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ORIGINAL ARTICLE

Prevalence of Spontaneous Delivery and Cesarean Section in Pregnant Patients with Myopia at Pregnancy Clinic Dr. Soetomo General Academic Hospital, Surabaya

Rosalia Adriani Malika[1], Ernawati Ernawati[2*], Prillia Tri Suryani[3]

[1]Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.
[2]Department of Obstetrics and Gynecology, Faculty of Medicine, Universitas Airlangga/Dr. Soetomo General Academic Hospital, Surabaya, Indonesia.
[3]Department of Ophthalmology, Faculty of Medicine, Universitas Airlangga/Dr. Soetomo General Academic Hospital, Surabaya, Indonesia.

A B S T R A C T

Introduction: The selection of delivery methods in pregnant patients with myopia is needed to prevent blindness. This study aimed to calculate spontaneous delivery and cesarean section prevalence in pregnant patients with myopia.

Methods: This was a descriptive epidemiology study using medical records of Maternity Outpatients Dr. Soetomo General Academic Hospital, Surabaya, from September 2012 to September 2014. Age, stage of myopia, and delivery method data were taken. The sample in this study was all pregnant patients with myopia, as many as 30 patients.

Results: Forty percent of pregnant patients with myopia were in the 21-25 age group. There were three patients with low myopia (10%), seven patients with moderate myopia (23.33%), and 20 patients with high myopia (66.66%). More than half of the pregnant patients with myopia had a cesarean section (66.66%), and ten had a vaginal delivery (33.33%). The most indications of cesarean sections were non-myopia in 14 patients (70%), and only six indicated myopia (30%). Myopia was not a primary indication for cesarean sections in Maternity Outpatients Dr. Soetomo General Academic Hospital, Surabaya.

Conclusion: Although there was no report of retinal detachment either in spontaneous delivery or in cesarean section in this study, all pregnant patients with pathologic myopia or peripheral retinal degeneration should be consulted by an Ophthalmologist.

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* Correspondence: ernawati@fk.unair.ac.id

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Introduction

Pregnancy is often associated with ocular changes, which are usually temporary but can also be permanent. This may be associated with improving the current eye condition or the conditions before pregnancy. In pregnancy, the changes in eye condition can be either physiological or pathological and probably a modification of pre-existing conditions. During pregnancy, various physiological changes may occur in the body due to hormonal effects. The interchangeability of this hormone will certainly affect other organs, including the eyes.[1–5] Chloasma, spider angioma, ptosis, refractive index changes, accommodation and refractive errors, decrease in intraocular pressure may occur. Posterior segment changes include worsening diabetic retinopathy, central serous chorioretinopathy, an increased risk of peripheral vitreochorioretinal dystrophy and retinal detachment, and beneficial effects on non-infectious uveitis.[6]

Lancu, *et al*. (2013) retrospectively stated the prevalence of cesarean sections for ophthalmic conditions between 2000 and 2008.[7] The prevalence was 2.04%, and myopia was an indication for 57% of cases. Other cases that reflected a contraindication for spontaneous delivery were retinopathy and past or imminent retinal detachment or glaucoma.[7]

Sapula-Grabowska, *et al*. (2019) stated in their study in 1990 that 10 out of 200 pregnant patients with myopia underwent an ophthalmological examination.[8] Examination in this subgroup showed two patients with low myopia, two with moderate myopia, and six with high myopia. As an outcome, 9 out of 10 patients underwent an instrumental vaginal delivery for ophthalmological reasons. Only one patient underwent spontaneous delivery. In 2000, 15 out of 118 myopic patients underwent an ophthalmological examination. Examinations resulted in 9 cases of moderate and 6 cases of high myopia. 6 patients (3 with moderate and 3 with high myopia) were found with indications for cesarean sections. In 2010, 42 out of 211 myopic patients underwent an ophthalmological examination. As a result, 14 patients with low myopia, 12 with moderate myopia, and 16 with high myopia. In 22 patients, a cesarean section was recommended for ophthalmological reasons.[8] The results showed the relationship between myopia with the delivery method.

Pregnant patients with moderate and high myopia may increase the risk of retinal detachment.[9] In contrast, low myopia rarely causes a retinal detachment. Retinal detachment is a disorder of the eye when the retina lifts away from the back of the eye.

