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Knowledge, Attitude and Practice of Preconception Care Among Sudanese Women in Reproductive Age About Rheumatic Heart Disease

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Abstract

Background: Cardiovascular disease complicates 1% to 3% of all pregnancies and 90% being of rheumatic origin. With adoption of preconception care policy a lot of adverse situation could be picked and corrected and patient who is at high risk could be counseled against pregnancy. *Objectives:* To study knowledge, attitude and practice of preconception care among Sudanese women with rheumatic heart disease in reproductive age. *Methodology:* It was cross-sectional, hospital based and total coverage study carried out at Alshaab and Ahmad Gassim hospitals (cardiac centres) in Khartoum State, Sudan during the period from October 2014 to October 2015. One hundred women who were known case of rheumatic heart disease were incorporated. *Results:* During the study period, a total of 100 women with underlying Rheumatic heart disease were reviewed. Mean age of the patients was 30.92 years (SD 5.38 years). 44% of the women were educated, majority of them were multiparity (79%) and half of them were with multivalve lesion. Awareness regarding preconception care was seen in only 11% of the women interviewed, nearly one third had positive attitudes towards preconception care, the majority of the women either partial know or have no knowledge about the impact of pregnancy on their disease and almost half of the women (49%) intend to seek preconception care next time. *Conclusion:* Preconception care and the availability of well designed multidisciplinary care are still poor and challenge in our humbled setup. Despite having poor knowledge, compliance for seeking preconception care is high among our women.

Keywords

Knowledge, Attitude, Practice, Preconception Care

1. Introduction

Pregnancy in most women with heart disease has a favourable maternal and fetal outcome. With the exception of patients with Eisenmenger syndrome, pulmonary vascular obstructive disease, and Marfan syndrome with aortopathy, maternal death during pregnancy in women with heart disease is rare. However, pregnant women with heart disease do remain at risk for other complications including heart failure, arrhythmia, and stroke. Women with congenital heart disease now comprise the majority of pregnant women with heart disease seen at referral centres. The next largest group includes women with rheumatic heart disease [(1)].

Because more women with congenital or acquired heart disease are reaching childbearing age due to improved medical and surgical care, and desire children, so the

incidence of cardiovascular disease in pregnancy is increasing [1]. Rheumatic heart disease (RHD) is the most important sequel of rheumatic fever. In developed countries, rheumatic fever and RHD have become uncommon health problems while in third world areas such as India, Middle East and Africa, rheumatic fever remains the leading cause of heart disease in children and young adults. Consistent with a reduced incidence of rheumatic fever, the incidence of rheumatic heart disease has declined over the last 40 years. The prevalence of rheumatic heart disease in pregnancy has decreased in developed countries such that the previous ratio of rheumatic to congenital heart disease of 3–4:1 has essentially been reversed [2]. However, a resurgence of rheumatic fever has been reported in some areas of the United States. In patients with rheumatic heart disease, the mitral valve is most commonly affected. Mitral stenosis occurs in approximately 90% of patients and mitral regurgitation in 7%. The aortic valve is the second most commonly affected valve, although to a lesser degree; aortic regurgitation is present in 2.5% of patients and aortic stenosis in only 1% [3]. Although the tricuspid and pulmonic valves may also be affected, such involvement is almost always combined with mitral or aortic disease.

The situation in Sudan is similar as result of second survey for RHD prevalence done by Marijon et al., show that prevalence of RHD as detected by echocardiographic screening is 10 times that of clinical screening [3]. Prevalence of rheumatic heart disease in Sudan was found to be 3/1 000 population, as quoted by the World Health Organisation [3].

Preconception care is recognized as a critical component of health care for women of reproductive age especially with medical disease. The main goal of preconception care is to provide health promotion, screening, and interventions for women of reproductive age to reduce risk factors that might affect future pregnancies. Preconception care is part of a larger health-care model that results in healthier women, infants, and families [3,4].

Preconception care is more than a single visit to a health-care provider and less than all well-woman care, as defined by including the full scope of preventive and primary care services for women before a first pregnancy or between pregnancies (i.e., commonly known as interconception care) [4]. The aim of this study was to study knowledge, attitude and practice of preconception care among Sudanese women with rheumatic heart disease in reproductive age.

2. Material and Methods

It was cross-sectional, hospital based and total coverage study carried out in Alshaab and Ahmad Gassim hospitals (cardiac centre's) in Khartoum State, Sudan in the period from October 2014 to October 2015. One hundred women who were known case of rheumatic heart disease were enrolled. All women were married and in the reproductive age (15- 45 years), while women whose severely ill were excluded. Data were collected by direct interview using structured collection sheet included questions covering the following areas: personal data and demographic information, obstetrical history and preconception care knowledge, attitudes and practice.

