

An Observational Study of Causes of Recurrent Spontaneous Abortion among Sudanese Women

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Objective: Our aim was to identify causes of recurrent spontaneous abortion among Sudanese women population. **Method:** Observational study was carried out in Omdurman Maternal Hospital, Sudan between June 2013 to Aug. 2014. The study enrolled 100 women aged 17 to 45 years with history of at least three or more of recurrent spontaneous abortion less than 20 weeks gestation. Questionnaire and direct interview were used to collect information and detailed clinical history, thorough clinical examination and investigated with all patients of pre-decided laboratory tests and special tests wherever relevant and possible, were done then the causes of recurrent spontaneous abortion were evaluated among all cause which enrolled in this study. **Results:** Out of 100 cases 24% were diagnosed, while 76% cases remained unexplained. Inherited thrombophilia were detected in 14%, Anatomical causes was detected in 1% cases, 6% had Endocrine etiology comprising of diabetes mellitus and Infective cause in 3% of women. **Conclusion:** we conclude that from our study the majority of cases of recurrent spontaneous abortion remain unexplained and inherited thrombophilia causes account for majority causes in SRA.

Keywords: Sudanese Pregnant Women, Recurrent spontaneous abortion

1. Introduction

Recurrent Spontaneous abortion is defined as consecutive pregnancy loss before 20 weeks gestation or fetal weight of 500 g or less ⁽¹⁾. There are numerous factors that may cause (RSA), but the underlying problem often remains undetected. The known causes of RSA include chromosomal and metabolic abnormalities, uterine anomalies, and immunologic factors ⁽²⁾. Still now the etiology of recurrent pregnancy loss (RPL) remains unclear, but it may be related to a possible genetic predisposition together with involvement of environmental factors ⁽³⁾. Historically, recurrent miscarriage has been attributed to either genetic, structural, infective, endocrine, immune, or unexplained causes. Thrombophilic disorders are thought to play a part in the cause of recurrent pregnancy loss, which widens the scope of investigations and management options for recurrent miscarriage. Many syndromes associated with recurrent fetal loss include anatomic anomalies, endocrine/hormonal abnormalities, genetic, chromosomal abnormalities, and blood coagulation protein/platelet defects ⁽⁴⁾. The risk of (RSA) after two consecutive losses is 17% to 25% and the risk of miscarrying fourth pregnancy loss after three consecutive losses is between 25% and 46% ⁽⁵⁾. Clinical studies indicate that the risk of another miscarriage after 3 consecutive pregnancy losses is 30-45%. Furthermore, without any workup or treatment, the chance of a successful live birth in a couple with a history of RPL and no previous live birth is 55-60%. If the couple has a history of RPL and has had at least one previous normal pregnancy, the chance of a subsequent live birth is 70% ⁽⁶⁾. Also there are many cause of RSA related to environmental factor like cigarette smoking has been suggested to have an adverse effect on trophoblast function and is linked to an increased risk of sporadic pregnancy loss. Also obesity has been shown to be associated with an increased risk of RSA

in women who conceive naturally. Other life-style habits such as cocaine use, alcohol consumption (3 to 5 drinks per week), and increased caffeine consumption (> 3 cups of coffee) have been associated with risk of pregnancy loss ⁽⁷⁾.

2. Materials and Methods

Between June 2013 to Aug 2014, 100 women, 17– 45 years of age, with at least 3 recurrent spontaneous consecutive abortions were referred to the Omdurman Maternity Hospital in Sudan. The study group data collected using structure questionnaire and direct interview to collect information about age, parity, medical and obstetric history, smoking, family medical and obstetric history, residency and history of infections. clinical examination and investigated with all patients of pre-decided laboratory tests and special tests wherever relevant and possible, were done then the causes of recurrent spontaneous abortion were evaluated among all cause which enrolled in this study. Then data were entered and analyzed by SPSS programme (version: 17.0). All demographic data of the study population were presented as mean ± SD in the text and Odds Ratio was used for detecting the power of relationship between the determinant and the outcome and 95% confidence interval was calculated.

Ethics:

Ethical consent was obtained from ethical committee of Hospital of Omdurman Maternity Hospital (Sudan).

