

Outcomes of SARS-CoV-2 infected pregnancies after medically assisted reproduction

Supplementary report

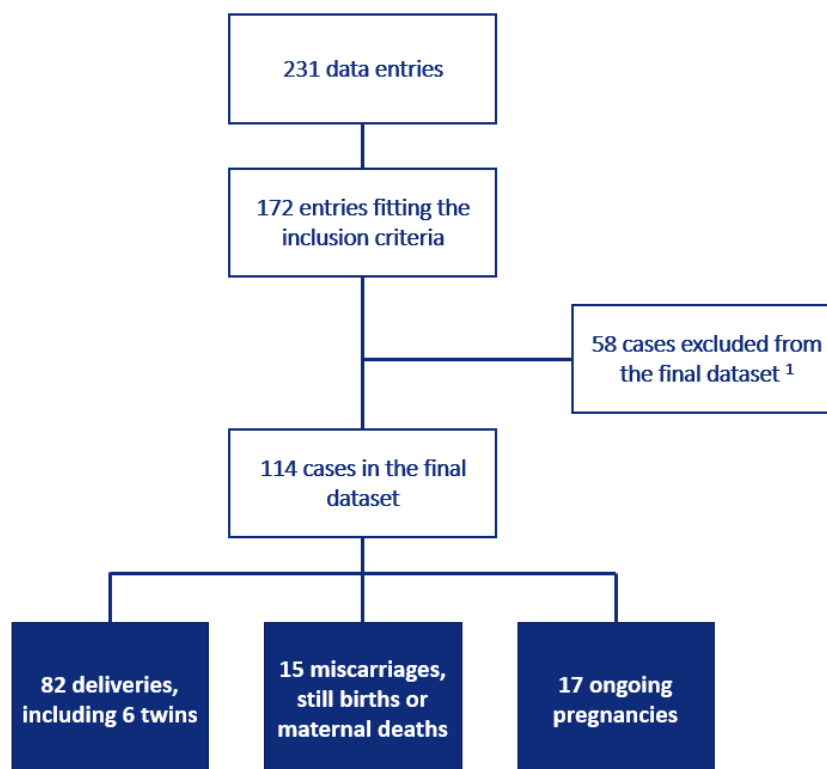
This supplementary report provides an update of the data included in the published report “*The ESHRE COVID-19 Working Group, Baris Ata, Luca Gianaroli, Kersti Lundin, Saria Mcheik, Edgar Mocanu, Satu Rautakallio-Hokkanen, Juha S Tapanainen, Nathalie Vermeulen, Anna Veiga, Outcomes of SARS-CoV-2 infected pregnancies after medically assisted reproduction, Human Reproduction, Volume 36, Issue 11, November 2021, Pages 2883–2890, <https://doi.org/10.1093/humrep/deab218>*”

The current report includes 114 cases, i.e. the 105 cases detailed in the paper and an additional 9 cases, which are either new cases or cases for which delivery data were only available after the previous publication.

This supplementary report provides an update of the tables and figures included in the paper, and an updated list of contributors. It should be read in conjunction with the details and considerations provided in the Human Reproduction paper referenced above.

The report is published on the ESHRE website and if relevant will be complemented with a next Supplementary report (provisionally scheduled for May 2022) which would include further collected delivery data of ongoing pregnancies.

Figure 1. Overview of data entries to final dataset



¹cases excluded from the final dataset included 52 cases that could not yet be validated, and 6 cases with incomplete data on delivery.

TABLE I. Overview of the characteristics of the COVID-19 infection and medically assisted reproduction techniques used for the 114 cases reported in total and subdivided according to the outcome of the pregnancy. Data are represented as numbers and percentages.

