

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.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Contents lists available at ScienceDirect

European Journal of Obstetrics & Gynecology and Reproductive Biology



journal homepage: www.elsevier.com/locate/ejogrb

Correspondence

Intrapartum care of women with COVID-19: A practical approach



Dear Editor,

Obstetricians have steadily fought to improve outcomes for women over the past 3 decades, with the application of evidencebased medicine. The current COVID-19 pandemic has overwhelmed this standardized approach with a deluge of information, at times contradictory, leading to confusion in the labor ward regarding best practice. As community person-to-person transmission of the virus escalates, we will increasingly have to manage labor for COVID-19 positive patients. In this context, we have developed a comprehensive but concise information bulletin (Fig. 1), to allow all caregivers ease of access to the most up to date information. This is based on recommendations issued by the *International Society of Ultrasound in Obstetrics and Gynecology* [1], Royal College of Obstetricians and Gynaecologists [2], Collège National des Gynécologues et Obstétriciens Français [3], and Society for Obstetric Anesthesia and Perinatology [4].

Most of the recommendations highlighted in our bulletin are similar between the international bodies: multidisciplinary approach; mode of delivery as usually indicated; close monitoring of maternal vital signs; continuous fetal heart monitoring; conservative fluid therapy; oxygen therapy as needed; early neuraxial anesthesia; elective instrumental delivery according to maternal condition; and stabilization of the critically ill patient by specialists followed by cesarean section and appropriate protective measures.

However some discrepancies can be found between recommendations regarding the presence of birth partner, delayed umbilical cord clamping, separation of mother and baby, and use of nitrous oxide analgesia systems. We have to keep in mind that our current knowledge on management of COVID-19 during pregnancy is based on small cohort studies, experience of similar viral

Labor Anesthesia Monitoring Mother Epidural or spinal anesthesia Mode of delivery Close monitoring of vital signs As per obstetrical indication Not contraindicated by COVID-19 Continuous pulse oximetry Performed by senior anesthetist Multidisciplinary team care^o Oxygen therapy targeting > 94 % O2 Check platelets before procedure Latent phase of labor Hourly fluid input/output aiming for neutral Recommended before/early in labor to avoid fluid balance If mild symptoms of infection encourage to remain at home general anesthesia Hematology and biochemistry laboratory testing If suboptimal, rapidly inform anesthesiology **Birthing pools** • ECG team Contraindicated If impossible or contraindicated, anticipate Fetus Active management of labor Higher risk of fetal distress needs by development of back-up plan In case of moderate/severe symptoms Continuous fetal heart monitoring Nitrous oxide analgesia systems Instrumental deliveries and fetal scalp sampling: Insufficient evidence about the cleaning, Not contraindicated filtering, and potential aerosolization of system **Protective measures** Avoid its use in COVID-19 positive patients until Second stage of labor further data available Promote passive descent of fetal head Negative pressure isolation room Elective instrumental delivery for exhausted or hypoxic patient Opioids for pain relief All equipment stays in the isolated space Maternal condition deteriorating /septic shock/ ARDS Avoid due to possible adverse effects of opioid Appropriate disinfection of room and equipment Stabilize patient according to anesthetist and intensivist induced respiratory depression until further data PPE for staff available Cesarean section once patient stabilized Eye protection (goggles or face shield) Consider early epidural anesthesia instead **Emergency cesarean section** Surgical cap **General anesthesia** PPE is time consuming Gloves All staff present wear FFP2/N95 mask Warrants staff anticipation and proactive communication Gown with long sleeves Minimize team members in room during Surgical mask Neonate intubation and extubation If AGP : N95 or FFP2 mask, or equivalent + apron Delayed cord clamping possible Performed by senior anesthetist over gown No early cleaning of the newborn Rapid sequence induction Training in use of PPE Individualized decision concerning mother and baby separation Tight seal during pre-oxygenation Patient/partner and breastfeeding* Use video-laryngoscopy Test newborn for COVID-19 by RT-PCR Patient : surgical mask (wear mask over nasal Two pairs of gloves for all procedures and Placenta canula in case of O2 therapy) replace the outer pair after intubation Asymptomatic partner : surgical mask and Biohazardous waste appropriate hand hygiene If possible test for COVID-19 by RT-PCR Symptomatic partner : entry not permitted and **Birth partner/visitors** self isolation One birth partner allowed if asymptomatic Limit number of staff per case No access to the postnatal ward for visitors PPE: personal protection equipment; AGP: aerosol-generating procedures; COVID-19: 2019 novel coronavirus disease, ARDS: acute respiratory distress syndrome; RT-PCR reverse transcription polymerase chain reaction ^o Senior obstetrician, anesthesist, neonatologist, intensivist, infectious disease specialist, infectious control team and lead midwife * After risk/benefits discussion with neonatologist, infectious disease specialist, obstetrician, infectious control team

Fig. 1. Intrapartum care of women with COVID-19.

https://doi.org/10.1016/j.ejogrb.2020.04.018 0301-2115/© 2020 Elsevier B.V. All rights reserved. pulmonary infections and expert consensus, which generate divergent recommendations. Thus, guidelines will no doubt be adapted as we gather clinical data and experience.

Despite these anticipated developments, health care facilities should procure clear management protocols for care providers. Furthermore, it is also important for team members to undertake training in proper utilization of personal protective equipment and scenario simulation, such as emergency cesarean section, in order to ensure efficiency in patient care as well as protective measures.

Declaration of Competing Interest

We declare no competing interest.

References

[1] Poon LC, Yang H, Lee JCS, Copel JA, Leung TY, Zhang Y, et al. ISUOG Interim Guidance on 2019 novel coronavirus infection during pregnancy and puerperium: information for healthcare professionals. Ultrasound Obstet Gynecol 2020 published online March 11.

- [2] Royal College of Obstetricians and Gynaecologists. Coronavirus (COVID-19) infection and pregnancy. https://www.rcog.org.uk/coronavirus-pregnancy (accessed March 30, 2020).
- [3] Peyronnet V, Sibiude J, Deruelle P, Huissoud C, Lescure X, Lucet JC, et al. Infection with SARS-CoV-2 in pregnancy. Information and proposed care. CNGOF. Gynecol Obstet Fertil Senol 2020 published online March 18.
- [4] Society for Obstetric Anesthesia and Perinatology. Interim Considerations for Obstetric Anesthesia Care related to COVID-19. https://soap.org/education/ provider-education/expert-summaries/interim-considerations-for-obstetricanesthesia-care-related-to-covid19 (accessed March 30, 2020).

Joanna Sichitiu* David Desseauve Women-Mother-Child Department, Centre Hospitalier Universitaire Vaudois, Avenue Pierre-Decker 2, 1011, Lausanne, Switzerland

> * Corresponding author. *E-mail address:* joanna.sichitiu@chuv.ch (J. Sichitiu).

> > Received 30 March 2020