

Ophthalmological changes from the pregnant woman's point of view: A symptomatic analysis

Alterações oftalmológicas do ponto de vista da gestante: Uma análise sintomática

Alteraciones oftalmológicas desde el punto de vista de la mujer embarazada: Un análisis sintomático

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Abstract

Introduction: During pregnancy, the eyes may undergo transient changes, which may, even rarely, affect visual functions. The present study aimed to understand the context and perception of ophthalmological changes in pregnant women. **Methods:** this is a descriptive, qualitative, and quantitative study conducted using a questionnaire via Google Forms between April and October 2023. The target population was pregnant women monitored by professionals at the Basic Health Units in Fortaleza, Ceará. The data was analyzed using Excel software and subjected to descriptive statistical analysis. **Results:** 52 responses were obtained from pregnant women. Most participants (69.2%) were in the third trimester of pregnancy, and most (96.2%) did not have periorbital chloasma. As for other ophthalmic changes, most pregnant women did not experience significant changes in ocular degree or intraocular pressure. A low frequency of ophthalmic consultations during pregnancy was observed, highlighting a gap in ophthalmic monitoring practices. **Conclusion:** the results highlight the importance of early screening for ophthalmic alterations during pregnancy, especially in pregnant women with risk factors, for more effective interventions and the promotion of maternal-fetal eye health. Raising awareness of the need for regular assessments can significantly contribute to the prevention and appropriate treatment of these alterations.

Keywords: Pregnancy; Physiology; Ophthalmology.

Resumo

Introdução: Durante a gestação, os olhos podem sofrer alterações transitórias, as quais podem, mesmo que raramente, afetar as funções visuais. O presente estudo teve o objetivo de compreender o contexto e a percepção das alterações oftalmológicas nas gestantes. **Métodos:** trata-se de um estudo descritivo, qualitativo e quantitativo, realizado por meio de questionário via Google Forms entre abril e outubro de 2023. A população-alvo foram gestantes acompanhadas por profissionais das Unidades Básicas de Saúde de Fortaleza, Ceará. Os dados foram analisados no software Excel e submetidos à análise estatística descritiva. **Resultados:** foram obtidas 52 respostas de gestantes. A maioria das participantes (69,2%) estava no terceiro trimestre de gravidez e a maioria (96,2%) não apresentava cloasma periorbital. Quanto às demais alterações oftalmológicas, a maioria das gestantes não apresentou alterações significativas no grau ocular ou na pressão intraocular. Foi observada baixa frequência de consultas oftalmológicas durante a gravidez, evidenciando uma lacuna nas práticas de monitoramento oftalmológico. **Conclusão:** os resultados destacam a importância do rastreamento precoce de alterações oftalmológicas durante a gravidez, principalmente em gestantes com fatores de risco, para intervenções mais eficazes e promoção da saúde ocular materno-fetal. A conscientização sobre a necessidade de avaliações regulares pode contribuir significativamente para a prevenção e tratamento adequado dessas alterações.

Palavras-chave: Gravidez; Fisiologia; Oftalmologia.

Resumen

Introducción: Durante el embarazo, los ojos pueden sufrir cambios transitorios que, incluso en raras ocasiones, pueden afectar las funciones visuales. El presente estudio tuvo como objetivo comprender el contexto y la percepción de los cambios oftalmológicos en mujeres embarazadas. **Métodos:** se trata de un estudio descriptivo, cualitativo y cuantitativo realizado mediante cuestionario vía Google Forms entre abril y octubre de 2023. La población objetivo fueron gestantes acompañadas por profesionales de las Unidades Básicas de Salud de Fortaleza, Ceará. Los datos fueron analizados mediante el software Excel y sometidos a análisis estadístico descriptivo. **Resultados:** Se obtuvieron 52 respuestas de mujeres embarazadas. La mayoría de las participantes (69,2%) estaban en el tercer trimestre del embarazo y la mayoría (96,2%) no tenía cloasma periorbitario. En cuanto a otros cambios oftálmicos, la mayoría de las mujeres embarazadas no experimentaron cambios significativos en el grado ocular ni en la presión intraocular. Se observó una baja frecuencia de consultas oftalmológicas durante el embarazo, lo que destaca una brecha en las prácticas de seguimiento oftálmico. **Conclusión:** los resultados resaltan la importancia del cribado precoz de alteraciones oftálmicas durante el embarazo, especialmente en gestantes con factores de riesgo, para intervenciones más efectivas y la promoción de la salud ocular materno-fetal. Sensibilizar sobre la necesidad de evaluaciones periódicas puede contribuir significativamente a la prevención y tratamiento adecuado de estas alteraciones.