| | COVID-19 affected MAR pregnancies (n=114) | Characteristics according to outcome | | | |
|--|---|--------------------------------------|-----------------------------|-----------------------------|-----------------------------|
| | | Live births (n=82) | Miscarriage (n=10) | Stillbirth (n=3) | Maternal death (n=2) |
| Diagnosis COVID-19 | | | | | |
| RT-PCR | 105 (92.1 %) | 75 (91.5%) | 9 (90.0%) | 3 (100%) | 2 (100%) |
| Antibody | 3 (2.6%) | 3 (3.7%) | 0 | 0 | 0 |
| Other | 6 (5.3%) | 4 (4.9%) | 1 (10.0%) | 0 | 0 |
| Time of diagnosis | | | | | |
| During the MAR treatment (including 15 days after embryo transfer) | 11 (9.6%) | 5 (6.1%) | 3 (30.0%) | 0 | 0 |
| 1 st Trimester | 35 (30.7%) | 19 (23.2%) | 7 (70.0%) | 0 | 1 (50.0%) |
| 2 nd Trimester | 23 (20.2%) | 15 (18.3%) | 0 | 2 (66.7%) | 0 |
| 3 rd Trimester (including delivery) | 45 (39.5%) | 43 (52.4%) | 0 | 1 (33.3%) | 1 (50.0%) |
| Symptoms | | | | | |
| Asymptomatic | 34 (29.8%) | 26 (31.7%) | 3 (30.0%) | 0 | 0 |
| Fever | 46 (40.3%) | 31 (37.8%) | 4 (40.0%) | 1 (33.3%) | 2 (100%) |
| Cough | 40 (35.1%) | 27 (32.9%) | 3 (30.0%) | 2 (66.7%) | 2 (100%) |
| Anosmia | 33 (28.9%) | 23 (28.0%) | 3 (30.0%) | 1 (33.3%) | 1 (50.0%) |
| Ageusia | 17 (14.9%) | 11 (13.4%) | 4 (40.0%) | 0 | 1 (50.0%) |
| Gastrointestinal symptoms | 13 (11.4%) | 11 (13.4%) | 0 | 0 | 1 (50.0%) |
| Other | 23 (20.2%) | 18 (22.0%) | 2 (20.0%) | 1 (33.3%) | 1 (50.0%) |
| Hospitalization | | | | | |
| None | 78 (68.4%) | 52 (63.4%) | 9 (90.0%) | 1 (33.3%) | 0 |
| General ward | 29 (25.4%) | 26 (31.7%) | 1 (10.0%) | 1 (33.3%) | 0 |
| ICU | 3 (2.6%) | 2 (2.4%) | 0 | 0 | 1 (50.0%) |
| Respiratory support | 4 (3.5%) | 2 (2.4%) | 0 | 1 (33.3%) | 1 (50.0%) |
| MAR technique | | | | | |
| ART | 71 (62.3%) | 51 (62.2%) | 8 (80.0%) | 0 | 2 (100%) |
| Ovulation induction, with or without IUI | 42 (36.8%) | 31 (37.8%) | 2 (20.0%) | 3 (100%) | 0 |
| Maternal age | | | | | |
| Mean \pm SD age (years) ¹ | 33.9 \pm 6.0 ^a | 33.9 \pm 6.3 ^b | 37.3 \pm 3.9 ^c | 33.0 \pm 1.4 ^d | 28.5 \pm 4.9 ^e |

ART, assisted reproduction technologies; ICU, intensive care unit; IUI, intrauterine insemination; MAR, medically assisted reproduction, RT-PCR, real-time polymerase chain reaction; SD, standard deviation.

Data available for 91^a, 73^b, 7^c, 2^d and 2^e cases.

TABLE II. Overview of the deliveries and neonatal outcomes for 97 MAR pregnancy deliveries, resulting in 88 neonates. Data are represented as numbers and percentages.

| Pregnancies (n=97) | | |
|--|------------|--|
| Pregnancy complications | | |
| None | 55 (56.5%) | |
| Maternal death | 2 (2.1%) | |
| Stillbirth | 3 (3.1%) | |
| Miscarriage | 10 (10.3%) | |
| Ectopic pregnancy | 0 | |
| Excessive bleeding | 0 | |
| Pre-eclampsia | 1 (1.0%) | |
| Intrauterine growth restriction (IUGR) | 2 (2.1%) | |
| Preterm birth (< 37 weeks) | 13 (13.4%) | With vasa previa (1), pre-eclampsia (4), IUGR (1) |
| Very preterm birth (< 32 weeks) | 1 (1.0%) | With pre-eclampsia (1) |
| Extremely preterm birth (< 28 weeks) | 1 (1.0%) | |
| Hypertension | 2 (2.1%) | |
| Other | 7 (7.2%) | Uterine hyperstimulation (1), thrombophilia (1), haemorrhage (1), hyperemesis & polyhydramnios 25 weeks (1), Premature rupture of the fetal membranes failure to progress (1); Oligoamnios (1); gestational diabetes (1) |
| 82 live births | | |
| Mode of delivery | | |
| Vaginal delivery | 31 (37.8%) | |
| Caesarean section | 50 (61.0%) | |
| Unknown | 1 (1.2%) | |
| 88 neonates | | |
| Neonatal complications | | |
| None | 76 (86.4%) | |
| Respiratory symptoms | 7 (7.9%) | |
| Fever | 0 | |
| Other complications | 5 (5.7%) | Complications related to prematurity (3), hypoxia (1), weight loss (1) |
| Birth weight (82 neonates) | | |
| Normal (> 2500g) | 72 (81.8%) | |
| Low (< 2500g) | 13 (14.7%) | |
| Very low (< 1500g) | 2 (2.3%) | |
| Extremely low (< 1000g) | 1 (1.1%) | |
| COVID-19 (82 neonates) | | |
| Not tested | 53 (60.2%) | |
| SARS-CoV-2 positive (RT-PCR) | 2 (2.3%) | |
| SARS-CoV-2 negative (RT-PCR) | 33 (37.5%) | |

