Meta-analysis does not support continued use of point-of-care serological tests for COVID-19

Serological test

- Serological tests to detect antibodies against novel coronavirus (SARS-CoV-2) could improve diagnosis of COVID-19 and be useful tools for epidemiological surveillance.

Epidemiology

- It is the branch of medicine which deals with the incidence, distribution, and possible control of diseases and other factors relating to health.

- These have been seen as a tool to issue immunity passports or certificates so that already-infected people can move around freely. There has been increasing number of serological tests, and many are being marketed for point-of-care use.

What is point-of-care testing?

- Point-of-care testing (POCT or bedside testing) is defined as medical diagnostic testing at or near the point of care—that is, at the time and place of patient care.
- This contrasts with the historical pattern in which testing was wholly or mostly confined to the medical laboratory, which entailed sending off specimens away from the point of care and then waiting hours or days to learn the results, during which time care must continue without the desired information.

- A systematic review and meta-analysis of 40 studies of antibody testing for novel coronavirus (SARS-CoV-2) has found “major weaknesses” in the evidence base for serological tests.
- The “evidence does not support the continued use of existing point-of-care serological tests for COVID-19”, says a study published in The British Medical Journal.
Risk of bias

- The evidence is “particularly weak” for point-of-care serological tests.
- The study warns: “Our findings should also give pause to governments that are contemplating the use of serological tests — in particular, point-of-care tests — to issue immunity certificates or passports.”

Primary outcomes

- The primary outcome of the analysis was to evaluate the overall sensitivity and specificity based on the method of serological testing — ELISA, lateral flow immunoassays (LFIAs), or chemiluminescent immunoassays (CLIAs), and immunoglobulin class (IgG, IgM or both).
- The study found high risk of patient selection bias in 98% (48/49 studies) of assessments, and high or unclear risk of bias from performance or interpretation of the serological test in 73% (36/49) of studies. Only as little as 10% (4/40) of studies included outpatients.

What is pooled sensitivity?

- Pooling of results is a Meta-analysis method used to combine the results of different studies in order to get qualitative analysis. Usually used when the size of study is too small to evaluate the effect or relationship. So, pooling results will increase the power of statistical analyses.