of SARS-CoV-2 vaccinations.**
  - It said that in regions with high Sars-CoV-2 sero-prevalence, the primary vaccination – focused mainly on those at the highest risk of severe disease such as the old or co-morbid – can **offer high protection against severe disease** and hospitalisation for at least one year.

UPSC Civil Services Examination, Previous Years Question (PYQ)

Q. In the context of vaccines manufactured to prevent COVID-19 pandemic, consider the following statements: (2022)

1. The Serum Institute of India produced COVID-19 vaccine named Covishield using mRNA platform.
2. Sputnik V vaccine is manufactured using vector-based platform.
3. COVAXIN is an inactivated pathogen-based vaccine.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

Ans: (b)

Exp:

- COVISHIELD vaccine is based on the platform which uses a recombinant, replication-deficient chimpanzee adenovirus vector encoding the SARS-CoV-2 Spike (S) glycoprotein. Following administration, the genetic material of part of coronavirus is expressed which stimulates an immune response. **Hence, statement 1 is not correct.**
- Sputnik V is the world's first registered vaccine based on a well-studied human adenovirus vector platform. It has been approved for use in 71 countries with a total population of 4 billion people. The vaccine is named after the first Soviet space satellite. The vaccine’s efficacy is 97.6%, based on the analysis of data on the incidence of coronavirus among Russians vaccinated with both vaccine components between December 5, 2020 and March 31, 2021. **Hence, statement 2 is**

correct.

- Covaxin is an inactivated viral vaccine. This vaccine is developed with Whole-Virion Inactivated Vero Cell-derived technology. They contain inactivated viruses, which cannot infect a person but still can teach the immune system to prepare a defence mechanism against the active virus. **Hence, statement 3 is correct.**
- **Hence, option (b) is correct.**

Source: IE