

Is spinal anaesthesia an aerosol-generating procedure? Transmission of SARS-CoV-2 from patient to anaesthetist

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Editor—The recently published study by Zhong and colleagues¹ from Zhongnan Hospital in Wuhan found that 57.1% of anaesthetists who had performed spinal anaesthesia on patients with confirmed coronavirus disease 2019 (COVID-19), wearing a surgical mask, hat, gloves, and gown ('Level 1 personal protective equipment [PPE]'), subsequently tested positive for the virus. In contrast, only 2.7% of those wearing fully encapsulating protective suits, two pairs of gloves, and using self-contained positive pressure breathing apparatus ('Level 3 PPE') became infected. The majority of these patients were women undergoing Caesarean section. Is this evidence that the guidelines on PPE for anaesthetists produced by the Royal College of Anaesthetists in conjunction with the Obstetric Anaesthetists' Association are wrong?² This guidance suggests that PPE for aerosol-generating procedures (filtering facepiece 3 [FFP3] mask, gown, gloves, and eye protection but not including the positive pressure breathing apparatus) should be used only if general anaesthesia is planned or there is a chance it will be necessary.

Regional anaesthetic techniques are not classified as aerosol-generating procedures. According to the authors, the anaesthetists had no contact with COVID-19-positive patients 'beyond the operating theatre', and none of the anaesthetists who subsequently tested positive had infected family members. However, at the time of the data collection (from the beginning of January until mid-February 2020) Wuhan was the epicentre of the COVID-19 outbreak with an estimated 75 815 cases in the city by January 25, 2020 and a doubling time of 6.4 days.³ In addition, the authors stated that a substantial proportion of anaesthetists had symptoms consistent with COVID-19 at the time they administered spinal anaesthesia: 35% had a cough, 25% had a headache, 22.7% had a sore throat, and one had fever. These

findings have not been commented on, but they must call into question the authors' conclusion that wearing Level 3 PPE reduces the risk of transmission of COVID-19 to anaesthetic staff during administration of spinal anaesthesia. We were surprised that the anaesthetists with symptoms of COVID-19 were providing clinical care and not self-isolating. We believe that the study does not provide sufficient evidence to change the current guidelines that anaesthetists performing regional anaesthetic techniques, which are non-aerosol generating, can be cared for using Level 1 PPE.

Declarations of interest

The authors declare that they have no conflicts of interest.

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More information needed for patients with COVID-19 receiving spinal anaesthesia

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Editor—Zhong and colleagues¹ reported on the safety of administering spinal anaesthesia to patients with coronavirus disease 2019 (COVID-19) and the subsequent transmission rates to the anaesthetists providing their care. We congratulate the authors on the rapidity of their publication on a topic that lacks published data and directly pertains to the safety of patients and physicians. However, there are several points that could benefit from further clarification.

First, we question why different criteria were used to identify COVID-19 in patients vs anaesthetists. Patients in the study were diagnosed with COVID-19 not by laboratory testing, but rather by clinical criteria established by the National Health Commission of China (NHCC).² Only 13 of the 49 patients considered positive in this manner had confirmatory reverse transcription–polymerase chain reaction (RT–PCR) tests, which is significantly lower than described elsewhere.³ This raises the question of how many patients in the study were truly infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) at the time of surgery. Comparing differences in outcomes between patients with only a clinical diagnosis vs those with positive RT–PCR testing would be informative. The criteria used to diagnose patients in the study contrast with the criteria used for anaesthetists, who were required to have a positive RT–PCR test. Only five of the 44 anaesthetists were positive in this manner, but a significant number of them had symptoms consistent with infection as described in Table 4. It would be instructive to know how many of the anaesthetists would have been positive using the NHCC clinical criteria.

Secondly, the primary objective of the study was to describe the safety of neuraxial anaesthesia in COVID-19 patients. Although the authors report some important clinical outcomes, other data specific for COVID-19 including baseline oxygen saturations, indications for supplemental oxygen, and blood pressure trends greater than 5 min after surgery were not reported. Similarly, more data on the clinical characteristics of the anaesthetists would be beneficial. Of the five who contracted COVID-19, only one had symptoms but two required hospitalisation for supplementary oxygen. Patients with COVID-19 may have significant hypoxaemia without dyspnoea, but additional data regarding hospitalisation in this asymptomatic patient are not provided.⁴

A number of other discrepancies are present in the paper. The description of Table 4 suggests that a significant portion of anaesthetists had symptoms consistent with COVID-19 infection at the time they were delivering spinal anaesthesia. Did they really have these symptoms while caring for patients? This would be concerning in a location actively experiencing widespread transmission of SARS-CoV-2, especially considering that four of the five anaesthetists with confirmed infection had no symptoms at all. More specific data on the use of umifenovir would be helpful. For instance, the paper does not make it clear what percentage of the anaesthetists taking umifenovir subsequently became infected. Lack of these data weakens any conclusions that can be drawn regarding the protective effects of different levels of personal protective equipment. Finally, 42 of the 49 patients are reported as being female, whereas 45 of the 49 patients underwent Caesarean sections, implying that some men underwent this procedure.

This study is a valuable contribution to the field of anaesthesia, and obstetric anaesthesia in particular, at a time when limited information exists on COVID-19 in parturients. However, we feel that additional clarification on several points in the paper would further strengthen its utility.

Declarations of interest

The authors declare that they have no conflicts of interest.

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