Corbevax Covid-19 Vaccine

Why in News

India has placed an advance order to block 300 million doses of a new **Covid-19** vaccine, **Corbevax.**

Key Points

- **Corbevax:**
  - **About:** It is India's indigenous **Covid-19 vaccine** which is currently **undergoing** Phase 3 clinical trials.
  - **Working:**
    - It is a **"recombinant protein sub-unit"** vaccine.
      - It means it is made up of a **specific part of SARS-CoV-2** - the **spike protein** on the virus's surface.
    - The **spike protein allows the virus** to enter the cells in the body so that it can replicate and cause disease.
    - However, when this **protein alone is given to the body,** it is not expected to be harmful as the rest of the virus is absent.
    - The body is expected to **develop an immune response** against the injected spike protein.
    - Therefore, when the real virus attempts to infect the body, it will already have an immune response ready that will make it unlikely for the person to fall severely ill.
- **Difference between Corbevax and Other Covid-19 Vaccines:**
  - They are either **mRNA vaccines** (Pfizer and Moderna), **viral vector vaccines** (**Covishield** and **Sputnik V**) or **inactivated vaccines** (**Covaxin**, Sinovac-CoronaVac and Sinopharm's Vero Cell).
  - **Viral vector and mRNA** vaccines **use a code to induce our cells** to make the spike proteins against which the body has to build immunity.
    - In the case of Corbevax, protein itself is given.
    - **mRNA vaccines** work by using messenger RNA (mRNA), which is the molecule that essentially puts DNA instructions into action. Inside a cell, mRNA is used as a template to build a protein.
    - **Viral vector vaccines** use a modified version of a different virus (the vector) to deliver important instructions to our cells.
  - **Inactivated vaccines include killed particles of the whole SARS-CoV-2 virus,** attempting to target the entire structure of the virus.
    - Corbevax, like the mRNA and viral vector Covid-19 vaccines, targets only the spike protein, but in a different way.

Other Types of Vaccine

- **Live-attenuated Vaccines:**
    - Live vaccines use a **weakened (or attenuated) form of the germ** that causes a disease.
    - Because these vaccines are so **similar to the natural infection** that they help prevent, they create a strong and long-lasting immune response.
    - The limitation of this approach is that these vaccines usually **cannot be given to people with weakened immune systems.**
    - Live vaccines are used against: **Measles**, **mumps, rubella (MMR combined vaccine), Rotavirus, Smallpox** among others.
- **Subunit, recombinant, polysaccharide, and conjugate Vaccines:**
    - They **use specific pieces of the germ -** like its protein, sugar, or capsid (a casing around the germ). They give a very strong immune response.
    - They can also be used on people with weakened immune systems and long-term health problems.
    - These vaccines are used to protect against: **Hib** (Haemophilus influenzae type b) disease, **Hepatitis B**, **HPV (Human papillomavirus), Pneumococcal disease** among others.
- **Toxoid Vaccines:**
    - Toxoid vaccines **use a toxin made by the germ that causes a disease.** Toxoid vaccines are used to protect against: **Diphtheria, Tetanus.**

Source: IE