3. Results

Out of 100 cases 24% were diagnosed, while 76% cases remained unexplained. Inherited thrombophilia were detected in 14%, Anatomical causes was detected in 1%

cases, 6% had Endocrine etiology comprising of diabetes mellitus and Infectiv cause in 3% of women.

Table 1: Demographic distribution and causes among of patients

Characteristics	Patients N (%)	
Age group	17-24	10(10.1)
	25-29	29(29.3)
	30-34	27(27.3)
	35-39	21(21.2)
	≥40	12(12.1)
Area of resident	Khartoum	8(8.1)
	Omdurman	88(88.9)
	Bahri	3(3.0)
Causes of SRA	Diabetic	6%
	Toxoplasmosis	3%
	Anatomical cases	1%
	Thrombophilia	14%

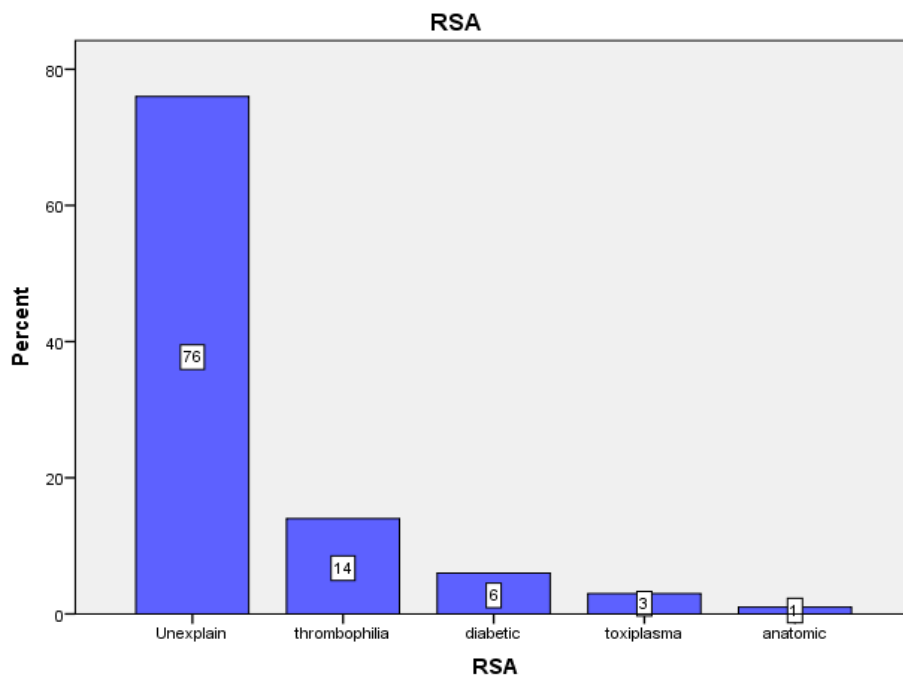


Figure 1: Distribution of recurrent spontaneous abortion according to causes:

