

*Republic Of Iraq*  
*Ministry Of Higher Education And Scientific Research*  
*University Of Diyala*  
*College Of Medicine*



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ  
{يَرْفَعِ اللَّهُ الَّذِينَ آمَنُوا مِنْكُمْ وَالَّذِينَ أُوتُوا الْعِلْمَ دَرَجَاتٍ}

## **Can multidisciplinary team improve fertility management?**

A scientific dissertation Submitted to the Council of the College of Medicine, Diyala University, In Partial Fulfillment of Requirements for the Bachelor Degree in medicine and general surgery

M.B.Ch.B

**WRITTEN BY : NOOR HAITHAM SHIHAB**

**SUPPERVISED BY: PROF. DR.ALI HASSAN  
AL\_HUSSAIN**

**2022\_2023**

## **Dedication**

**I Thank God almighty for his bounty as he allowed me to accomplish this work by his grace, to him be raise first and foremost**

**it is a great pleasure to dedication this work with my thanks and respect to my supervisor prof.DR.ALI ALHUSSAINI for his valuable instruction.**

**I cannot express enough thanks to my family, especially my parents who gave me the encouragement that I needed throughout this process and all my life . I thank them for their endless love and support and dedicate this work for them.**

**Then I dedicate this work for my sisters who are always beside me and support me , Iam so lucky to have them in my life .**

**I dedicate it for my grandmother who was supporting and encouraging me before his death I miss you during this period**

**Thanks to my friends and colleagues and thank God for them .**

## Acknowledgments

**I thank those good people who helped me during this period, foremost among them is my professor supervising the project , His Eminence: Prof. Dr. Ali Alhussaini for suggesting this project review. It was the greatest thing to me to work under his supervision. Deep gratitude and special thanks to all the teaching staff of Diyala College of Medicine for their scientific lectures and practical assistance**

# **CONTENTS**

<b>Abstract.....</b>	<b>5</b>
<b>Introduction.....</b>	<b>6</b>
<b>Types.....</b>	<b>7</b>
<b>Important of duration on infertility.....</b>	<b>8</b>
<b>Treatments and drugs.....</b>	<b>8</b>
<b>Risk of fertility drugs.....</b>	<b>10</b>
<b>Fertility restoration.....</b>	<b>11</b>
<b>Paitients and methods.....</b>	<b>12</b>
<b>Results.....</b>	<b>13</b>
<b>Discussion.....</b>	<b>17</b>
<b>References.....</b>	<b>18</b>

## Abstract

### Background

Infertility in women defined as A woman of reproductive age who has not conceived after 1 year of unprotected vaginal sexual intercourse, in the absence of any known cause of infertility, which effects 15%–17% of couples in the world and about 50% of them are related to female infertility factors

Infertility results from female or male factors , The cause is either unknown or a combination of male and female factors in the remaining cases.subtypes into primary and secondary infertility

This review summarized the current evaluation and management of infertility in women which depends on the cause, age, how long they've .been infertile and personal preferences

Treatments can either attempt to restore fertility by means of medication Fertility drugs, or surgery or assist in reproductive

### Results

The data collected from our study showed that

The peak age of infertility was between 20-30 yearS old .1  
majority of our patients included in this study were .2  
housewives

Blood groups and RH study were done for all patients .3  
included in this  
study showed that 55 (%55) They are carrying blood group .4  
O+

### Conclusion

The rate infertility was more with blood group O ,which is concomitant with another study done on those with blood type O and Regarding comparison between infertility in rural area versus urban areas ,our study Of these, 65.6% were classified as urban and 34.4% were classified as rural based on the definitions used for this study and a great majority of infertile ladies enrolled were housewives (78%) This might explained by the fact that most of Iraqi females are housewives ,with a very low percentage of working femaleS

