COVID-19 Pre-Procedural Testing: What about the False Positives?

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Abstract:

In the COVID era, pre-procedural patients are almost uniformly screened for symptoms, asked to quarantine preoperatively and then undergo a test of uncertain validity with very low pre-test probability. A small percentage of these tests return positive and as a result, surgical procedures are delayed and patients are required to quarantine. Are these asymptomatic patients truly positive for COVID-19?

Due to the lack of a gold standard test for SARS-CoV-2 and the designed leniency in FDA approval for new diagnostic tests, there is reason to question the validity of SARS-CoV-2 reverse transcriptase polymerase chain reaction (RT-PCR) assays. Comparison of RT-PCR results to clinical diagnosis in hospitalized COVID-19 inpatients in China showed that false negative rates varied significantly based upon the specimen source, with nasal swabs yielding a false negative rate of 37% (Wang et al., JAMA, 2020). What is more, the validity of these assays varies with the viral load and the natural history of the disease, with peak sensitivity occurring three days after symptom onset (Kucirka et al., Ann Intern Med, 2020).

False positives must also be considered. A recent FDA letter to healthcare providers highlighted the potential for false positive results with SARS-CoV-2 rapid antigen assays and advocated for critical consideration of results (www.fda.gov). In the following commentary, we review how the uncertain validity of RT-PCR testing combined with a low-prevalence population predispose for false positive results. As a mitigation strategy, we ask that surgeons refocus on the fundamental principal of diagnostic testing: pre-test probability.