Aortic Stenosis & TAVI

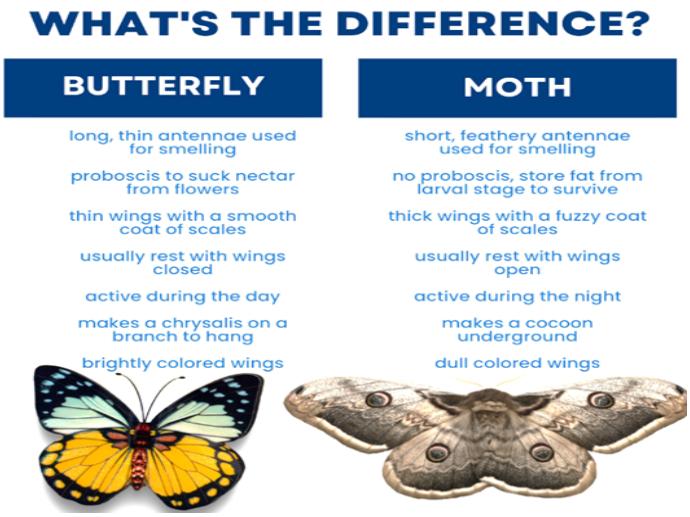
Prelims (GS - I) – *General Science.*

Mains (GS - III) – *Science and Technology- developments and their applications and effects in everyday life.*

Why in News?

TAVI is a minimally invasive procedure for treating severe heart valve diseases in high-risk patients.

- **Aortic Stenosis** – It is a condition where the ***aortic valve narrows***, obstructing blood flow from the heart to the aorta.
- As a result, the heart must work harder to pump blood, causing increased pressure within the heart chamber, which can lead to further complications.
- Aortic valve is a door that separates the heart from the aorta, the largest artery that carries blood to different organs of our body.
- As people age, the valve stops working properly. It becomes stiff and calcified (like a bony structure) that restricts its movements.



- **Common causes -** Degenerative aortic valve disease, bicuspid aortic valve disease and rheumatic heart disease.
- **Prevalence** - 0.4% in the general population and as high as 2.8% in people above the age of 75 years. It is also estimated that more than 10% of individual may have it after 80 years.
- **Symptoms -** Most of the patients remain asymptomatic till the disease becomes severe.
- **Some symptoms include -** Breathlessness, chest pain, syncope (passing out) and fatigue. Some of the individuals develop the weakness of the left side of the heart due

to this disease.

- **Diagnosis -** Echocardiogram plays pivotal role in diagnosing the problem.
- **Treatment -**Until a few years ago, the treatment for this condition was surgical replacement of the valve through *open-heart surgery*.
- **Transcatheter Aortic Valve Replacement (TAVI)** – *First done in 2002* by professor Alain Cribier, France.
- It is the ***first percutaneous valve replacement procedure***, where a new valve is implanted into the old, diseased valve via the arteries.
- It is also known as Transcatheter Aortic Valve Implantation (TAVR).
- TAVI is superior to ***Surgical Aortic Valve Replacement (SAVR).***
- TAVI is a minimally invasive procedure, and patients can often be discharged successfully within 2-3 days after the procedure.
- In younger patients, Surgical Aortic Valve Replacement (SAVR) remains the treatment of choice.
- However, in older patients, transcatheter aortic valve implantation (TAVI) is done through the leg arteries for patients aged 65 or older or for those expected to have a life expectancy of less than 10 years.
- The ESC (European Society of Cardiology) recommends considering TAVI for patients older than 75.

Reference

The Hindu | Transcatheter Aortic Valve Replacement (TAVI)