RTS,S or Mosquirix - World's First Malaria Vaccine

Why in news?

A pilot program testing a new malaria vaccine, RTS,S, or Mosquirix, began in the African country of Malawi.

What is Malaria?

- Malaria is a potentially life-threatening parasitic disease.
- It is caused by the parasites -
    i. Plasmodium viviax (P.vivax)
    ii. Plasmodium falciparum (P.falciparum)
    iii. Plasmodium malariae (P.malariae)
    iv. Plasmodium ovale (P.ovale)
- The parasite gets transmitted by the female Anopheles mosquito.
- In the human liver, it can mature, multiply, re-enter the bloodstream, and infect red blood cells, which can lead to disease symptoms.

What is the RTS,S vaccine?

- The RTS,S vaccine is the first, and to date, the only, vaccine that has demonstrated that it could significantly reduce malaria in children.
- RTS,S is a scientific name given to this malaria vaccine candidate and represents its composition.
- It aims to trigger the immune system to defend against the first stages of malaria.
- This is when the parasite enters the human host’s bloodstream through a mosquito bite and infects liver cells.
- The vaccine is designed to prevent the parasite from infecting the liver.
- The vaccine has been developed by GSK (former GlaxoSmithKline), which is donating about 10 million doses of the product for the pilot.
- It was created in 1987 by GSK, and was subsequently developed with support from the Bill and Melinda Gates Foundation.
- In clinical trials, the vaccine was found to prevent approximately 4 in 10 malaria cases, including 3 in 10 cases of life-threatening severe malaria.

What is the pilot programme?

- The WHO welcomed the pilot project in Malawi of administering the malaria vaccine to children below the age of 2 years.
- Malawi will be followed by Kenya and Ghana.
- In the selected areas in the three countries, the vaccine will be given in four doses.
- Three doses will be given between 5 and 9 months of age, and the fourth dose around the child's second birthday.
- A total of 3,60,000 children across the three African countries will be covered every year with the vaccine.
- GSK will assess the results and also work with WHO and *PATH* to secure the vaccine's sustained global health impact.
- Once the pilots have been completed, the WHO will review the results and come out with its recommendations for the use of the vaccine.

How significant is this?

- Malaria is certainly a major global public health challenge.
- According to the WHO, malaria remains one of the world's leading killers, claiming the life of a child every 2 minutes.
- Most of these deaths are in Africa, where more than 2,50,000 children die from the disease every year.
- Children under the age of 5, and poorest children among them, are at greatest risk from its life-threatening complications.
- Worldwide, malaria kills 4,35,000 people a year, most of them children.
- Moreover, with global warming on the rise, there are predictions of vectors such as mosquitos seeing an explosive rise the world over.
- These include areas where they are traditionally not found.
- The malaria vaccine thus has the potential to save tens of thousands of lives, especially of the children.

What is the case with India?

- India ranks very high in the list of countries with a serious malaria burden.
- Odisha (40%), Chhattisgarh (20%), Jharkhand (20%), Meghalaya, Arunachal Pradesh, and Mizoram (5-7%) bear the brunt of malaria in India.
- These states, along with the tribal areas of Maharashtra and Madhya Pradesh, account for 90% of India's malaria burden.
- In 2018, around 3, 99,000 cases of malaria and 85 deaths due to the disease were reported in the country.
- But there is a contention that India may be recording only just 8% of the actual number of malaria cases.
- Although it is a notifiable disease, it is only voluntary notification as there

are no penalties for doctors or hospitals not doing so.
- 60% to 80% of patients in the urban areas are treated by private doctors or health establishments, most of whom do not notify cases.

Source: Indian Express

Quick Fact

PATH

- PATH is an international non-profit team of innovators.
- It advises and partners with public institutions, businesses, grassroots groups, and investors to tackle serious global health problems, including malaria.
- Under its Malaria Vaccine Initiative (MVI), PATH works with various stakeholders towards the development of a malaria vaccine.

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