Spontaneous delivery has essential factors, such as power, passage, passenger, psychological, and helper. In this case, the power is the Valsalva maneuver during pressing, which can increase intraocular pressure, especially in patients with previous ophthalmology disorders, such as moderate and high myopia. Therefore, it can increase the risk of retinal detachment. Valsalva maneuver can increase intraocular pressure until 10.2 mmHg.[10–14] In addition, it is dangerous for a patient to push during spontaneous delivery. In conclusion, it needs periodic evaluations in pregnant patients with myopia to suggest delivery methods and prevent blindness.

This study aimed to calculate the prevalence of spontaneous delivery and cesarean section in pregnant patients with myopia at Maternity Outpatients, Dr. Soetomo General Academic Hospital, Surabaya, from September 2012 to September 2014.

Methods

This was a descriptive epidemiology study to calculate the prevalence of spontaneous delivery and cesarean section in pregnant patients with myopia. Data for this study were collected from the medical records of Maternity Outpatients Dr. Soetomo General Academic Hospital, Surabaya, from September 2012 to September 2014.

The study population included all pregnant patients with myopia at Maternity Outpatients Dr. Soetomo General Academic Hospital, Surabaya, from September 2012 to September 2014. Total sampling was used for patients who met the inclusion criteria. The exclusion criteria were incomplete data in the medical records. Variables observed in this study include age, myopia stage, and delivery method. This study had received ethical clearance from the Ethics Committee of Dr. Soetomo General Academic Hospital, Surabaya.

Results

The number of pregnant patients with myopia at Maternity Outpatient Dr. Soetomo General Academic Hospital, Surabaya, from September 2012 to September 2014) who met the inclusion criteria in this study were 30 patients.

Table 1. Patient age distribution

Range of Age	Frequency	%
21-25	12	40
26-30	6	20
31-40	11	36.66
41>	1	3.33
Total	30	100

Source: Research data, processed

According to Table 1, the highest age proportion was 21-25 years old, as much as 12 patients (40%), while the lowest age proportion was >41 years old, as much as one patient (3.33%).

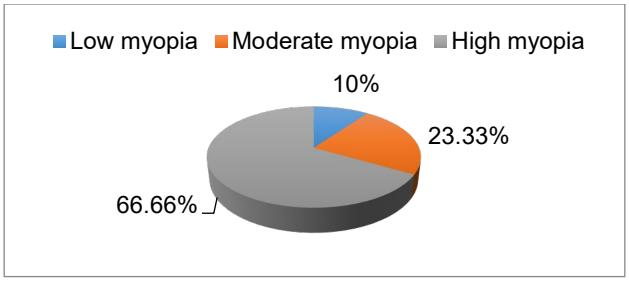

Figure 1. Distribution stage of myopia

Figure 1 shows the highest stage of myopia was high myopia, consisting of 20 patients (66.66%), while the least stage of myopia was low myopia, consisting of 3 patients (10%).

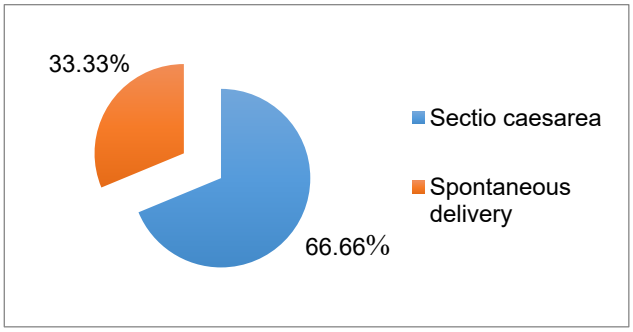

Figure 2.1. Distribution of delivery method for pregnant patients with myopia

According to Figure 2.1, about 20 (66.66%) pregnant patients with myopia had a cesarean section, while ten (33%) had spontaneous delivery.

