



## **Myocardial infarction in pregnant women - A review**

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### **Abstract**

**Introduction:** Myocardial infarction is one of the most common causes of hospitalizing patients in industrial countries; in the US, 1.1 million people suffer from this disease, and about 30 percent of them die from the complications arising from this disease(1). The main cause of cardiac diseases especially myocardial infarction is arteriosclerosis of the coronary arteries. The most important measure to minimize the myocardial infarction rate and its complications is minimizing the risk factors(4). Riegel maintains that by modifying and improving the risk factors among the groups at risk, the rate of infection and mortality of myocardial infarction can be reduced that can result in preserving the productive forces of the society and promoting the individuals' quality of life.

**Material and method:** The present study was conducted by searching both English and Persian databases including magiran, SID, Google scholars, and science direct pub med by using keywords such as myocardial infarction , pregnant women , review. At first, the researcher searched a large number of studies. Then, from among the studies searched, those that were not related to the subject of the present study were removed, and the researcher used only those studies having a proper relationship with the present study. In the present study, it was attempted to investigate the myocardial infarction in pregnant women.

**Discussion:** Women at fertility ages are less likely to die due to cardiovascular diseases than men of the same ages. This can indicate that estrogen has a protective effect on women before menopause. However, from half a century ago, the time when contraceptive pill were used everywhere around the world, the results of several studies have shown that consuming different amounts of estrogen in combined contraceptive pills is associated with increased blood pressure. Increased blood pressure due to pregnancy is a common disorder which, together with bleeding and infection, make the death-causing triad.

**Keywords:** Myocardial infarction , pregnant women, review

### **Introduction**

Myocardial infarction is one of the most common causes of hospitalizing patients in industrial countries; in the US, 1.1 million people suffer from this disease, and about 30 percent of them die from the complications arising from this disease(1). The main cause of cardiac diseases especially myocardial infarction is arteriosclerosis of the coronary arteries. Although the risk factors

of arteriosclerosis are numerous, the risk factors of coronary artery disease are divided into non-modifiable such gender, age, family history, and modifiable such as blood lipids level, high blood pressure, diabetes, smoking, obesity, inactivity, stress, emotional excitement, inappropriate diet, and taking contraceptive pills(2). The prevalence of coronary artery disease varies based on the

geographic location, underlying disease, and behaviors that are likely to increase suffering from coronary artery disease. In spite of the modern therapeutic techniques for the coronary artery diseases as well as the significant developments in caring for the patients suffering myocardial infarctions, the patients' mortality rate due to myocardial infarction has not decreased, and this disease is still behind the individuals' reduced longevity and their reduced useful years of the individuals' lives before they are 65(3). The most important measure to minimize the myocardial infarction rate and its complications is minimizing the risk factors(4). Riegel maintains that by modifying and improving the risk factors among the groups at risk, the rate of infection and mortality of myocardial infarction can be reduced that can result in preserving the productive forces of the society and promoting the individuals' quality of life(5).

## Materials and Methods

The present study was conducted by searching both English and Persian databases including magiran, SID, Google scholars, and science direct pub med by using keywords such as myocardial infarction , pregnant women , review. At first, the researcher searched a large number of studies. Then, from among the studies searched, those that were not related to the subject of the present study were removed, and the researcher used only those studies having a proper relationship with the present study. In the present study, it was attempted to investigate the myocardial infarction in pregnant women.

## Discussion

Women at fertility ages are less likely to die due to cardiovascular diseases than men of the same ages. This can indicate that estrogen has a protective effect on women before menopause. However, from half a century ago, the time when contraceptive pill were used everywhere around the world, the results of several studies have shown that consuming different amounts of estrogen in combined contraceptive pills is associated with increased blood pressure(6). Changes in angiotensin renin system and catecholamine levels have been observed in

people who consume these pills. Estrogen and progesterone, which constitute the components of contraceptive pills, both cause increased blood pressure. Increased blood pressure due to pregnancy is a common disorder which, together with bleeding and infection, make the death-causing triad(7). Around 0.05% of pregnant women develop preeclampsia which causes the majority of complications and mortalities during pregnancy(8). Despite extensive research, the formation and intensification of hypertension during pregnancy has remained as an unsolved problem(9). Some studies have mentioned obesity as the risk factor for preeclampsia and have shown that the relationship between the mother's weight and preeclampsia is a progressive risk and varies from 0.3 to 0.4 in women with a body mass index of 35 kg/m<sup>2</sup> or higher(10). The level of C reactive protein which is an inflammatory index increases during pregnancy, and this protein is effective in the development of preeclampsia. Also, there is evidence showing that obesity causes an increase in endothelial activity and a kind of systemic inflammatory response with atherosclerosis contribute to the development of gestational hypertension. The results of the present study showed that female infants who are overweight during infancy are exposed to a higher risk of developing pregnancy poisoning (11). In addition to maternal complications and pregnancy blood pressure disorders, fetal and infancy complications are other main complications of this disease(12). The classification of cardiovascular patients' activities by the New York Heart Association is an attempt to accurately define the status of heart patients 7 based on symptoms and the degree of their level of activity (13). This classification is frequently used to evaluate the intensity of cardiovascular diseases and their prognosis during pregnancy and, generally, it seems that pregnancy is safe for pregnant patients of I and II classes. For class III patients, special attention during pregnancy and early hospitalization before labor pains begin are suggested (14). Generally, pregnancy for class IV patients is contradicted. Although this classification based on activity degree is accepted everywhere, it should be noted that this method can be wrong, and changes in the normal activity of the cardiovascular system and the anatomic

activity of the heart which occur during pregnancy may mislead us in diagnosing the disease. Therefore, extra diagnosing devices are necessary for obtaining concrete and trustworthy information about heart conditions of pregnant patients. Heart failure during pregnancy is a very rare incident which occurs in one out of every 30,000 live births. Although heart failure is not a prevalent incident, it is associated with high mother and infant mortality rates. Despite the fact that most of resuscitation features in pregnant women are similar to resuscitation features for adults, some aspects of the process are uniquely different. The most prominent difference is the existence of side risk for two patients, namely the mother and the fetus(15). Performing cardiopulmonary resuscitation in pregnant women is relatively different from other cases of resuscitation due to the physiological changes associated with pregnancy and the difficulties associated with the amniotic fluid. In these people, there are the risks of fast worsening of hypoxia, pulmonary aspiration, and compression of the lower inferior vein. The most common reasons for the need for cardiopulmonary resuscitation during pregnancy include amniotic fluid embolism, uterine atony, placental abruption, placenta previa, preeclampsia/eclampsia, poisoning by tocolytics, heart failure, and sepsis. Other factors include a variety of heart diseases, Cerebrovascular accidents, complications of anesthesia, thrombosis.

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