LUNG ULTRASOUND IN RULING OUT COVID-19 AMONG HEALTHCARE WORKERS IN TWO ITALIAN EMERGENCY DEPARTMENTS: A MULTICENTER STUDY.

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Abstract

Purpose: The high percentage of asymptomatic patients and the non-high sensitivity of real-time reverse transcription-polymerase chain reaction (RT-PCR) test on nasopharyngeal swab cause some healthcare workers to be infected but asymptomatic and a source of spread of the epidemic. This study aimed to verify if the lung ultrasound (LUS) had enough high negative predictive value to rule out coronavirus disease 2019 (COVID-19) among a population of healthcare workers operating in the Emergency Department. **Methods:** A multicenter prospective observational study was conducted, enrolling healthcare workers among the staff of two Emergency Departments in Northeast Italy. The definitive diagnosis of COVID-19 was established by an adjudication committee, based on the clinical data and RT-PCR on nasopharyngeal swab result. **Results:** From March 30, 2020, to April 22, 2020, we enrolled 155 cases. The adjudication committee determined two true positives for COVID-19. Twenty-one healthcare workers presented suggestive symptoms (2 true positives and 19 false positives). The nasopharyngeal swab was positive in one case (1 false-negative case). LUS was suggestive for COVID-19 pneumonia in 4 cases (2 false-positive cases). The diagnostic accuracy of LUS was 98.7% (95% CI 95.4%-99.8%). The sensitivity and the specificity of LUS were 100% (95% CI 15.8% -100%) and 98.7% (95% CI 95.4% - 99.8%), respectively. The negative predictive value was 100% (95% CI 100% -100%). **Conclusion:** LUS has a good enough negative predictive value for ruling out COVID-19 in a population of healthcare workers exposed to COVID-19.

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