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## Tube or not tube in COVID-19 positive patients: that is the question

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## **Tube or not tube in COVID-19 positive patients: that is the question**

### **- Letter to the Editor -**

Patient's airways management is essential for adequate oxygenation and ventilation; failure to do so, even for a brief period of time, can be life threatening. In addition, medical literature has revealed a significant association between obesity and the rate of difficult tracheal intubation, difficult laryngoscopy and Mallampati scores  $\geq 3$ , so as a higher risk of OSA (obstructive sleep apnea).

Regional anaesthesia is ideal for obese patients, because it can offer the possibility to avoid airway manipulation, cardio-depressant inhaled anaesthetics and respiratory depressant opioids [plus], and is recommended by American Society of Anesthesia (ASA) in obese patients with OSA, when possible. Overall, when regional anesthesia is used, anaesthesiologists should always be prepared to obtain airway access in case of a needed conversion to general anaesthesia [1].

What is more, the treatment of surgical patients who are confirmed or suspected of coronavirus disease 2019 (COVID-19) is a challenge for all anesthesiology. General anesthesia requiring airway intervention may exacerbate COVID-19 pneumonia, and aerosol generation during airway intervention risks COVID-19 transmission to medical staff. However, regional anesthesia is not an aerosol-generating procedure [2].

The patient consented to the publication of this report.

At San Salvatore Academic Hospital in L'Aquila, Italy, a 65-year-old woman, COVID-19 positive asymptomatic and negative for pneumonia, underwent a right supero-lateral quadrantectomy, with regional lymph node dissection that, according by surgeon, was not postponable. She was 175 cm tall, weighed 140 kg (BMI 45 kg/m), and had an ASA physical status classification 3. She had a number of comorbidities: hypertension, OSA, respiratory insufficiency, diabetes mellitus type 2,

dyslipidemia, peripheral neuropathy, empty saddle syndrome. Hemogasanalysis showed a  $paO_2 = 63$  and  $pCO_2 = 51$  with no oxygen implementation. The patient filled a lot of the criteria used to predict difficulty with intubation or ventilation: Mallampati = 3, STOP-Bang score = 7, El-Ganzouri score = 8, neck circumference of 43 cm. Two mg of midazolam intravenous (i.v.) were used at start. For this patients, we decided to do PECS-2 (Pectoralis and Serratus Plane type 2) block and Parasternal Block (PB) in sedation and spontaneous breathing, having in each moment everything we need for anticipated airway management difficulty. PECS-2 block and parasternal block (PB) were conducted in a block room using a linear sound and a 50 mm needle. The patients was placed in lateral position in order to keep away from operator the patients' droplets. PECS-2 block was performed: the needle progresses up to below the Pectoralis minor and above the Serratus anterior, depositing local anesthetic (20 ml of ropivacaine 0.75%) in this anatomical space (in order to cover the medial pectoral nerve and the lateral branches of the intercostals), and parasternal block with ropivacaine 0.375% between pectoralis major and intercostal muscle. Then, she underwent surgery in the operating room wearing surgical mask for all the surgery time and her vital signs were monitored: peripheral capillary oxygen saturation ( $SpO_2$ ), non-invasive blood pressure (NBPI), electrocardiogram, heart rate, End-Tidal  $CO_2$  ( $EtCO_2$ ) with propofol infusion in spontaneous breathing of 3–4 mg/kg/h was used in nasal cannula. During surgery, a nasal cannula was positioned under the patients surgical mask with 4 L/min of oxygen. No opioids were used nor vasopressor drugs. Surgery lasted approximately 1 hour. Then, she was monitored for 30 minutes and paracetamol 1 g/8 hours were set. No rescue therapy, no vomiting or nausea and no cardiac or respiratory complications were necessary during post-op.

General anesthesia requiring airway intervention may exacerbate COVID-19 pneumonia. Aerosol generation during airway intervention risks COVID-19 transmission to medical staff especially in

case of anticipated airway management difficulty. So, regional anesthesia may have some advantages over general anesthesia for this group of patients [2].

The incidence of difficult intubation ranges from 1% to 8%, and the incidence of failed intubation is approximately 0.05% to 0.35% [3]. These findings highlight the importance of considering regional anesthesia techniques as alternatives to general anesthesia for that patients.

Moreover, regional anaesthesia has reduced postoperative complications such as deep vein thrombosis, pulmonary embolism, pneumonia, and cardiac events [3] and overall hospital length of stay (and so, economic cost). Obese patients had similar pain scores (at rest), opioid requirements, incidence on postoperative nausea and vomiting (PONV), PACU (post anesthesia care unit) length of stay, and rate of unplanned hospital admission when compared to normal weight patients [4]. Moreover, use of regional anaesthesia can reduce the admission in intensive care unit (ICU) after surgery; many studies, in fact, support the idea that the benefits of direct ICU admission after many types of major elective noncardiac surgery are unclear.

In 2016 we saw a combination between PECS-1 block and Serratus Plane Block (SPB), as suggested by Bounzine et al., as an alternative to general anaesthesia and to locoregional conventional techniques in high-risk patients where the association of Serratus Plane block, PECS-1 block and Parasternal block, ensured a good quality anesthesia and a long-lasting analgesia.

In another study [5], ultrasound guided pectoral nerve block type 2 provided anaesthesia of lateral area of the thorax, from dermatomes T2 to T6 and ipsilateral parasternal block provided anaesthesia of medial area from T2 to T6. During surgical procedure, no supplemented opioids were used, and no perioperative complications were recorded.

The problem of the choice between general anaesthesia and loco-regional anaesthesia, in this type of patients, is still today a challenge for the anaesthetist. Literature suggests to use regional anaesthesia for surgery in patients with difficult airway's management know or predicted, but we

don't have enough data or indication about fascial block use in this type of patients. We propose this anaesthesiologic approach in case of anticipated airway management difficulty especially in a COVID-19 positive patients, recommending the use of a fascial block, trusting in future works that could validate our anaesthesiologic approach.

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