TABLE III. Characteristics of the COVID-19 infection and medically assisted reproduction techniques used for the 82 deliveries (88 neonates) subdivided between term and preterm deliveries. Data are represented as numbers and percentages.

| | Term birth (≥ 37 weeks) n=67 | Preterm birth (<37 weeks) n=15 |
|---|--|---|
| Diagnosis COVID-19 | | |
| RT-PCR | 62 (92.5%) | 13 (86.6%) |
| Antibody | 3 (4.5%) | 0 |
| Other | 2 (2.9%) | 2 (13.3%) |
| Time of diagnosis | | |
| During the MAR treatment (including 15 days after embryo transfer) | 5 (7.5%) | 0 |
| 1 st Trimester | 18 (26.9%) | 1 (6.7%) |
| 2 nd Trimester | 14 (20.9%) | 1 (6.7%) |
| 3 rd Trimester (including delivery) | 30 (44.8%) | 13 (86.6%) |
| Symptoms | | |
| Asymptomatic | 21 (31.3%) | 5 (33.3%) |
| Fever | 24 (35.8%) | 7 (46.7%) |
| Cough | 23 (34.3%) | 4 (26.7%) |
| Anosmia | 19 (28.4%) | 4 (26.7%) |
| Ageusia | 7 (10.5%) | 4 (26.7%) |
| Gastrointestinal symptoms | 9 (13.4%) | 2 (13.3%) |
| Other | 13 (19.4%) | 5 (33.3%) |
| Hospitalization | | |
| None | 45 (67.2%) | 7 (46.7%) |
| General ward | 18 (26.9%) | 8 (53.3%) |
| ICU | 2 (3.0%) | 0 |
| Respiratory support | 2 (3.0%) | 0 |
| MAR technique | | |
| ART | 42 (62.7%) | 9 (60.0%) |
| Ovulation induction, with or without IUI | 25 (37.3%) | 6 (40.0%) |
| Maternal age | | |
| (Mean \pm SD)(years) ² | 34.4 \pm 6.3 ^a | 31.9 \pm 6.2 ^b |
| Twin pregnancies | | |
| | 3 (4.5%) | 3 (20.0%) |
| Mode of delivery | | |
| Vaginal delivery | 25 (37.3%) | 6 (40.0%) |
| Caesarean section | 41 (61.2%) | 9 (60.0%) |
| Unknown | 1 (1.5%) | 0 |
| | 70 neonates | 18 neonates |
| Neonatal complications | | |
| None | 66 (94.3%) | 10 (55.5%) |
| Respiratory symptoms | 2 (2.8%) | 5 (27.8%) |
| Fever | 0 | 0 |
| Other complications | 2 (2.8%) hypoxia (1), weight loss (1) | 3 (16.7%) all related to prematurity |
| Birth weight (72 neonates) | | |
| Normal (> 2500g) | 65 (92.8%) | 7 (38.9%) |
| Low (< 2500g) | 5 (7.1%) | 8 (44.4%) |
| Very low (< 1500g) | 0 | 2 (11.1%) |
| Extremely low (< 1000g) | 0 | 1 (5.6%) |
| COVID-19 (72 neonates) | | |
| Not tested | 44 (62.8%) | 9 (50.0%) |
| SARS-CoV-2 positive (RT-PCR) | 0 | 2 (11.1%) |
| SARS-CoV-2 negative (RT-PCR) | 26 (37.1%) | 7 (38.9%) |

Data available for 60^a and 13^b cases

Update supplementary Data File S2; List of contributors

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