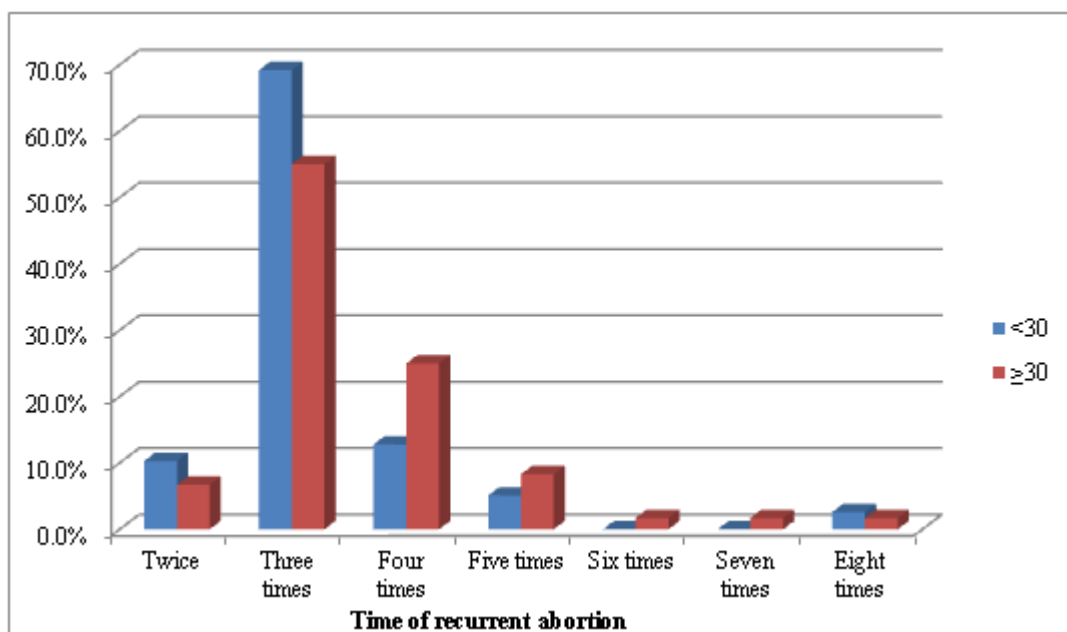


Figure 2: Distribution of time of recurrent pregnancy loss according to age group

4. Discussion

Recurrent spontaneous abortion (RSA) is a worldwide clinical and stressful problem that has been studied tremendously but the causes and treatment have not been fully resolved. And also RSA is the most common complication of pregnancy, is the spontaneous loss of a pregnancy before the fetus has reached viability. Improvement of pregnancy outcome is considered as an important area of action for those concerned with the improvement of women's health and pregnancy outcome. In the present study out of 100 cases 24% were diagnosed, while 76% cases remained unexplained. Inherited thrombophilia were detected in 14%, Anatomical causes was detected in 1% cases, 6% had Endocrine etiology comprising of diabetes mellitus and Infective cause in 3% of women. (Table I & Fig I). Endocrinal etiology was found in 6% patients. This result was compared with Saito, *et al* study who reported the rate of endocrinal causes in 6.9% cases among Japanese women with recurrent abortion women⁽⁸⁾. Also this study was agreed with another study done by Pradhan, *et.al* among recurrent pregnancy loss women in rural population in Maharashtra in Indian population⁽⁹⁾. The 3% of infection by toxoplasmosis was compare by study done by Elsheikha, reported that the seroprevalence of *Toxoplasma gondii* antibodies in pregnant women varies from the 6.1 to 75.2 percent based on the geographical region⁽¹⁰⁾. However, the etiologic mechanisms linking specific organisms to either isolated or recurrent pregnancy loss remain unclear and must certainly differ among infectious organisms.^(11, 12, 13) The result of inherited thrombophilia 14% disagree with study done by Brenner, *et.al.*, identified thrombophilia as a principal cause in more than 40% of women affected by RPL⁽¹⁴⁾. Anatomic abnormalities account about 1% among cases of our study differ from the study done by Jaslow, *et.al.*, about 16 - 18% among women with two versus three or more recurrent pregnancy losses⁽¹⁵⁾. Also compare by another study by Foka, *et al.* Found that 19% of miscarriage patients (15 of 80) carried inherited thrombophilia⁽¹⁶⁾. Other studies done by Asaad and Fathelrahman, among Sudanese women fail to establish the relationship between inherited thrombophilia, Age, BO and ethnic with the spontaneous recurrent abortion^(17, 18). The anatomical etiological factor showed the lowest cause among cases in our study. As findings of the current study seems to indicate limited explain of the most cases a pronounced Special concern should be paid for couples with recurrent spontaneous abortion women should be tested for environmental and other physical abnormalities in women reproductive system to find more risk factor among these women. Also in this study according to age most of the patients (66%) were less than 34 Years of age, while 40% of patients were in the age group of 35-40years, the majority or repeated RSA three time about 67% of cases less than 30 years old and 33% were more than 30 years old (Fig II), this may be assist that the value of preimplantation genetic screening (PGS) on the reduction of pregnancy loss in RM women with advanced age is not yet clear. Some studies have shown that PGS significantly reduces the rate of pregnancy loss following IVF treatment in RM patients older than 35 years⁽¹⁹⁾

5. Conclusion

We conclude that from our study the majority of cases of recurrent spontaneous abortion remain unexplained and inherited thrombophilia causes account for majority causes among those women. As a finding of the current study seems to indicate 76% cases remained unexplained. Special concern should be paid for couples with recurrent spontaneous abortion should be tested for more immunologic, environmental factor, genetics and other physical abnormalities in women reproductive system to find more risk factor among these women.