Palabras clave: Embarazo; Fisiología; Oftalmología.

1. Introduction

Pregnancy is a normal condition of the female body that involves a wide range of progressive physiological changes. These changes occur to support the woman's body, protect the developing fetus, and prepare the mother for birth. These changes encompass the cardiovascular, pulmonary, renal, metabolic, hormonal, immunological, hematological and even behavioral systems (Carlin et al., 2008; Tan et al., 2013). One of the organs that demands special attention during pregnancy, due to its variable behavior and possible complications, is the eye (Chawla et al., 2013).

The eyes can undergo changes during the gestational period, which in most cases are transitory. These changes can occur due to the release of hormones from the placenta and the maternal endocrine and adrenal glands of the fetus (Anton et al., 2021; Samra et al., 2013).

Visual acuity impairment during pregnancy is considered a rare event, which can be related to physiological conditions, linked to intrauterine fetal development, and pathological conditions, with symptomatic presentation and a different therapeutic approach, depending on the etiology involved (Rzeszotarska et al., 2020; Qin et al., 2020). It is known that these eye conditions become more serious when the pregnant woman's state of health is altered, for example, in the case of diabetic or hypertensive pregnant women (Garg et al., 2012). When referring to ophthalmic changes, we understand how the structures are affected during the gestational period: eyelid, conjunctiva, cornea, crystalline lens, and optic nerve, among others (Naderan et al., 2018).

The aim of this study was to understand the context of ophthalmic changes in pregnant women with a view to physiological conditions.

2. Methodology

It consisted of a descriptive, qualitative, and quantitative study using a questionnaire via *Google Forms*. It was carried out between April and October 2023, and the results were obtained by applying a questionnaire about the main physiological ocular changes during pregnancy. The target population was pregnant women monitored by professionals at the Basic Health Units in Fortaleza-Ceará. The study included pregnant women who agreed to take part in the study by signing the Informed Consent Form (ICF) and answering the questionnaire, which was administered by students from the Christus University Center. Incompletely completed questionnaires or questionnaires from non-pregnant women were excluded.

The data was entered into Excel *software* and subjected to descriptive statistical analysis, calculating the mean, mode, and standard deviation. The study complied with the ethical and legal precepts set out in Resolution 510/2016 of the National Health Council, was sent to Plataforma Brasil, and was approved by the Research Ethics Committee (CAAE No. 68662523.0.0000.5049).

3. Results

Fifty-two responses were collected from pregnant women aged between 15 and 40. With regard to the current stage of pregnancy, 69.2% of the participants said they were in the third trimester, while a minority of 5.8% were in the first trimester (0-13 weeks). Regarding the history of previous pregnancies, the most frequent answer was one pregnancy, with 46.2% of the pregnant women, followed by two, three, and four or more pregnancies. As for prenatal care, 96.2% of the patients reported having received it. However, concerning the number of appointments during this period, 57.7% of the pregnant women had seven or more appointments, followed by 28.8% with five to six appointments, 7.7% with three to four appointments, and 5.8% with two or fewer appointments.

Exploring ophthalmic changes during pregnancy, we found that only 3.8% of the participants reported the presence of chloasma in the periorbital region, while 96.2% denied this. In addition, 96.2% of the pregnant women did not wear contact lenses during pregnancy. Of the few patients who did, 1.9% reported eyelid swelling and discomfort when wearing them. With regard to xerophthalmia, the majority (73.1%) had no similar complaints; however, 25% of pregnant women reported "burning eyes" followed by constant tearing (9.6%) and a sensation of sand in the eyes (3.8%). With regard to intraocular pressure (IOP), 73.1% of pregnant women had never measured it, 23.1% did not notice any variation, and 3.8% reported a decrease during pregnancy. In addition, 76.9% denied feeling visual blur during this period. In the context of changes in eye degree during pregnancy, the majority (90.4%) did not experience any changes. However, 5.8% reported an increase in myopia, 5.8% observed changes in astigmatism, and 1.9% showed an increase in hyperopia. Concerning ophthalmology consultations during pregnancy, 92.3% of the pregnant women had not undergone this procedure. Among the four patients who sought ophthalmic care, the distribution regarding pupil dilation was even, i.e., only two pregnant patients reported having their pupils dilated prior to the appointment. Notably, only one patient reported any discomfort during pupil dilation. Finally, with regard to the possible interference of eye drops in pregnancy, 96.2% of the pregnant women said they did not believe in such a correlation.

