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Indigenously Developed Flow Diverters Stents

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Why in News

The research team of Sree Chitra Thirunal Institute of Medical Science and Technology (SCTIMST), Thiruvananthapuram has developed an **intracranial flow diverter stent for the treatment of aneurysms of the blood vessels of the brain.**

- Currently, the flow diverter stents are **imported and are not manufactured in India.**
- The availability of indigenous technology will help to manufacture these stents at a **much lower price within the country.**

SCTIMST is an **Institute of National Importance** under the **Department of Science and Technology.**

Key Points



- Flow diverters stents are deployed in the artery in the brain bearing the aneurysms to **divert blood flow away from the aneurysm**, thus reducing the chances of its rupture from the pressure of blood flow.
- The **weave shape of the designed stent** makes it **resistant to kinking or twisting** when it is placed in complex-shaped arteries.
- It is made up of **Nitinol, a superelastic alloy with shape memory** acquired from National AeroSpace Laboratories, Bengaluru (CSIR-NAL).

A shape-memory alloy is an alloy that can be deformed when cold but returns to its pre-deformed ("remembered") shape when heated.

Nitinol

- Nitinol is a **nickel-titanium alloy** distinguished from other materials by its **shape memory and superelastic characteristics**.
- It is discovered while searching for materials that could be used in tools for dismantling magnetic mines.
- It is widely used in various kinds of industries but **majorly used in the medical industry due to its narrow temperature range**.

Brain Aneurysm

- Brain aneurysm is also known as **Intracranial aneurysm**.
- Intracranial aneurysm is a **localised ballooning, bulging or dilation of arteries** in the brain, caused by progressive weakening of the inner muscles of the wall of the blood vessels.
- Spontaneous rupture of the aneurysm can result in bleeding into the space around the brain **leading to paralysis, coma or death**.

Source: PIB