Title:

Author:

Affiliation

Abstract

Background

Methods

Study design

This prospective cohort study was conducted at My Duc Hospital and My Duc Phu Nhuan Hospital, Ho Chi Minh City, Vietnam, from August 2021 to December 2021. The study was approved by the institutional Medical Ethics Committee (15/2021/MD-HDDD) on November 18, 2021.

Study population

Between August 2021 and November 2021, pregnant women were offered vaccination against COVID-19 at My Duc Hospital, Ho Chi Minh City, Vietnam. The choice for Astra Zeneca or Pfizer-BioNTech vaccines depended on the availability of the vaccines at the time of vaccination. We prospectively investigated the side effects in the vaccinated pregnant women within 1 week after vaccination and followed their pregnancies till deliveries. This study included women who had been infected by the Corona virus and were received vaccination between August 2021 and November 2021. Propensity score matching was used to match the women who were infected by Corona virus versus with those who were not based on the mother's age and the number of their previous pregnancy.

Outcomes

The primary outcome of this study was to assess the impacts of Covid-19 infection on maternal and gestational outcomes between the two group of women.

Statistical analysis

Data were analyzed using descriptive statistics (mean and standard deviation for normally distributed variables, or median and interquartile range for skewed variables). Differences between groups were analyzed using Fisher’s exact test for categorical variables, Student's t-test for normally distributed continuous variables, and Mann-Whitney test for skewed variables. All analyses were performed using the R statistical packages (R version 3.3.3). Statistical significance was defined as p<0.05.

Results

Discussion

Conclusion

Acknowledgement

References

Table 1. Baseline characteristics of pregnant women with or without the Covid-19 infection

|  |  |  |  |
| --- | --- | --- | --- |
|  | Not yet infected by Covid-19 | Infected | p value |
|  | N=73 | N=73 |  |
| Maternal age – years | 29.9±4.2 | 29.9±4.2 | 0.95 |
| Previous\_pregnancies–n(%) |  |  | 0.95 |
| 0 | 9 (12.3%) | 8 (11.0%) |
| 1 | 29 (39.7%) | 30 (41.1%) |
| 2 | 30 (41.1%) | 30 (41.1%) |
| 3 | 5 (6.8%) | 5 (6.8%) |
| Pregnancy type – n (%) |  |  | 0.95 |
| Assisted | 2 (2.7%) | 3 (4.1%) |
| Natural conceived | 71 (97.3%) | 70 (95.9%) |
| Vaccination status – n (%) |  |  | 0.011 |
| Fully vaccinated | 66 (90.4%) | 53 (72.6%) |
| Only 1 dose | 7 (9.6%) | 20 (27.4%) |
| First vaccine type – n (%) |  |  | 0.03 |
| AstraZeneca | 24 (32.9%) | 38 (52.1%) |
| Pfizer BioNTech | 49 (67.1%) | 35 (47.9%) |
| Second vaccine type – n (%) |  |  | 0.254 |
| AstraZeneca | 22 (33.3%) | 24 (45.3%) |  |
| Pfizer BioNTech | 44 (66.7%) | 29 (54.7%) |  |
| Gestational age at vaccination – weeks | 32.2±4.0 | 31.5±4.1 | 0.242 |
| Gestational HBP – n (%) | 0 (0.0%) | 0 (0.0%) | - |
| Gestational diabetes – n (%) | 10 (13.7%) | 9 (12.3%) | 0.95 |

Table 2. Pregnancy and neonatal outcomes in pregnant women with or without the Covid-19 infection

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Not yet infected  by Covid-19 | Infected by Covid-19 | RR (95% CI) | Between group difference (95% CI) | p value |
|  | N=73 | N=73 |  |
| Gestational HBP after vaccination – n (%) | 2 (2.7%) | 0 (0.0%) | - | 2.7 [-2.3;7.8] | 0.497 |
| Gestational diabetes after vaccination – n (%) | 0 (0.0%) | 2 (2.7%) | - | 2.7 [-2.3;7.8] | 0.497 |
| Gestational at birth – weeks | 37.9±2.5 | 38.7±1.2 | - | 0.8 [0.11;1.4] | 0.02 |
| Preterm delivery <28 weeks | 1 (1.4%) | 0 (0.0%) | - | 1.4 [-2.6;5.4] | 0.95 |
| Preterm delivery <34 weeks | 4 (5.5%) | 0 (0.0%) | - | 5.5 [-1.1;12.1] | 0.12 |
| Preterm delivery <37 weeks | 10 (13.7%) | 5 (6.8%) | 0.5 [0.2;1.4] | 6.9 [-4.3;18] | 0.276 |
| Gestational oligohydramnios – n (%) | 1 (1.4%) | 6 (8.2%) | 6 [0.7;48.6] | 6.8 [-1.4;15.1] | 0.115 |
| Gestational polyhydramnios – n (%) | 5 (6.8%) | 4 (5.5%) | 0.8 [0.2;2.9] | 1.3 [-7.8;10.5] | 0.95 |
| Maternal ICU events after vaccination – n (%) | 0 (0.0%) | 0 (0.0%) | - | - | - |
| Still birth – n (%) | 0 (0.0%) | 0 (0.0%) | - | - | - |
| Birthweights – grams | 3372.5±463.5 | 3196.6±407.6 | - | 176 [33.1;318.7] | 0.016 |
| Low birthweight – n (%) | 1 (1.4%) | 2 (2.7%) | 2 [0.2;21.6] | 1.3 [-4.5;7.3] | 0.95 |
| Heavy birthweight – n (%) | 3 (4.2%) | 2 (2.7%) | 0.7 [0.1;3.9] | 1.5 [-5.9;8.6] | 0.681 |
| Birthweight percentile – percent | 75.0 [75.0;90.0] | 50.0 [25.0;75.0] | - | - | <0.001 |
| Lower than 10th percentile birthweight – n (%) | 0 (0.0%) | 1 (1.4%) | - | 1.4 [-2.6;5.4] | 0.95 |
| Neonatal ICU events – n (%) | 1 (1.4%) | 4 (5.5%) | 4.0 [0.5;34.9] | 4.1 [-3.1;11.3] | 0.366 |
| Neonatal defects – n (%) | 0 (0.0%) | 1 (1.4%) | - | 1.4 [-2.6;5.4] | 0.95 |