Statistical analysis was performed via SPSS software (SPSS, Chicago, IL, USA). Continuous variables were compared using Student's t test (for paired data) or Mann–Whitney U test for non-parametric data. For categorical data, comparison was done using Chi-square test (X2) or Fisher's exact test when appropriate. A P value of < 0.05 was considered statistically significant.

Ethical clearance and approval for conducting this research was obtained from the general manager of the two hospitals and informed written consent was obtained from every respondent who agreed to participate in the study. Of course, the respondents informed that the study is not associated with experimental or therapeutic intervention while information was collected from her.

3. Results

During the study period, a total of hundred women with underlying Rheumatic heart disease, attending the two hospitals were included. (54%) were between 25-34 years and the mean age was 30.92 (SD 5.38 years). 79% were multiparity women, majority of them were primary and secondary education 42%, 27% respectively and (47%) of women were used family planning. Only (11%) had knowledge about the preconception care. (40%) of the participants in the study had been offered counseling against pregnancy and only half of the women had been counseled as couple (Table 1).

50% of cases reviewed were found to be Multivalvular, mixed valvular were (27 %), mitral rigurgitation were (13%) and mitral stenosis were (10%). The majority of women (83%) believed in benefit of preconception care, and (17%) were not (Table 2). There was poor knowledge regarding the fetal complication with rheumatic heart disease and (22%) of women related the disease to the miscarriage. Nicely, there was good practicing as all of the women who had counseled against pregnancy had agreed that the advice was clear and they accepted the advice.

49% of women intend to seek preconception care next time. There was malpractice regarding the family planning as more than half didn't use family planning methods (53%). The rest who used the contraception depend on the intrauterine device in about one third of patient (32%), (25%) use the hormonal methods and (15%) had a tubal ligation before (Table 2).

Table 1. *Preconception knowledge in relation to socio demographic characteristics of responders.*

Knowledge about preconception care	Yes	No	P value
Age			
15-24 years	0 (0.0%)	15 (15.0%)	
25-34 years	7 (7.0%)	47 (47.0%)	0.726
35-45 years	4 (4.0%)	27 (27.0%)	
Total	11(11.0%)	89(89.0%)	
Party			
Nulipra	4(4.0%)	06(06.0%)	
Multipara	5(5.0%)	74(74.0%)	0.143
Grandmultipara	2 (2.0%)	09 (09.0%)	
Total	11(11.0%)	89(89.0%)	
Education			
No education	01(01.0%)	18(18.0%)	
Primary	02(02.0%)	42(42.0%)	0.00*
secondary	02(02.0%)	27(27.0%)	
University	06 (06.0%)	02(02.0%)	
Total	11 (11.0%)	89 (89.0%)	
Counseling against pregnancy			
Yes	9(9.0%)	31(31.0%)	0.00*
No	2(2.0%)	58(58.0%)	
Total	11 (11.0%	89 (89.0%)	
Uses of FP			
Yes	7 (7.0%)	40 (40.0%)	0.01*
No	4(4.0%)	49 (49.0%)	
Total	11(11.0%)	89(89.0%)	

*Significant

Table 2. *Preconception knowledge significance table and the p value among respondents.*

Knowledge about preconception care	Yes	No	P value
Type of lesion			
Multivalvular	2 (02.0%)	48 (48.0%)	
Mixed valvular	2 (02.0%)	25 (25.0%)	0.152
MR	4 (04.0%)	09 (09.0%)	
MS	3(03.0%)	07(07.0%)	
Total	11(11.0%)	89(89.0%)	
Outcome			
Miscarriages	04(04.0%)	18(18.0%)	
IUFD	04(04.0%)	0(0.0%)	
SB	01(01.0%)	0(0.0%)	0.04*
Miscarriages and IUFD	02 (02.0%)	0(00.0%)	
Don't know	0 (00.0%)	71 (71.0%)	
Total	11(11.0%)	89 (89.0.%)	
Corrective surgery			
Yes	8(8.0%)	16(16.0%)	0.17
No	3(3.0%)	73(73.0%)	
Total	11 (11.0%)	89 (89.0%)	
Impact of RHD on pregnancy			
Yes	1(1.0%)	01(01.0%)	
Partially	7(7.0%)	43(43.0%)	0.00*
No	3(3.0%)	45(45.0%)	
Total	11(11.0%)	89(89.0%)	
Time of diagnosis			
Childhood	3 (3.0%)	37 (37.0%)	
Pregnancy	3 (3.0%)	35 (35.0%)	0.012*
Postnatal	5 (5.0%)	17 (27.0%)	
Total	11(11.0%)	89(89.0%)	
Believe in benefit of preconception care			
Yes	10(10.0%)	73(73.0%)	0.00*
No	01(01.0%)	16(16.0%)	
Total	11 (11.0%)	89 (89.0%)	

*Significant

4. Discussion

Globally, complications of heart disease during pregnancy account for a substantial proportion of maternal morbidity and mortality [4]. Physiological increases in blood volume, heart rate, and cardiac output occur in pregnancy but can exacerbate underlying cardiac conditions, particularly during the latter half of the pregnancy. Preconception care is a broad term that refers to the process of identifying social, behavioral, environmental, and biomedical risks to a woman's fertility and pregnancy outcome and then reducing these risks through education, counseling, and appropriate intervention, when possible, before conception [5].