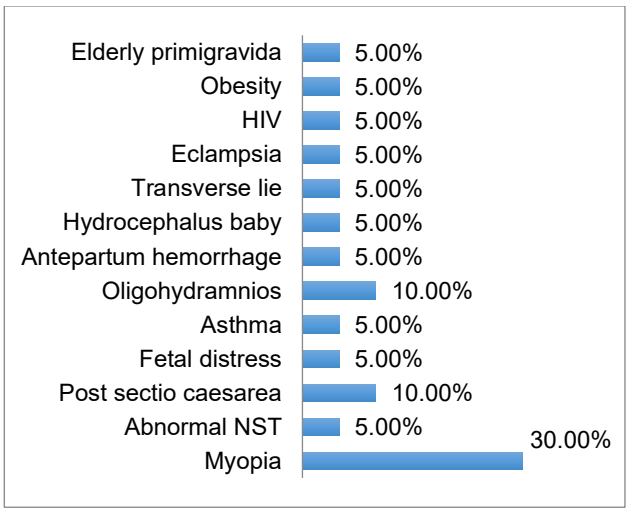

Figure 2.2. Distribution of cesarean sections for pregnant patients with myopia

Based on Figure 2.2, about 14 of 20 patients (70%) with cesarean section were indicated because of non-myopia. In contrast, only six patients (30%) with cesarean section were indicated because of myopia.

Based on the data from medical records (visus examination in Ante Natal Care and no visus examination after partus), there was no report of retinal detachment in labor, either with cesarean section or spontaneous delivery.

Discussion

This study showed that the age of 21-25 years old (40%) and 31-40 years old (36.66%) were the most common age recorded in pregnant patients with myopia. This finding explains that women are in their reproductive age. It is in line with a study conducted by Wu, *et al*. (2016), who found that the prevalence of myopia in Indonesia was 48.1% in adults older than 21 years old.[15]

Low myopia (10%), moderate myopia (23.33%), and high myopia (66.66%) were the most common stage of myopia found among the subjects. In contrast, a study in China by Chen, *et al*. (2018) analyzed the prevalence of myopia in females in 2015 and stated that about 25% had low myopia, 20% had moderate myopia, and 10% had high myopia.[16] This difference could be caused by different regions and ethnic groups.[16] It is supported by a previous study which stated that the prevalence of myopia is higher among East Asians than similarly aged white persons.[17] Approximately 80-90% of young adults in East Asia have myopia.

Sapula-Grabowska, *et al*. (2019) mentioned that myopia was the most ocular indication for cesarean section (57% of women in labor).[8] However, 70% patients with non-myopia were found to indicate cesarean section. In this study, the indication of cesarean section was mostly because of non-myopia. Moneta-Wielgos, *et al*. (2018) stated that 42 of 69 delivered vaginally, and 27 patients underwent cesarean section.[18] In the high-risk group, 87% indicated cesarean section, while in the low and medium-risk groups, 75% indicated spontaneous delivery.[18–20]

This study did not report any retinal detachment in spontaneous delivery or cesarean section. It is similar to a study by Iskandar, *et al*. (2020), which explained that no reported spontaneous delivery increased retinal detachment.[21] Patients with retinal detachment after spontaneous delivery mostly have an exudative retinal detachment because of preeclampsia. It resolves spontaneously after post-partum.[21] However, all pregnant patients with pathologic myopia or peripheral retinal degeneration should consult an Ophthalmologist in the first trimester to suggest delivery methods.

Strength and Limitations

The small sample size and the short research period (2 years) were the limitations of this study. Further research in bigger sample is needed. This study can contribute data for future studies, especially in analytic studies that evaluate the relationship between delivery methods and the incidence of retinal detachment.

Conclusion

Pregnant patients with myopia mostly occurred in patients aged 21-25. More than half of pregnancies with myopia in Dr. Soetomo General Academic Hospital, Surabaya, was high myopia. The highest distribution of delivery method in Dr. Soetomo General Academic Hospital, Surabaya, was a cesarean section. This study did not report retinal detachment, either in spontaneous delivery or in cesarean section. There were only available data for visual examinations in antenatal care. On the contrary, no available data for ophthalmological examinations after post-partum.

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Conflict of Interest
The authors declared there is no conflict of interest.

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Ethical Clearance
This study had received ethical clearance from Ethical Committee for Health Research Dr. Soetomo General Academic Hospital, Surabaya (no. 169/Panke.KKE/III/2015) on 5 March 2015.

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