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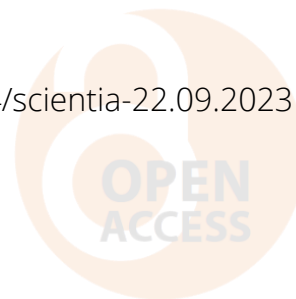
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## **RISK OF CARDIOVASCULAR DISEASES IN WOMEN WITH A SPONTANEOUS ABORTION IN ANAMNESIS**

An estimated 15% of pregnancies end in miscarriage. Miscarriage can lead to serious morbidity, including haemorrhage, infection, and even death, particularly in settings without adequate healthcare provision [1]. The consequences of miscarriage are both physical, such as bleeding or infection, and psychological. Miscarriage, and especially recurrent miscarriage, is also a sentinel risk marker for obstetric complications, including preterm birth, fetal growth restriction, placental abruption, and stillbirth in future pregnancies, and a predictor of longer-term health problems, such as cardiovascular disease and venous thromboembolism [2]. Spontaneous abortion, particularly recurrent spontaneous abortions and spontaneous abortions occurring early in a woman's reproductive life, was associated with an increased risk of premature death. The greater risk of all cause premature mortality associated with spontaneous abortion was mainly a result of a higher risk of death from cardiovascular disease [3]. Metabolic effects contributing to miscarriage is one possible link to future CVD. Decidualisation is adversely affected by metabolic disorders, and endocrine disorders. However, there are many other factors that may contribute to or cause miscarriage, such as demographic risk factors such as maternal age, smoking, work shift patterns, alcohol intake and high stress state. There is significant overlap with risk factors for CVD, so any association may be down to common risk factors [4]. The association between spontaneous abortion and cardiovascular disease might reflect shared mechanistic pathways that contribute to spontaneous abortion and to the development of cardiovascular disease and ultimately premature death [3, 5]. Cardiovascular disease (CVD) remain a major cause of health loss for all regions of the world. CVDs, principally ischemic heart disease (IHD) and stroke, are the leading cause of global mortality and a major contributor to disability [6, 7, 8]. Nationwide cohort study found that pregnancy loss or stillbirth was significantly associated with incident myocardial infarction and stroke, but not all-cause mortality, in women. The mechanisms accountable for the association between pregnancy loss and myocardial infarction in women remain elusive. Possibly, preceding maternal factors, such as endothelial dysfunction, immunological disease, or genetic disposition, explain some of the association [9]. Induced abortion was unrelated to CVD, suggesting that the interruption of pregnancy itself is not the

aetiological mechanism but rather that the underlying pathophysiology resulting in an increased risk of pregnancy loss (PL) may also lead to greater CVD morbidity. The relation of PL and CVD persisted regardless of the subsequent development of cardio-metabolic risk factors for CVD (type 2 diabetes, hypertension, or hypercholesterolaemia). PL may be aetiologically linked to CVD through shared mechanistic pathways that could result in poor placental function, eventually leading to PL and CVD. The association between PL and risk of CVD increased with increasing number of PLs and is inversely correlated to maternal age. Likely mechanisms leading to PL and an increased risk of CVD include endothelial dysfunction, a pro-inflammatory state, antiphospholipid syndrome, autoimmunity, and genetic predisposition [10, 11].

Research shows that there are many factors that can contribute to or directly cause miscarriage, which is the most common cause of pregnancy loss. The association between spontaneous abortion and cardiovascular disease may reflect shared mechanisms that contribute to both spontaneous abortion and increased risk of cardiovascular disease. Such mechanisms may include metabolic and endocrine disorders, endothelial dysfunction, proinflammatory state, genetic predisposition, etc.

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