## **Introduction:-**

### **Definition:**

There is no unanimous definition of female infertility, because the definition depends on social and physical characteristics which may vary by culture and situation<sup>(1)</sup>. NICE guidelines state that: "A woman of reproductive age who has not conceived after 1 year of unprotected vaginal sexual intercourse, in the absence of any known cause of infertility, should be offered further clinical assessment and investigation along with her partner."<sup>[2]</sup> It is recommended that a consultation with a fertility specialist should be made earlier if the woman is aged 36 years or over, or there is a known clinical cause of infertility or a history of predisposing factors for infertility.<sup>[2]</sup> According to the World Health Organization (WHO), infertility can be described as the inability to become pregnant, maintain a pregnancy, or carry a pregnancy to live birth.<sup>[3]</sup> A clinical definition of infertility by the WHO and ICMART is "a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse."<sup>[4]</sup> Infertility can further be broken down into primary and secondary infertility. Primary infertility refers to the inability to give birth either because of not being able to become pregnant, or carry a child to live birth, which may include miscarriage or a stillborn child.<sup>[5][6]</sup> Secondary infertility refers to the inability to conceive or give birth when there was a previous pregnancy or live birth.<sup>[6][5]</sup>

## **Types:**

### **Primary infertility**

**When a woman is unable to ever bear a child, either due to the inability to become pregnant or the inability to carry a pregnancy to a live birth she would be classified as having primary infertility. Thus women whose pregnancy spontaneously miscarries, or whose pregnancy results in a still born child, without ever having had a live birth would present with primarily infertility. (Trends in prevalence<sup>7</sup>).**

### **Secondary infertility**

**When a woman is unable to bear a child, either due to the inability to become pregnant or the inability to carry a pregnancy to a live birth following either a previous pregnancy or a previous ability to carry a pregnancy to a live birth, she would be classified as having secondary infertility. Thus those who repeatedly spontaneously miscarry or whose pregnancy results in a stillbirth, or following a previous pregnancy or a previous ability to do so, are then not unable to carry a pregnancy to a live birth would present with secondarily infertile. (Trends in prevalence<sup>7</sup>).**

## **Importance of duration on infertility:-**

The length of time a couple is infertile is important to consider when evaluating its capacity for procreation. In an attempt to measure this relationship, a model population in which the proportion of sterile couples is small and the fecundability of fertile couples follows a beta distribution was used. The fecundity of the population is first described at time zero, the moment of initial exposure to a conception risk, and then for each succeeding month for those yet to conceive. This method yields a couple's probability of being sterile, or if fertile, their estimated fecundability and conception delay as well as the probability of their not conceiving in the year to follow. The results give the order of magnitude of certain characteristics of couples consulting for infertility as a function of the duration of this status: the proportion of sterile couples, of couples with such a fecundity that chances of conception are very low, and of couples with nearly normal fecundity. These characteristics have important implications in the rational approach to the management of the infertile couple. (author's) (summaries in ENG, SPA) .[8]

## **Treatments and drugs:-**

How your infertility is treated depends on the cause, your age, how long you've been infertile and personal preferences. Because infertility is a complex disorder, treatment involves significant financial, physical, psychological and time commitments. Although some women need just one or two therapies to restore fertility, it's possible that several different types of treatment may be needed before you're able to conceive. [9]

Treatments can either attempt to **restore fertility** by means of medication or surgery or **assist in reproduction** with sophisticated techniques.

**Fertility restoration: Stimulating ovulation with fertility drugs**

Fertility drugs, which regulate or induce ovulation, are the main treatment for women who are infertile due to ovulation disorders. In general, they work like the natural hormones follicle stimulating hormone (FSH) and luteinizing hormone (LH) to trigger ovulation. They are also used in women who ovulate to try to stimulate a better egg or an extra egg or eggs. Fertility drugs may include:



- **Clomiphene citrate.** Clomiphene citrate (Clomid, Serophene) is taken by mouth and stimulates ovulation by causing the pituitary gland to release more FSH and LH, which stimulate the growth of an ovarian follicle containing an egg.
- **Gonadotropins.** Instead of stimulating the pituitary gland to release more hormones, these injected treatments stimulate the ovary directly. Gonadotropin medications include human menopausal gonadotropin or hMG (Repronex, Menopur) and FSH (Gonal-F, Follistim AQ, Bravelle). All act to stimulate production of multiple eggs. Another gonadotropin, human chorionic gonadotropin (Ovidrel, Pregnyl), is used to mature the eggs and trigger their release at the time of ovulation.
- **Metformin.** Metformin (Glucophage, others) is used when insulin resistance is a known or suspected cause of infertility, usually in women with a diagnosis of PCOS. Metformin helps improve insulin resistance, which can make ovulation more likely to occur.
- **Letrozole.** Letrozole (Femara) belongs to a class of drugs known as aromatase inhibitors and works in a similar fashion to clomiphene. Letrozole may induce ovulation. However, the effect this medication has on early pregnancy isn't yet known, so it isn't used for ovulation induction as frequently as others.
- **Bromocriptine.** Bromocriptine (Parlodel)<sup>®</sup> may be used when ovulation problems are caused by excess production of prolactin (hyperprolactinemia) by the pituitary gland.[9]

