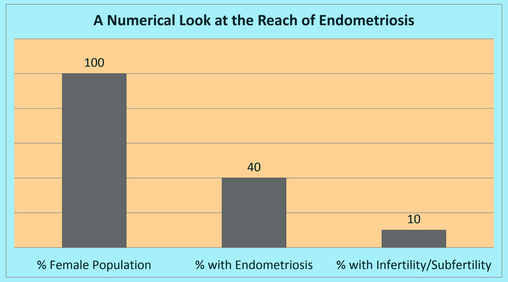
A Comparison of Treatments for Women with Infertility or Subfertility as a Result of Endometriosis

Ferris State University
Allison Schiefer

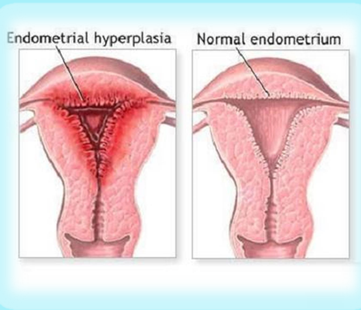
Abstract

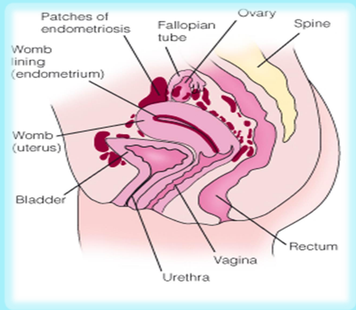
There are different treatment options available for women with endometriosis including surgery, hormonal therapy, and pharmacological therapy. Unfortunately, these therapy options have not been compared to one another. The goal of this review is to determine which treatments work best to reduce infertility or subfertility that was mediated by endometriosis.
Studies were eligible for inclusion only if they were comparing between women with endometriosis and women without endometriosis. Information collected from each study consisted of which therapy was used to treat infertility/subfertility, the number of participants with endometriosis, the number of participants without endometriosis, and the number of pregnancies for participants with endometriosis vs without endometriosis. The number of pregnancies was converted into a ratio comparing pregnancies of those with endometriosis to those without.
This looked at five studies that looked at artificial insemination, sclerotherapy followed by in vitro fertilization (IVF), gonadotropin releasing hormone (GnRH) with IVF, and GnRH with laparoscopic surgery as therapy options. GnRH followed by IVF yielded the best ratio of 4:1. Based on this study, GnRH followed by IVF should be the treatment used as a therapy against endometriosis-mediated infertility/subfertility.



Introduction

Endometriosis is the number one cause of infertility in women
Commonly causes pain
For pain, surgery has been chosen as the main form of treatment once pharmacological therapy stops working
There is no definitive preferred treatment option to reduce infertility and subfertility in women with endometriosis
The goal of this review is to determine which treatments work best to reduce infertility or subfertility that was mediated by endometriosis





Methods

Study Selection

Searched the databases for clinical trials, reviews, comparative studies, and controlled studies
Studies were eligible for inclusion only if they were comparing between women with endometriosis and women without endometriosis
Women in each group had to be treated with the same therapy
Studies had to report data on on-going pregnancies
Studies were excluded if they did not compare treatment of women with endometriosis to women without endometriosis, if they used live birth or implantation as their measure for success of the treatment, or if they used animals as their study subject

TABLE 1

Studied Therapy	Total Participants	Participants with Endometriosis	Participants w/o Endometriosis	Ratio of Pregnancies	Adverse Reactions	Safety
Artificial Insemination Donor	75	24	51	8.6 to 13.3	None Found	Of No Concern
Sclerotherapy then IVF (Alflatoonian)	40	20	20	3 to 2	N/A	N/A
Sclerotherapy then IVF (Koike)	110	45	65	1 to 1	None Found	Suggested Safe
Laparoscopic plus GnRH	477	233	244	1 to 1	None Found	Of No Concern
GnRH then IVF	165	88	77	4 to 1	N/A	N/A

Data Analysis

Data for the number of pregnancies to be converted into a ratio
Safety data was not analyzed in a statistical manner, nor were the adverse events
Studies neither quantified the number of adverse reactions and the severity of them nor provided the safety of each therapy in a mathematical way
Safety and adverse events data were analyzed in regards of answering the questions ‘Is this therapy safe?’ And ‘What adverse events occurred as a result of this therapy?’

