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Trends in cesarean section rates during Covid-19 pandemic based on Robson classification at Sanjiwani Hospital

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ABSTRACT

Background: The Cesarean section rate in 2017 in Bali Province was 32.7%. The Covid-19 pandemic has raised problems in management pregnant women, especially determining mode of delivery.
Aim: This study was conducted to determine the effect of the pandemic on the rate of cesarean section deliveries by comparing the absolute cesarean section rates in 2019 and 2020 using the Robson Classification. This study was a descriptive retrospective. The subjects were all pregnant mother who gave birth at the RSUD Sanjiwani Gianyar in 2019 and 2020. The data were taken from medical records then analyzed using Robson Classification and further analysis of the causes of caesarean section.
Result: From 396 research subjects, the cesarean section rate in 2020 was 52.8%, increased 123.7% compared to the cesarean section rate in 2019 (23.6%). Based on Robson's classification, the highest cesarean section rate was in group 5 with an absolute rate 10.7%, group 1 (8.6%) and group 4 (7.2%). Further analysis showed the largest indications of the cesarean section were maternal conditions (28.3%) and fetal indications (27.9%).
Conclusion: There was a significant increase of cesarean sections rate in 2020 during covid-19 pandemic. The highest indications for cesarean section are maternal conditions and fetal indications.
Keywords: Caesarean section rate, Robson classification, RSUD Sanjiwani Gianyar

INTRODUCTION

According to the 2017 Indonesian Demographic and Health Survey data, it showed that 17% of live births in the 5 years prior to the survey were born through a cesarean section. The percentage of deliveries by cesarean section increased from 7% in the 2007 to 19% in the 2017. Cesarean section is defined as delivery through an incision in the abdominal wall and uterine wall, excluding expulsion of the fetus from the abdominal cavity in an ectopic pregnancy. Indications for cesarean section based on maternal indications include history of previous cesarean section, abnormal placenta implantation, maternal request, history of hysterotomy, mass in genital organs, pelvic abnormalities, HIV or HSV infection, heart or lung disease. Fetomaternal indications include cephalopelvic disproportion, placenta previa, and placental abruption. Indications for the baby include fetal distress, malpresentation, macrosomia, congenital abnormalities, umbilical cord abnormalities.[1-5]

The Covid-19 pandemic has had an impact on the health and mode of delivery of pregnant women. Covid-19 is caused by the Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV2). Exposure to the virus in hospitals and in health facilities that provide delivery services is the main focus. The existence of a hypothesis that considers the possibility of transmission of the virus from mother to baby during the delivery process is a consideration in determining the mode of delivery. Thus in fact, during the pandemic, one study found a cesarean delivery 65.47% compared to vaginal delivery 34.53%.[4-6]

The Robson classification is used as a global standard for assessing, monitoring, and comparing the number of cesarean sections based on time or between health facilities. The Robson classification was made in order to prospectively identify an appropriate, clinically relevant group of women giving birth, and to identify differences in caesarean section rates among homogeneous groups of women. Unlike the classification of cesarean sections based on indications, Robson's classification is aimed at all women giving birth on certain criteria and not only women who give birth by cesarean section. According to WHO, Robson's criteria are simple, robust, reproducible, clinically relevant, and prospective. Robson's criteria have been used all over the world.[3-5]

The Sanjiwani General Hospital Gianyar as a referral hospital in Eastern Bali found the cesarean section rate in 2013 in total was 34%. During the pandemic, the Sanjiwani Hospital was also a referral for patients with Covid-19. There has never been a similar research conducted at the Sanjiwani General Hospital, Gianyar. Therefore, it is necessary to conduct a study to determine the effect of the pandemic on the rate of cesarean section deliveries by

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comparing the absolute cesarean section rates in 2019 and 2020.

METHOD

The study used a descriptive method with a cross-sectional research design. The sampling method was total sampling with a retrospective approach using secondary data from the delivery room register book and from medical records at the Sanjiwani Hospital, Gianyar from January to December 2019 and 2020. There were a total number of deliveries in 2019 and 2020 as many as 996 and 749, respectively. Then the data were analyzed using Robson's classification and further analysis of the causes of cesarean section. Data processing using SPSS 18 for windows.

RESULT

The cesarean section rate in 2020 was 52.8%, an increase of 123.7% compared to the cesarean section rate in 2019 (23.6%). Based on Robson's classification, the largest population is Group 3 (32.4%). Meanwhile, the highest cesarean section rate was in group 5 with an absolute value of 10.7%, group 1 (8.6%) and group 4 (7.2%).