6. Acknowledgments

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7. Conflict of Interest

I declare that there is no conflict of interest with any others but the authors.

References

- [1] Jaslow CR, Carney JL, Kutteh WH. Diagnostic factors identified in 1020 women with two versus three or more recurrent pregnancy losses. *Fertil Steril* 2010;93(4):1234-1243.
- [2] Stephenson M and Kutteh WH. (2007). Evaluation and management of recurrent pregnancy loss. *Clin Obstet Gynecol* .50:132-45.
- [3] Cramer DW and Wise LA (2000). The epidemiology of recurrent pregnancy loss. *Semin Reprod Med* . 18:331-339.
- [4] Bick, R.L, Madden, J, Heller, K.B. and Toofanian A (1998) . 12. Medscape Women's Health Impact and Implications of Chromosomal Abnormalities. 3:2-4.
- [5] Regan L, Braude PR, Trembath PL. Influence of past reproductive performance on risk of spontaneous abortion. *BMJ*. 1989;299:541-5.
- [6] Evans M. Recurrent pregnancy loss. Available from Huntington reproductive in California: URL:http://www.infertilityspecialist.com/recurrent_pregnancy_loss.htm (Accessed on December, 2011).
- [7] Jeve, Yadava B., and William Davies. "Evidence-based management of recurrent miscarriages." *Journal of human reproductive sciences* 7.3 (2014): 159.
- [8] Saito Shigeru. The causes and treatment of recurrent pregnancy loss . *JMAJ* 2009.52(2): 97-102.
- [9] Pradhan , Tanya, and Dilip P. Bhavthankar. "An observational study of maternal and perinatal outcome in patients of recurrent pregnancy loss in rural population." *International J. of Healthcare and Biomedical Research* 3.02 (2015): 91-101.
- [10] Elsheikha, H.M.. (2008). Congenital toxoplasmosis: priorities for further health promotion action. *Public Health*. 122(4): 335-353.
- [11] Hill, J.A., Sporadic and recurrent spontaneous abortion. *Current Problems in Obstetrics, Gynecology and Fertility*, 1994. 17(4): p. 114-162.

- [12] Summers, P.R., Microbiology relevant to recurrent miscarriage. Clinics in Obstetrics and Gynecology, 1994. 37: p. 722-729.
- [13] Sugiura-Ogasawara, M., et al., Pregnancy outcome in recurrent aborters is not influenced by Chlamydia IgA and/or G. Am J Reprod Immunol, 2005. 53(1): p. 50-3.
- [14] Brenner B, Hoffman R, Blumenfeld Z, Weiner Z, Younis JS (2000). Gestational outcome in thrombophilic women with recurrent pregnancy loss treated by enoxaparin. Thromb Haemost. 83(5): p. 693-7.
- [15] Jaslow C , Carny J L and K utteh W H. (2009). Diagnostic factors identified in 1020 women with two versus three or more recurrent pregnancy losses. Fertil Steril, 1234-43.
- [16] Foka ZJ, et al. Factor V Leiden and prothrombin G20210A mutations, but not methylenetetrahydrofolate reductase C677T, are associated with recurrent miscarriages, Human Reproduction, 15:458-462, 2000.
- [17] Babker, Asaad Mohammed Ahmed Abd Allah, and Fath Elrahman Mahdi Hassan Gameel. "Molecular Characterization of Prothrombin G20210A gene Mutations In pregnant Sudanese women with spontaneous recurrent abortions." *Rawal Medical Journal* 40.2 (2015): 207-209.
- [18] Babker, Asaad Mohammed Ahmed Abd Allah, and Fath Elrahman Mahdi Hassan Gameel. "The Frequency of Factor V Leiden Mutation among Sudanese Pregnant Women with Recurrent Miscarriage." *Journal of American Science* 10.9 (2014).
- [19] Munne S, Chen S, Fischer J, Colls P, Zheng X, Stevens J, et al. (2005). Preimplantation genetic diagnosis reduces pregnancy loss in women aged 35 years and older with a history of recurrent miscarriages. Fertil Steril, 84, 331-5.