## **Risks of fertility drugs:**

Using fertility drugs carries some risks, such as:

- **Pregnancy with multiples.** Oral medications carry a fairly low risk of multiples (less than 10 percent) and mostly a risk of twins, but your chances increase to about 15 to 20 percent with injectable medications. Injectable fertility medications also carry the major risk of triplets or more (higher order multiple pregnancy). Generally, the more fetuses you're carrying, the greater the risk of premature labor, low birth weight and later developmental problems. Sometimes adjusting medications can lower the risk of multiples, if too many follicles develop.
- **Ovarian hyperstimulation syndrome (OHSS).** Use of injectable fertility drugs to induce ovulation can cause OHSS, in which your ovaries become swollen and painful. Signs and symptoms typically last a week and include mild abdominal pain, bloating, nausea, vomiting and diarrhea. If you become pregnant, however, your symptoms might last several weeks. Rarely, it's possible to develop a more severe form of OHSS that can also cause rapid weight gain, enlarged painful ovaries, fluid in the abdomen and shortness of breath.
- **Long-term risks of ovarian tumors.** Most studies of women using fertility drugs suggest that there are few if any long-term risks. However, some studies suggest that women taking fertility drugs for 12 or more months without a successful pregnancy may have an associated increased risk of borderline ovarian tumors later in life. Women who never have pregnancies have an increased risk of ovarian tumors, so it may be related to the underlying problem rather than the treatment. However, since success rates are typically higher in the first few cycles, re-evaluating medication use every few months and concentrating on the treatments that have the most success appear to be appropriate.[9]

## **Fertility restoration:**

### **Surgery**

Several surgical procedures can correct problems or otherwise improve female fertility. However, surgical treatments for fertility are rare these days now that other fertility treatments have high success. They include:

- **Laparoscopic or hysteroscopic surgery.** These surgeries can remove or correct abnormalities that decrease pregnancy rates. This can include correcting an abnormal uterine shape, removing endometrial polyps and some types of fibroids that misshape the uterine cavity or pelvic or uterine adhesions. This can improve your chances of achieving pregnancy.
- **Tubal ligation reversal surgery (microscopic).** After a woman has had her tubes tied for permanent contraception (tubal ligation), surgery may be done to reconnect them and restore fertility. Your doctor can determine whether you're a good candidate for this or whether in vitro fertilization (IVF) might be a better choice for you.
- **Tubal surgeries.** If your fallopian tubes are blocked or filled with fluid (hydrosalpinx), laparoscopic surgery may be performed to remove adhesions, dilate a tube or create a new tubal opening. However, this is rarely done, as pregnancy rates are usually better with IVF. For hydrosalpinx, removal of your tubes (salpingectomy) or blocking the tubes close to the uterus can improve your chances of pregnancy with IVF.[9]

### **Reproductive assistance**

The most commonly used methods of reproductive assistance include:

- **Intrauterine insemination (IUI).** During IUI, millions of healthy sperm are placed inside the uterus close to the time of ovulation.
- **Assisted reproductive technology.** These methods involve retrieving mature eggs from a woman, fertilizing them with a man's sperm in a dish in a lab, then transferring the embryos into the uterus after fertilization. IVF is the most effective assisted reproductive technology. An IVF cycle takes several weeks and requires frequent blood tests and daily hormone injections.[9]

## **Patients and Methods:**

**During a period between December 2022 TO February 2023 , 100 cases of females infertility fulfilled the definition of (A woman of reproductive age who has not conceived after 1 year of unprotected vaginal sexual intercourse, in the absence of any known cause of infertility) , were randomly collected in Albatool teaching hospital recorded , analyzed , and categorized into groups according to their ages , residency, blood groups and job.**

**The information should be taken from the patients themselves by interviewing them in outpatients unit , department of gynecology and obstetrics , while blood group confirmed by doing a slide tested in hospital laboratory .**

