Understanding Zika

What is the issue?

India should have a clear knowledge on Zika epidemiology before its next outbreak.

What is Zika?

- Zika is a viral infection, spread by mosquitoes, the vector is the Aedes aegypti mosquito, which also spreads dengue and chikungunya.
- Additionally, infected people can transmit Zika sexually.
- Most people infected with the virus do not develop symptoms, the symptoms are similar to those of flu, including fever body ache, headache etc.
- Additional symptoms can include the occasional rash like in dengue, while some patients also have conjunctivitis.
- Also, fears around Zika primarily involve microcephaly, especially when pregnant women are infected.
- Microcephaly is a condition in which babies are born with small and underdeveloped brains.
- In India, Madhya Pradesh and Rajasthan saw large outbreaks of Zika in 2018.

How does dengue influence Zika outbreaks?

- Two studies published earlier this year show conflicting evidence for the role of dengue in Zika outbreaks.
- The first study showed that in mice, the presence of dengue antibodies led to more placental damage and restricted foetal growth due to Zika.
- Another study showed that people infected by dengue were protected against Zika during an outbreak in Salvador, Brazil.
- Given this conflicting evidence, scientists are very far from understanding what makes Zika deadly to foetuses.
- This means that any data on how the pregnancies of Zika-infected women pan out in India can be of much help to the health authorities.
- Thus, careful studies must be carried out to see if there is increased prevalence of microcephaly in India, and to understand the risk-factors.

What are the measures needed?

- **Screening** - The TORCH (Toxoplasmosis, Other, Rubella, Cytomegalovirus, and Herpes) infections are known to cause foetal abnormalities, including microcephaly, among newborns.
- Thus, wherever women are screened for TORCH, they must also be screened for Zika.
- **Monitoring** - There is no evidence conclusively linking a particular viral strain or mutation with foetal anomalies so far.
- The Indian Council of Medical Research (ICMR) said during the outbreak in Rajasthan, the Rajasthan strain did not have the S139N mutation – which is linked to microcephaly.
- However, conclusion from several research across the globe shows that all Zika strains can cause microcephaly.
- Thus, the health authorities in the states of Rajasthan and Madhya Pradesh must follow up on every pregnant woman who was diagnosed Zika positive last year.
- **Focus** - Health authorities should gather information that concerns population immunity.
- To study immunity, authorities must conduct seroprevalence surveys, in which they screen people in several States for antibodies to zika and subsequently identify pockets of low immunity in India.
- Health authorities can then focus their efforts on these regions, because they would be most vulnerable to future outbreaks.

What should be done further?

- Seroprevalence studies are not easy to do, given the cross-reactivity that plagues flaviviruses.
- The Enzyme-linked immunosorbent Assay (ELISA), which is commonly used in seroprevalence studies to detect antibodies, can throw up false positives for Zika if a person has dengue antibodies.
- This is because dengue antibodies can neutralise Zika and vice versa.
- Hence, the researchers around the globe are working to develop alternative tests that are specific to Zika alone.
- A multinational team has developed an ELISA test that is able to distinguish Zika from dengue.
- The test was used in a survey at Managua, Nicaragua after a large epidemic hit the city in 2016.
- It found that in 2017, 56% of tested adults had antibodies to Zika, suggesting that the city wouldn’t see another large epidemic in the near future.
- Thus, India should consider doing such surveys in its own geographical region as soon as possible and should not wait until the mosquito season begins again.

Source: The Hindu

