

Reliability of induced sputum test in detection of SARS CoV-2 versus nasopharyngeal swab in COVID-19 patients

Thesis submitted

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ABSTRACT

A new coronavirus (SARS-CoV-2) (COVID-19) occurred in Wuhan, China, in December 2019. The most significant approach for confirmation was a real-time reverse transcription-polymerase chain reaction test (qRT-PCR). Unfortunately, sample collection was largely Nasopharyngeal and oropharyngeal swabs, making it easier to miss the diagnosis. Therefore, other specimens with higher detection efficiency and accuracy must be sought.

This research aims to compare the reliability of an induced sputum test against a nasopharyngeal swab for detecting SARS CoV-2 in COVID-19 patients.

Symptomatic COVID-19 patients visiting Fayoum University Hospitals from April to October 2021 were included in this research, which comprised 60 patients who met the selection criteria and constituted the study population.

COVID-19 was suspected in both male and female individuals. Patient data collection, computed tomography of the chest (CT-Chest), and laboratory investigations, including detection of COVID-19 RNA by reverse transcription-polymerase chain reaction (RT-PCR) and determination of cycle threshold (ct) value in sputum and nasopharyngeal samples on the 3rd and 10th days after onset of symptoms.

The average age of the research participants was 32 years, with a female majority (65 percent).

Fever and cough were the most common symptoms, followed by dyspnea, anosmia, and diarrhea (81.7 percent, 78.3 percent, 25 percent, 23 percent & 10 percent, respectively)

Our findings indicated that lymphocyte percentages were lower in some patients (34.3%), with a median value of 2.1 10⁹ per L, while CRP

levels were higher in others, with a median value of 5.5. Lymphopenia and elevated CRP seemed to be linked to illness severity and viral load since they were more common in patients with a high viral load. GGOs were the most prevalent radiological results in our investigation.

The clinical severity of the illness was highly linked to the CT results.

Sputum samples had a higher positive rate and viral load than NP swabs on the 10th day but were lower on the 3rd day.