



Pregnancy Related Heart Diseases: A Review

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

To summarise the literature regarding susceptibility of pregnant women to heart disease, we have conducted a review using a PubMed search and other strategies during the month of february 2021. Studies were included if they reported information on heart disease in pregnant women pregnant existing conditions which can predispose the pregnant woman to cardiovascular disease included hypertension, diabetes mellitus and congenital heart disease. Women often present with symptoms and signs of acute heart failure. On the other hand there is a disease which is directly related to pregnancy such as hypertension disorder of pregnancy and peripartum cardiomyopathy or where pregnancy increases risk of a disease as example, the risk of a myocardial infarction. This review summarises the knowledge about awareness on pregnancy related heart disease.

Keywords: *Pregnancy; awareness; heart disease; heart failure; Innovative technique; myocardial infarction.*

1. INTRODUCTION

Any disorder that affects the heart. Sometimes the term "heart disease" is used narrowly and

incorrectly as a synonym for coronary artery disease. Heart disease is synonymous with cardiac disease but not with cardiovascular disease which is any disease of the heart or

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blood vessels [1,2]. Pregnancy is the term used to describe the period in which a fetus develops inside a woman's womb or uterus. Pregnancy usually lasts about 40 weeks, or just over 9 months, as measured from the last menstrual period to delivery. Health care providers refer to three segments of pregnancy, called trimesters [3]. Heart failure is one of the most important complications in pregnant women with heart disease causing maternal and fetal mortality. Heart disease is the most common complication during pregnancy and occurs typically at the end of the second trimester. Heart disease of pregnancy encompasses a broad arena of pathologies [4]. Heart disease may be an exacerbation of the existing conditions that the pregnant woman may already have or they may develop a new disease process that presents because of the complex hormonal changes and physiology of pregnancy. Ischemic heart disease in pregnant women is similar to the non pregnant woman. Risk factors which expose these individuals to ischemic heart disease include hypertension, hyperlipidemia and hyperlipidemia ,diabetes mellitus, obesity, smoking and immobility [5,6]. Many females enter pregnancy with heart disease. These individuals may be aware or unaware of these before pregnancy based on the level of function. The physiologic changes of pregnancy can prove challenging for these women to compensate [7,8].

The physiological changes of pregnancy (increases heart rate, increases circulating volume) are in full effect in the sound trimester, these pregnancy patients may experience a severe exacerbation of their underlying heart disease. Besides angiotensin converting enzyme inhibitors and angiotensin receptors blockers, other medications used for heart disease can be resumed. Aortic stenosis in pregnancy is less common, it is often more challenging to treat. Beta blockers are not effective as they are mitral stenosis in reducing transvalvular gradient [9-11]. Spontaneous coronary artery dissection is an atypical cause of acute myocardial infarction. Its incidence, however, increases in pregnant women .The aim of the study is to raise awareness on pregnancy related heart disease. The literature review was carried out from scopus and the pubmed database from 2000 till date. Five steps process involved in selection of articles. They are identification of relevant articles, section of articles, data extraction and charting and final analysis and report. Recent similar, relevant publications are taken into account for the collection of knowledge and to

get clear about it. Articles Collected through medline, embase Cochrane library.

2. CARDIOVASCULAR DISEASE IN PREGNANCY

Cardiac diseases of pregnancy encompasses a broad arena of pathologies. There are many cardiac diseases during pregnancy but women are not aware and require further inquiry. Arrhythmia is the most common cardiac complication encountered during pregnancy in women with and without structural heart disease. Congestive heart disease has been an increase in the number of women of children bearing age with congestive heart disease and these women are not particularly at high risk for arrhythmias [12]. Blood pressure slightly decreases early in pregnancy, overall, more commonly diastolic blood pressure decreases and predominates over systolic blood pressure early in pregnancy. Usually, this value normalises or even increases by the end of pregnancy. Effects of maternal cardiac disease on pregnancy are preterm delivery, fetal growth restriction, fetal death and Congenital heart disease [13].

3. ASSESSMENT OF CARDIAC FUNCTION IN PREGNANCY

The physiological change associated with pregnancy give rise to symptoms and signs which may cause confusion in the assessment of cardiac disorder such as dyspnoea, tachycardia, ankle oedema, softejction. The functional capacity or the functional reserve of the heart should be assessed because it is usually more important than the anatomical nature of the lesion [14,15].

4. ACUTE MYOCARDIAL INFARCTION IN PREGNANCY

Acute myocardial infarction has been reported to occur with a frequency of 3 to 10 cases per 100000 deliveries. Pregnancy itself has not usually been thought of as a risk factor for acute myocardial infarction but pregnancy is accompanied by not only an increase in blood volume and altered thermodynamics but an increase in estrogen and progesterone. Oral estrogen and progestin at least have been implicated as a risk factor for cardiovascular disease [16,17]. The prevalence of certain cardiovascular risk factors, particularly advanced maternal age and obesity is increasing the

incidence of pregnancy related acute myocardial infarction may also be increasing, but there has been insufficient data to evaluate risk factors or trends. Because of the rarity of pregnancy related acute myocardial infarction, it is difficult to estimate its incidence, identify its risk factors and report outcomes such as mortality [18,19].

5. CONGESTIVE HEART DISEASE

The risks associated with pregnancy in women with congenital heart disease include adverse maternal and fetal outcomes. Pregnancy results in sufficient hemodynamic changes that may not be well tolerated in women with congenital heart disease. Cardiac output, heart rate and blood volume all increase substantially with pregnancy [20]. Systemic vascular resistance decreases during pregnancy but will increase dramatically at the time of delivery. Delivery also results in a sudden increase in venous return. Determining which women are at increased risk of adverse outcomes and providing advice about pregnancy is optimally done before conception as a part of a full cardiac evaluation [21,12].

6. PULMONARY STENOSIS

Pulmonary stenosis is a condition characterized by obstruction to blood flow from the right ventricle to the pulmonary artery. This obstruction is caused by narrowing at one or more points from the pulmonary artery. Areas of potential narrowing include thickened muscle below the pulmonary valves, stenosis of the valve itself or stenosis of the pulmonary artery above the valve [22,23].

The most common form of pulmonary stenosis is obstruction at the valve itself referred to as pulmonary valve stenosis. Those with mild or moderate pulmonary stenosis can often tolerate pregnancy, those with more severe pulmonary stenosis may experience heart complications during pregnancy. They should have the obstruction repaired before becoming pregnant once, as most women do well in pregnancy. Puerperal cardiomyopathy, myocardial infarction, aortic dissection, cardiomyopathy and myocarditis, primary pulmonary hypertension, endocarditis, CFC, dysrhythmia can cause maternal deaths in pregnant women [24]. Our team has extensive knowledge and research experience that has translate into high quality publications [25-44].

7. CONCLUSION

This study will provide a cornerstone to promote further studies and to motivate people during pregnancy. Complicated heart disease was found as important risk factors for intrauterine growth restriction among pregnant mothers suffering from heart disease. Stress is a major component of cardiac events. It may not cause disease, but it can trigger heart attacks. Every Woman should be aware about heart disease during pregnancy.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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