4. Discussion

Pregnancy is a complex period that involves physiological adaptations in various systems of the human body, including the ocular system. Based on studies, increased pigmentation in the cheek and eye area, called chloasma, is a common

manifestation during pregnancy (Morya et al., 2020; Omoti et al., 2008). This condition is caused by increased progesterone levels, estrogen, and melanocyte-stimulating hormones during this period. Our study corroborated these findings, showing that 3.8% of pregnant women had chloasma in the periorbital region. However, 96.2% of pregnant women did not report the appearance of chloasma, suggesting that hormonal changes may not have a significant impact on this specific aspect.

The literature emphasizes that visual changes during pregnancy are, in the majority of cases, transitory (Barbazetto et al., 2007). This study reinforces this view since the majority of pregnant women (76.9%) did not report a feeling of visual blurring, indicating that any changes in visual acuity are rare events during pregnancy. When looking at ophthalmic changes, it is vital to consider the relationship between physiological and pathological conditions, highlighting that in altered health conditions, such as diabetic or hypertensive pregnant women, ophthalmic changes can become more serious (Kalogeropoulos et al., 2019; Khong et al., 2021). It reinforces the importance of closely monitoring the ocular health of pregnant women with specific comorbidities. However, analysis of the results revealed a low frequency of eye visits during pregnancy, with 92.3% of pregnant women not having this procedure. Even so, eye visits can provide valuable information about the state of eye health during pregnancy (Yenerel et al., 2015).

The use of contact lenses during pregnancy can be associated with ocular symptoms, such as complaints of eyelid swelling, according to the results of this study. Hormonal exposure during pregnancy can influence the composition and production of tears, exacerbating symptoms such as dry eye in women who wear contact lenses (Imafidon et al., 1992). This condition can result in significant discomfort and compromise the quality of life of pregnant women (Dinn et al., 2003). It is essential to closely monitor the ocular health of pregnant women who wear contact lenses and provide appropriate interventions to mitigate the symptoms associated with dry eye (Imafidon et al., 1992).

According to the literature, during pregnancy, IOP decreases by around 10%, reaching its lowest value between the 12th and 18th weeks of pregnancy. This reduction persists for months after delivery. The diurnal fluctuation of IOP is smaller during pregnancy compared to the pre-pregnancy period (Kalogeropoulos et al., 2019). Data analysis revealed that the majority of pregnant women (73.1%) had never had their IOP measured, highlighting a gap in ophthalmic monitoring practices.

As for changes in ocular degree, the majority of pregnant women (90.4%) did not experience significant changes, corroborating the literature, which suggests that variations in ocular degree during pregnancy are uncommon. However, the identification of cases with increased myopia, changes in astigmatism, and increased hyperopia highlights the importance of individualized monitoring of the ocular health of pregnant women (Mirzajani et al., 2022).

Hypertension associated with pregnancy occurs in 5% to 11% of pregnant women. Thus, 40% to 100% of these patients show signs of hypertensive retinopathy, ranging from mild focal retinal vascular spasm to algonous spots and hemorrhages to papilledema. These alterations, when detected, should lead to new diagnostic and therapeutic measures, although only 25% to 50% of affected women are symptomatic (blurred vision, photopsia, visual field defects) (Mackensen et al., 2014). In the present study, the presence of symptomatic alterations that are possibly related to gestational hypertension was seen, in which 23.1% of the patients interviewed had visual blurring during pregnancy, in line with what has been described in the literature.

The results obtained provide support for the development of educational measures aimed at pregnant women, emphasizing the importance of early screening for ophthalmic alterations. Raising awareness of the need for regular assessments, especially in pregnant women with pre-existing medical conditions, can contribute significantly to prevention and appropriate treatment (Yenerel et al., 2015; Procópio et al., 2023).

5. Conclusion

This study contributed to an understanding of physiological ophthalmic changes during pregnancy from the pregnant woman's point of view by applying an individualized questionnaire. The significant absence of manifestations such as periorbital chloasma in 96.2% of pregnant women corroborated the understanding that hormonal variations during pregnancy may not trigger significant impacts. The prevalence of ophthalmic changes during pregnancy was assessed, showing that the majority of pregnant women did not experience significant changes in ocular degree or IOP. The importance of educational and awareness-raising measures was highlighted, with the implementation of strategies aimed at early screening, especially in pregnant women with risk factors, which could result in more effective interventions and the promotion of maternal-fetal eye health.

Finally, future studies to investigate the consequences of ophthalmic alterations during pregnancy has become important.

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