Ct Value: Covid-19 Test

Why in News

The **ICMR (Indian Council of medical Research)** has decided a single Ct value cut-off for determining whether a patient is positive for **Covid-19.**

> Ct is a value that emerges during **RT-PCR tests.** All patients with a **Ct value** less than **35** may be considered **as positive** while those with **a Ct value** above **35 may be** considered **as negative.**

Key Points

- **RT-PCR Tests:**
  - In an **RT-PCR (Reverse Transcription Polymerase Chain Reaction)** test, **RNA (Ribonucleic acid) is extracted** from the swab collected from the patient. It is **then converted into DNA (Deoxyribonucleic acid)**, which is **then amplified.**
  - **Amplification** refers to the **process of creating multiple copies of the genetic material** - in this case, DNA.
    This **improves the ability of the test to detect the presence of the virus.**
  - Amplification **takes place through a series of cycles**—one copy becomes two, two becomes four, and so on—and it is **after multiple cycles that a detectable amount of virus is produced.**

- **Ct Value:**
  - **Ct** is short for **'Cycle Threshold'.**
  - The Ct value **refers to the number of cycles after which the virus can be detected.**
  - If **a higher number** of cycles is required, it implies that the **virus went undetected** when the number of cycles was lower.
  - The **lower the Ct value**, the **higher the viral load**-because the virus has been spotted after fewer cycles.
  - It has been found that the **time since the onset of symptoms has a stronger relationship with Ct values as compared to the severity of the disease.**
- **Viral Load:**
  - It **refers to the amount of genetic material**, commonly RNA, of **a virus present in an infected person's blood.**
  - This is **expressed as** the total number of viral particles present in each millilitre of blood.
  - A **higher viral load** in the blood means that **the virus is replicating and the infection is progressing.**
  - An infected person with a high viral load is more likely to shed more virus particles, in the process known as **"viral shedding".**

Source: IE