Table 1. Frequency distribution based on Robson Classification

Group		2019					2020					Trend
		A	B	C	D	E	A	B	C	D	E	
1	Nulliparous woman with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour	9	225	4	3.8	0.9	65	183	35.5	16.4	8.6	↑7.7
2	Nulliparous woman with a single cephalic pregnancy, ≥37 weeks gestation who either had labour induced or were delivered by caesarean section before labour	32	63	50.8	13.6	3.2	44	49	89.7	11.1	5.9	↑2.7
3	Multiparous woman without a previous uterine scar with a single cephalic pregnancy, ≥ 37 weeks gestation in spontaneous labour	11	384	2.9	4.7	1.1	53	243	21.8	13.4	7.1	↑6
4	Multiparous woman without a previous uterine scar with a single cephalic pregnancy, ≥ 37 weeks gestation who either had labour induced or were delivered by caesarean section before labour	47	91	51.6	20	4.7	54	56	96.4	13.6	7.2	↑2.5
5	All multiparous woman with at least one previous uterine scar, with a single cephalic preganacy, ≥ 37 weeks gestation.	105	121	86	44.3	10.4	80	90	88.8	20.2	10.7	↑0.3
6	All Nulliparous woman with a single breech pregnancy	4	7	57.1	1.7	0.4	9	10	90	2.3	1.2	↑0.8
7	All Nulliparous woman with a single breech pregnancy, including woman with previous uterine scar	7	15	46.7	3	0.7	17	17	100	4.3	2.2	↑1.5
8	All woman with multiple pregnancies, including woman with previous uterine scar	2	6	33.3	0.9	0.2	7	8	87.5	1.8	0.9	↑0.7
9	All woman with single pregnancy, with a transverse or oblique lie, including woman with previous uterine scar	6	6	100	2.6	0.6	29	29	100	7.3	3.9	3.3
10	All woman with single cephalic pregnancy, <37 weeks gestation, including woman with previous uterine scar	13	78	16.7	5.5	1.3	38	64	59.3	9.6	5.1	↑3.8
		236	996		100	23.5	396	749		100	52.8	

Note: A= number of cesarean sections; B= total population; C= number of cesarean sections (A/B x 100%); D= relative cesarean section rate (A/Total SC x 100%); E= absolute cesarean section rate (A/ Total deliveries x 100%)

Based on the indications for cesarean delivery, the highest results were maternal conditions (28.3%) and fetal indications (27.9%). There were also several other indications such as malpresentation (12.6), history of cesarean section (11.4), dystocia (11.2), fetal condition (2.6%), failed induction (1.8%) multifetal pregnancy (1.8%), and antepartum hemorrhage (1.4%).

DISCUSSION

The caesarean section rate in 2020 (52.8%) increased 123.7% compared to 2019 (23.5%). Increased e in the number of cesarean sections during the pandemic was also found in several studies. The meta-analysis research conducted by Sarastry et al. in the group of pregnant women during the pandemic, the high rate of cesarean delivery was 65.47% (385 woman) compared to vaginal delivery 34.53% (218 women). In this study, it was stated that the indication for a cesarean section was a condition related to Covid-19 infection, which was 53.61%. The same results were also obtained by David and Wissam. In their research, there was an increase in the number of cesarean sections during the pandemic, both in the infected and uninfected populations. The cesarean section rate can reach 64%. Even in China the cesarean section rate can reached 93%.[6,7]

There was an exchange of trends for cesarean sections from 2019 to 2020. The highest group was still the same in group 5, which had absolute figures of 10.4% and 10.7%, respectively. However, there were changes in the second and third largest groups in 2020. The second and third

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largest groups in 2019 were group 4 (4.7%) and group 2 (3.2%). Where in 2020 the second and third positions are filled by group 1 (8.6%) and group 4 (7.2%). The interesting thing is was in 2019 (0.9%) and in 2020 (8.6%). The increase that occurred was 955.5%. Group 1 is nulliparous woman with a single cephalic pregnancy, ≥ 37 week's gestation in spontaneous labor The most indications for cesarean section in this study were maternal conditions (28.3%) of which 33.9% were infected with COVID-19. The results of this study are in accordance with several studies that obtained results in the form of increasing the number of cesarean sections in mothers with Covid-19 infection.[8-10]

CONCLUSION

There was a very significant increase in the number of cesarean sections in 2020, and this is the highest number of cesarean sections since 2013 in RSUD Sanjiwani Gianyar. The highest indications for cesarean section are maternal conditions and fetal indications. The increased in the number of cesarean sections may be due to comorbidities, especially Covid-19.

LIMITATION

This study was descriptive retrospective. The limitation of this research is unable to study could not see the relationship between the independent variable and the dependent variable.

CONFLICT OF INTEREST

There's no conflict of interest by the author.

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There is no funding or grant support was obtained.

AUTHOR CONTRIBUTIONS

All authors have contributed in processes for this research, including preparation, data gathering and analysis. Anak Agung Gde Raka Budayasa has contribution in the idea, structure, and editing. While Gusti Ngurah Agung Eka Wiguna, Anak Agung Indira Rajani and M. Widnyana has contribution in data gathering, data sinthesis, and format.

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