

TYPE DE PRÉLÈVEMENT POUR LA PCR

07/06/2020

Question :

Est-ce que le prélèvement au niveau de la gorge pourrait remplacer le prélèvement nasopharyngé ?

Avis :

A ce jour, peu d'évidence scientifique est disponible sur les alternatives aux prélèvements nasopharyngés pour la PCR, mais un prélèvement oropharyngé semble être moins sensible et n'est donc pas (encore) recommandé comme alternative étant utilisé seul.

Quelques études ont été réalisées ou sont en cours en Belgique (UZA, ULiège) mais les résultats ne sont pas encore disponibles.

Le prélèvement salivaire semble être prometteur parce que facile à prélever mais plus de données sont également nécessaires. Des études sont également en cours ou vont démarrer (notamment KUL, Sciensano, ULiège...), mais il n'y a à ce jour pas encore de résultats disponibles.

Une révision de cet avis pourra être faite lorsque les résultats des études en Belgique seront connus.

LITERATURE

PCR tests are indicated for the qualitative detection of nucleic acid from SARS-CoV-2 on upper respiratory tract samples (eg. naso-pharyngeal specimens, oro-pharyngeal specimens) and lower respiratory tract samples (eg. bronchoalveolar lavage (BAL) specimens, endotracheal aspirates, expectorated sputum). First line testing generally involves upper respiratory tract samples, which are easier to perform and have lower viral transmission risk.

BAL showed 100% sensitivity in severe cases in days 8 to 14 of onset. In this time period, positive rate of sputum remained higher than that of nasopharyngeal swabs, and positive rates of pharyngeal samples dropped to 50% in severe and 29.6% in mild cases. This is not unexpected as viral load in the upper respiratory tract is highest one day before and the days immediately after onset of symptoms [1-4].

On March 26, only 2 studies were published to compare the accuracy of oropharyngeal and nasopharyngeal swabs. The first study was a Chinese study on 213 patients, analyzing 866 respiratory tract samples. In the first week of symptom onset, sputum samples showed the highest positive rate in both severe (88.9%) and mild (82.2%) cases, followed by nasopharyngeal swabs (73.3%, 72.1%) and throat swabs (60.0%, 61.3%) [5].

A second study on viral load courses by RT-PCR on oro- and nasopharyngeal swabs, sputum, stool, blood, and urine in nine hospitalized cases reported no difference in detection rates between OP and NP swabs taken on days 1-5 [6]. Based on these two studies, the Centre for

Evidence-Based Medicine (CEBM) from the Oxford University concluded that the accuracy of oropharyngeal compared to nasopharyngeal swabs could not be assessed [7].

A more recent publication compared the performance of a RT-PCR test between nasopharyngeal and oropharyngeal swabs on samples of 353 patients in China. The results show a significant difference in the positive RT-PCR test results; 73.1% of nasopharyngeal positive cases were negative in oropharyngeal swab. This indicates that false negative results may occur using oropharyngeal swab only [8].

Studies on saliva

A cross-sectional study in Thailand collected 200 samples of saliva, standard nasopharyngeal and throat swabs in persons seeking care at an acute respiratory infection clinic in a university hospital, to compare the results on saliva to nasopharyngeal and throat swab RT-PCR as the reference standard [9]. The prevalence of COVID-19 diagnosed by nasopharyngeal and throat swab RT-PCR was 9.5%. The sensitivity and specificity of the saliva sample RT-PCR were 84.2% (95% confidence interval (CI) 60.4%-96.6%), and 98.9% (95% CI 96.1%-99.9%), respectively. An analysis of the agreement between the two specimens demonstrated 97.5% observed agreement (kappa coefficient 0.851, 95% CI 0.723-0.979; $p < 0.001$). According to this study, saliva might be an alternative specimen for the diagnosis of COVID-19.

A small study in South Korea on two patients with COVID-19 evaluated the viral dynamics (by rRt-PCR in various body fluid specimens, such as nasopharyngeal swab, oropharyngeal swab, saliva, sputum, and urine specimens, from hospital day 1 to 9. Results showed that SARS-CoV-2 was detected from all the five specimens of both patients by rRT-PCR. For both patients, the viral load was the highest in the nasopharynx, but it was also remarkably high in the saliva. SARS-CoV-2 was also detected up to hospital day 6 (illness day 9 for patient 2) from the saliva of both patients [10].

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