Mitral stenosis is the most common rheumatic valvar lesion encountered during pregnancy. The hypervolaemia and tachycardia associated with pregnancy exacerbate the impact of mitral valve obstruction. The resultant elevation in left atrial pressure increases the likelihood of atrial fibrillation. Thus, even patients with mild to moderate mitral stenosis, who are asymptomatic before pregnancy, may develop atrial fibrillation and heart failure during the anteand peripartum periods. Atrial fibrillation is a frequent precipitant of heart failure in pregnant patients with mitral stenosis, primarily caused by uncontrolled ventricular rate, and equivalent tachycardia of any cause may produce the same detrimental effect. Earlier studies examining a pregnant population comprised predominantly of women with rheumatic mitral disease showed that mortality rate increased with worsening antenatal maternal functional class. A more recent study found no mortality but described substantial morbidity from heart failure and arrhythmia [6]. Pregnant women whose dominant lesion is rheumatic aortic stenosis have a similar outcome to those with congenital aortic stenosis [5]. Severe aortic or mitral regurgitation is generally well tolerated during pregnancy although deterioration in maternal functional class has been observed.

The mean maternal age among our patients is (30.92±5.38), range (25–35) years, this is similar to study done in Mulago hospital [11]. Out of the 100 cases involved in this study, 38 were diagnosed during pregnancy, and about 24 (24.0%) had cardiac surgery. Our result is higher than study which done at Khartoum in 2013 [8] where (24.62%) diagnosed for the first time during pregnancy. This may be due to that disease became symptomatic after the hemodynamic changes which happened during pregnancy. One the other point of view 60% of women were diagnosed late. This represents lack in the diagnostic tools, high home delivery, poor preconception care and lack of proper health system.

The results of this study showed that the knowledge about preconception care among our women was 11% as compared to 76.0% and 43% in studies conducted at Mexican American women[6] and Nigeria. [7]. However, high awareness rate of preconception care was found among Mexican American women in survey at an urban public hospital [6]. Our finding is extremely low compared with Mexican American women and Nigerian women studies but somewhat comparable to those reported by Sudanese women in Khartoum Teaching Hospital study which revealed knowledge rate of 7.7% [8]. The discrepancy between our study and these studies can be explain by multiple factors such as , health system is not properly activating the pre-conception services , lack of multidisciplinary approach in patient counseling and management .

In the current study, measure factors that influenced rating of knowledge and practice of preconception care were education and source of information. It was observed that there was strong and significance association between knowledge, practice of preconception care and level of education. These findings are consistent with other study done in Nigeria [7] which showed strong association between education level and high preconception care. This is also supported by the findings from Rotterdam, Netherlands, survey 2009-2010 , showed that intention and knowledge to attend preconception care was significantly higher in women with a higher maternal age (β 0.04, P = 0.008) and high educational level (β -1.23, P = 0.03) [9].

Another factor responsible for knowledge of preconception care is the exposure of messages through counseling. Counseling, electronic media play an important role in a society, women were more likely to use preconception care when messages of awareness were delivered through media [8]. The current study revealed that there was no relation between the parity and knowledge of those women with (P-value .027). Our result was comparable to Rotterdam study [9] which found that no relationship between the preconception care and multiparity with previous adverse perinatal outcome.

Overall, majority of our respondents had a positive attitude towards preconception care , In spite of poor knowledge regard preconception care ,majority of them believed in benefit of preconception care , Other studies have already described similar findings [9], i.e. low awareness but high intention and utilization of preconception care, again our result is correlate with Mexican American study where 98% believed in the preconception care and its benefit on the pregnancy [9].

The current study is not without limitations, one of the limitations of the present study was that husband was not directly involved in the study. Further studies should be done with proper involvement of couples to obtain more accurate knowledge on the subject in our population. Other limitation of the present study was confounded by inadequate sample size or selection bias. Small sample size is open to a beta-II type error: a failure to accurately identify a true difference (i.e., a false negative result). Selection bias may lead to spurious differences (i.e., a false positive result).

5. Conclusion

The current study concludes that a significant proportion

of respondents have lack of knowledge regarding preconception care. Despite this poor knowledge, majority of women believed in preconception care. Lacks of education, counseling and proper health system are significant reasons for low compliance. Preconception care and the availability of well-designed multidisciplinary care are still challenged in our country.

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