Needle Free Vaccines for Covid-19

Why in news?

Authorities in Shanghai have started administering the world's first inhalable vaccine as a booster dose for previously vaccinated people against Covid-19.

What is the inhalable vaccine about?

- The inhalable vaccine has been developed by the China's CanSino Biologics Inc. as an aerosol version of its one-shot adenovirus vaccine, which uses a relatively harmless cold virus.
- The vaccine is a mist that is sucked in through the mouth.
- After slowly inhaling, people hold their breath for 5 seconds, with the entire procedure completed in 20 seconds.
- The vaccine administered as a mist is said to stop the virus before it spreads to the rest of the respiratory system.
- However, this would partly depend on the size of the droplets.
- The immunologist from India believes larger droplets would train defences in areas of the mouth and neck while tiny ones would penetrate further into the body.

How about the case with India?

- **iNCOVACC** - Recently, India's national drug regulator (CDSCO) cleared Hyderabad-based Bharat Biotech's iNCOVACC**.**
- It is the country's first intranasal Covid-19 vaccine for emergency use in unimmunised adults.
- iNCOVACC uses a modified chimpanzee adenovirus.
- It will be delivered through the nasal route which would potentially trigger an immune response in the mucosal membrane.
- It has been designed to not only protect against infection but also reduce transmission of the virus.
- The vaccine is **not yet** part of India's national immunisation programme.
- **ZyCoV-D** – ZyCoV-D is the world's first needle-free plasmid DNA vaccine.
- It is an intradermal vaccine that is applied through the skin, but using the PharmaJet needle-free applicator.
- It is developed by Ahmedabad-based pharmaceutical major, Cadila Healthcare Ltd (Zydus Cadila).
- In 2021, the three-dose vaccine received regulatory nod for Emergency Use in adolescent (above 12 years of age) and adult population in India.

What are the pros and cons of needle free vaccines?

- **Benefits**- The needle-free vaccine would

    - Be easy to administer
    - Cut down on the dependence on trained personnel
    - Persuade those who do not like to be injected to get the vaccine
    - Make mass immunisation more accessible
- **Concerns**- The effectiveness of non-needle vaccines is yet to be fully tested.
    - For some flu vaccines, this route of delivery has not been very successful so far

References

1. The Indian Express | Can needle-free work?
2. The Hindu Businessline | ZyCov-D
3. Livemint | China's needle-free inhalable Covid vaccine

Quick facts

Central Drugs Standard Control Organization (CDSCO)

- The CDSCO is the national regulatory body for pharmaceuticals and medical devices in India.
- It works under the **Ministry of Health & Family Welfare**.
- Headquarters- New Delhi
- **The Drugs & Cosmetics Act, 1940 and rules 1945** have entrusted various responsibilities to central & state regulators for regulation of drugs & cosmetics.
- Under the Drugs and Cosmetics Act, CDSCO is responsible for
    - Approval of drugs
    - Conduct of clinical trials
    - Laying down the standards for drugs
    - Control over the quality of imported drugs in the country
    - Coordination of activities of State drug control organizations by providing expert advice
- Along with state regulators, it is jointly responsible for grant of licenses of certain specialized categories of critical drugs such as blood and blood products, I.V. fluids, vaccine and sera.
- The **Drug Controller General of India (DCGI)**, which is an organ of the CDSCO, is responsible for approving and licensing of drugs and medical devices.

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