Results

Five studies met the inclusion criteria for this study
Table 1 summarizes data pulled along with data analysis

Artificial Insemination Donor

A pregnancy ratio of 8.6 to 13.3 was found
Suggests that artificial insemination from a donor does not improve the likelihood of a pregnancy in a woman with endometriosis related infertility

Sclerotherapy then IVF

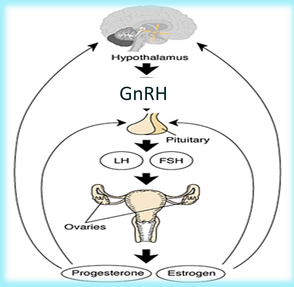
Two studies looked at sclerotherapy followed by IVF as a therapy option
Aflatoonian study yielded a ratio of 3 to 2
Suggests this therapy not only helps women with endometriosis achieve pregnancy, but gives them better pregnancy rates than woman without endometriosis
Koike study yielded a ratio of 1 to 1
Suggests that while the therapy helps women with endometriosis achieve pregnancy, it does not allow them to have higher pregnancy rates than those without endometriosis

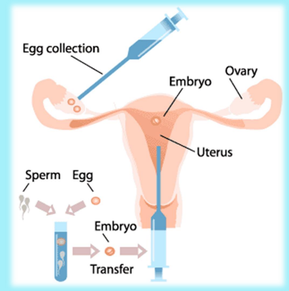
Laparoscopic plus GnRH

A pregnancy ratio of 1 to 1 was found
Suggests that administering GnRH before laparoscopic surgery could increase the likelihood of a woman with endometriosis to become pregnant

GnRH then IVF

A pregnancy ratio of 4 to 1 was found.
Suggests that administering GnRH before undergoing IVF increases the chances pregnancy in a woman with endometriosis
Suggests an increase in the chances of pregnancy in a woman with endometriosis above those of a woman without endometriosis
This study yielded the best results in terms of pregnancies in women with endometriosis by far
Based on this study, GnRH followed by IVF should be the treatment used as a therapy against endometriosis-mediated infertility/subfertility





References

1. Endometriosis fact sheet | womenshealth.gov [Internet]. [cited 2014 Apr 30]. Available from: http://www.womenshealth.gov/publications/our-publications/fact-sheet/endometriosis.html
2. Endometriosis Prevalence End to Endometriosis [Internet]. [cited 2014 Apr 30]. Available from: http://www.endtoendo.com/Endometriosis_Prevalence_End_to_Endometriosis.html
3. Matorras R, Corcóstegui B, Esteban J, Ramón O, Prieto B, Expósito A, Pijoan JI. Fertility in women with minimal endometriosis compared with normal women was assessed by means of a donor insemination program in unstimulated cycles. American Journal of Obstetrics and Gynecology. 2010 Oct;203(4):345.e1–345.e6.
4.Aflatoonian A, Rahmani E, Rahsepar M. Assessing the efficacy of aspiration and ethanol injection in recurrent endometrioma before IVF cycle: A randomized clinical trial. Iran J Reprod Med. 2013 Mar;11(3):179–84.
5. Koike T, Minakami H, Motoyama M, Ogawa S, Fujiwara H, Sato I. Reproductive performance after ultrasound-guided transvaginal ethanol sclerotherapy for ovarian endometriotic cysts. Eur J Obstet Gynecol Reprod Biol. 2002 Oct 10;105(1):39.
6.Wang M, Yu L, Zhou L, Zhang W. [Laparoscopic conservative surgery plus gonadotropin-releasing hormone agonist in the treatment of endometriosis: a meta-analysis]. Zhonghua Yi Xue Za Zhi. 2013 Oct 22;93(39):3128–30.
7. Sallam HN, Garcia-Velasco JA, Dias S, Arici A, Abou-Setta AM. Long-term pituitary down-regulation before in vitro fertilization (IVF) for women with endometriosis. Cochrane Database of Systematic Reviews [Internet]. John Wiley & Sons, Ltd; 1996 [cited 2014 Apr 4]. Available from: http://0-onlinelibrary.wiley.com.libcat.ferris.edu/doi/10.1002/14651858.CD004635.pub2/abstract