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Stillbirth likelihood in pregnant women suffering from stress: A short review

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Abstract
Experiencing stress during pregnancy can increase about two times the probability of stillbirth in a pregnant woman. Given that the cause of stillbirth is not known but quitting smoking, having a balanced weight or maintaining a healthy weight, avoiding drugs, controlling blood pressure and diabetes can decrease its occurrence. Trauma, infection, genetics, lupus, coagulopathy, preeclampsia and alcohol consumption increase the chance of stillbirth. For most women, pregnancy is very stressful and it can even be said that it is the biggest stress in every woman's life and is associated with stillbirth. It is reported that approximately 1.18 times higher risk of stillbirth in mothers who had lost any first-degree relative the year before or during pregnancy. Due to the important role of stress in pregnancy, it is essential to have psychological interventions targeting women with previous miscarriages or stillbirths to improve maternal and neonatal outcomes.

Keywords: Stillbirth, pregnant, women, stress

Introduction
If the pregnancy ends before the 20th week of pregnancy, it is known as a miscarriage. Termination of pregnancy after this time is known as stillbirth [1]. According to the research conducted in this case, it was found that the probability of stillbirth was higher in most women who were stressed. Experiencing stress during pregnancy can increase the probability of stillbirth in a pregnant woman. Wisborg *et al*. performed a study on 66 stillbirths in Denmark and reported about 2 times the high risk of stillbirth for women with high stress [2]. When a person is faced with stressful factors, need or threat, two main physiological cascades occur. One is related to the autonomic nervous system and the release of catecholamine, especially norepinephrine and epinephrine, and the other involves the hypothalamus-pituitary-adrenal axis, which mostly leads to the release of corticotropin, adrenocorticotropin, and cortisol. The response of the hypothalamus-pituitary axis of the fetus leads to an increase in the level of cortisol, which increases the amount of neuro-muscular responses, glycogenolysis, the reduction of uterine-placental blood flow, and the release of the hormone oxytocin, which leads to early uterine muscle contractions, reducing blood supply to the fetus, oxygenation and nutrition of the fetus and as a result the occurrence of bad pregnancy outcomes such as premature delivery, stillbirth and low birth weight of the baby [3-6].
The cause of stillbirth is not known in all people; however, taking the some actions can increase the chances of having a healthy baby: quitting smoking, having a balanced weight or maintaining a healthy weight, avoiding drugs, controlling blood pressure and diabetes. Trauma, infection, genetics, lupus, coagulopathy, preeclampsia and alcohol consumption increase the chance of stillbirth [7].
The most common factors related to stillbirth are lack of adequate prenatal care, history of intrauterine death, hypertension, asphyxia, trauma and prolonged infection, and old age of the mother [8-10]. Apart from pregnancy, which itself provides very stressful conditions for pregnant mothers, the presence of infectious diseases is also associated with increased stress, so infections may be associated with increased stillbirths, and according to available reports, COVID-19 is not also an exception to this rule and it increases the risk of stillbirth, then preventing the infection of COVID-19 means reducing the possibility of stillbirth in pregnant women.

For most women, pregnancy is very stressful and it can even be said that it is the biggest stress in every woman's life. Therefore, in the conditions that other stressful factors and incidents such as economic factors, married life and low social class are associated with it, its effects intensify and can lead to adverse pregnancy outcomes like stillbirth [11-14].

Stress is a potentially intriguing explanatory factor for having a stillbirth. Stress increases the production of some biomarkers and hormones activating inflammatory, vasoactive, and neuroendocrine pathways. Many of these pathways led to preterm labor as well as fetal growth retardation, preeclampsia and placental abruption, and all result in stillbirth [15, 16]. American College of Obstetricians and Gynecologists recommended screening pregnant women for psychosocial risks like stress in each trimester [17].

Twenty-five to 75% of mothers experience stressful life events or issues related to social health during pregnancy. Previous studies have shown that the psycho-social stress of the mother is related to her education, personality traits, personal characteristics and environmental and social effects [18]. In a nationwide Swedish study consisting of 3 million births from 1973 to 2006, the relationship between maternal bereavement during pregnancy and about 11,000 stillbirths was investigated. There were about 11,000 stillbirths (3.8 per 1,000 births) in the cohort. Results showed an 18% higher risk of stillbirth in mothers who had lost any first-degree relative the year before or during pregnancy [19]. Due to the important role of stress in pregnancy, it is essential to have psychological interventions targeting women with previous miscarriages or stillbirths to improve maternal and neonatal outcomes [20]. The research found that the COVID-19 virus can involve all organs like kidneys, lungs, eyes, and skin, and even can result in depression and other psychological problems [21-26]. Pregnant women are more vulnerable compared to others in front of infections and their consequences so the psychological impact of COVID-19 must be considered in the interpretation of decisions during the COVID-19 pandemic [27].

Conclusion

Pregnancy is very stressful for every woman in her life and lots of stress is associated with stillbirth. Any type of stress (physical/non-physical) increase the possibility of stillbirth in which there is approximately 1.18 times higher risk of stillbirth in mothers who had lost any first-degree relative the year before or during pregnancy. Due to the important role of stress in pregnancy, it is essential to have psychological interventions targeting women with previous miscarriages or stillbirths to improve maternal and neonatal outcomes.

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