Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Study conclude that routinely monitoring of sputum viral load in severe COVID-19 patients may be beneficial for development of infection control guidelines and prediction of prognosis: We are not sure!

With great interest, we read the article by Boef et al. who observed a higher viral load in sputum samples than in nasopharyngeal samples in the first two weeks after intubation and viral RNA was detected in nasopharyngeal samples for more than 35 days in 5 patients [1]. Whether prolonged or relapsing viral detection also has implications for infection control remains to be elucidated [1]. Routinely monitoring of sputum viral load in severe COVID-19 patients may be beneficial for development of infection control guidelines and prediction of prognosis [1]. They observed a trend towards better survival in patients with early clearance from sputum [1]. We would like to comment as we believe that this study could mislead the clinicians by saying this. It has been reported that broncho-alveolar lavage (BAL) samples have the highest sensitivity in identifying COVID-19, followed by sputum and nasal swab with positive rates of 93%, 72% and 63%, respectively [2,3]. Similarly,Wang and colleagues found SARS-CoV-2 RNA in 14 out of 15 (93%) BAL samples but in only 126 out of 398 (32%) pharyngeal swabs from patients with COVID-19 [3].Accordingly, it is difficult to imagine that the viral load of the sputum specimen is closely related to prognosis [1] as it is less sensitive than BAL samples. It stand to reason that negative nasopharyngeal and sputum samples does not mean (and even far from) that BAL samples should be negative.In some way, establishing a prognosis upon a negative nasopharyngeal and sputum samples might mislead the clinician as the BAL might still be positive and could push the clinicians to reduce the therapy level whereas virus and RNA can still be found in the BAL while negative in the sputum. Lastly, single-use flexible bronchoscopes can facilitate the realization of BAL at the bedside and may be very useful and cost-effective in the setting of the current coronavirus pandemic [4].In addition,BAL may provide additional items for establishing a better prognosis tool as compared to sputum. For instance, alveolitis, associated with COVID-19, is mainly sustained by innate effectors which showed features of extensive activation [5]. Also, the burden of pro-inflammatory cytokines IL6 and IL8 in the BAL environment is associated with clinical outcome [5]. Finally, cytological analysis of BAL performed in patients with moderate to severe COVID-19–related acute respiratory distress syndrome (ARDS) typically shows a high cellularity, with neutrophilic alveolitis that could be linked to bacterial or fungal superinfections often observed in our population and/or be a hallmark of moderate to severe SARS-CoV-2–related ARDS itself [6]. By the way, telling us that sputum may be beneficial for development of infection control guidelines is not through and again could mislead the clinician.The only way to detect nosocomial infection is BAL and nothing else.BAL may also reveal lymphocytosis, with a marked proportion of activated lymphocytes, especially when patients still carry the virus, at the early stage of the disease [6]. In some series, BAL was performed after a systematic noninvasive microbiological workup, it had a non -negligible diagnostic yield and impact on medical decisions [6].

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References

[1] Boef AGC, van Wezel EM, Gard L, et al. Viral load dynamics in intubated patients with COVID-19 admitted to the intensive care unit. J Crit Care. 2021 Aug;64:219–25. https://doi.org/10.1016/j.jcrc.2021.04.010 (Epub 2021 Apr 22. PMID: 34023553; PMCID: PMC8061635).

[2] Wang W, Xu Y, Gao R, et al. Detection of SARS-CoV-2 in different types of clinical specimens. JAMA. March 11, 2020. https://doi.org/10.1001/jama.2020.3786 Published online.

[3] Tan GC, Cheong SK. The challenges of Covid-19 testing: time for Pathologists to rise to the occasion. Malaysian J Pathol. 2020;42(1):1.

[4] Honore PM, Mugisha A, Kugener L, Redant S, Attou R, Gallerani A, et al. With the current COVID pandemic: should we use single-use flexible bronchoscopes instead of conventional bronchoscopes? Crit Care. 2020 May 18;24(1):234. https://doi.org/10.1186/s13054-020-02965-9.

[5] Pandolfi L, Fossali T, Frangipane V, et al. Broncho-alveolar inflammation in COVID-19 patients: a correlation with clinical outcome. BMC Pulm Med. 2020 Nov 16;20(1):301. https://doi.org/10.1186/s12890-020-01343-z (PMID: 33198751; PMCID: PMC7668012).

[6] Baron A, Hachem M, Tran Van Nhieu J, et al. Bronchoalveolar lavage in patients with COVID-19 with invasive mechanical ventilation for acute respiratory distress

https://doi.org/10.1016/j.jcrc.2021.10.005

syndrome. Ann Am Thorac Soc. 2021 Apr;18(4):723–6. https://doi.org/10.1513/AnnalsATS.202007-868RL (PMID: 33233944; PMCID: PMC8009009).

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