## **Results:**

**The data collected from our study showed that the peak age of infertility was between 20-30 years old 51 , cases from the total 100 were in this age group which constituted (51%) then 28 ladies (28%) located between 30-40 years old group, and (15%) 15 were above 40 years , while only 6 patients (6%) were 20 years old or less. fig (1)**

**Regarding occupations , majority of our patients included in this study were housewives (78%) 78 the remaining distributed between workers (18%) 18 and only (4%) 4 were students in different level of schools fig(2).**

**Our patients lived in different geographical areas within DIYALA governorate, the peak number were from Baquba forming 51 ladies (51%) next to it was Alkalis 18 ladies (18%) then Almuqddia**

and Baladrooz both formed (11%) 11 while only (6%) 6 were from Khan bany saad ,and the least percentage were from Mandili constituting only

(3%) 3 ,fig(3)

Blood groups and RH study were done for all patients included in this study showed that (55%) 55 we are carrying blood group O+ ,next to it was blood group B+ present in (18%) 18 then A+ was the blood group in

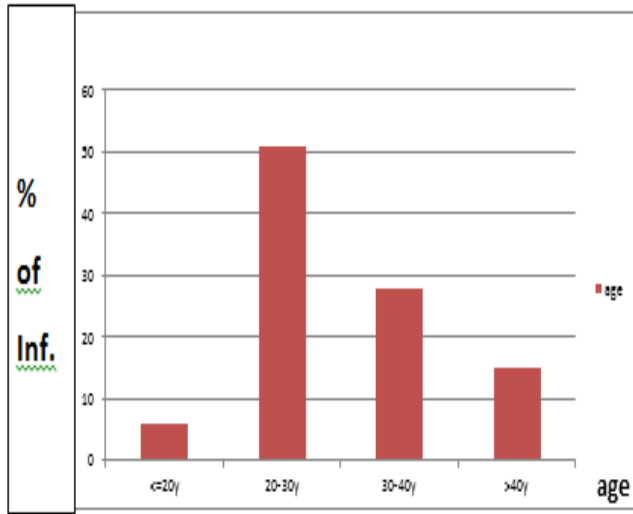
(14%) 14 AB+ presented in (5%) 5

O- and A- were blood groups in (4%) 4 and (3%) 3 infertile females respectively ,while only 1 lady, fig(4)

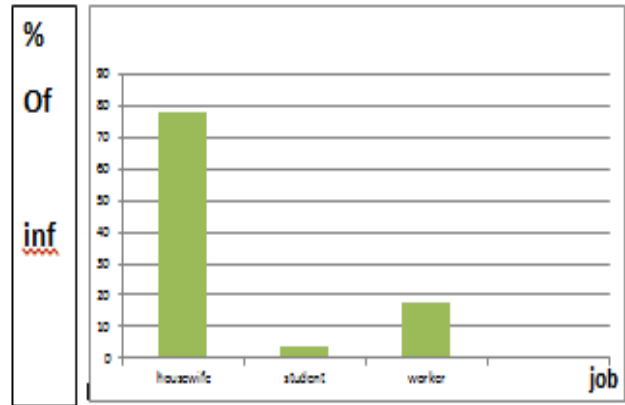
(62 %) 62 were from urban areas, while only (38%) 38 drained from rural

areas fig (5)

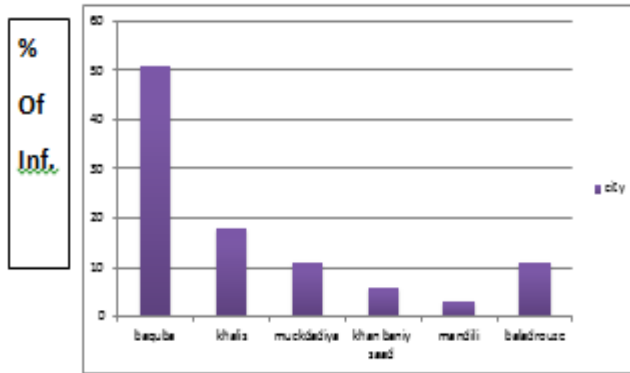
**Fig (1)fig(2)**



age	%of infertility
<=20y	6
20-30y	51
30-40y	28
>40y	15



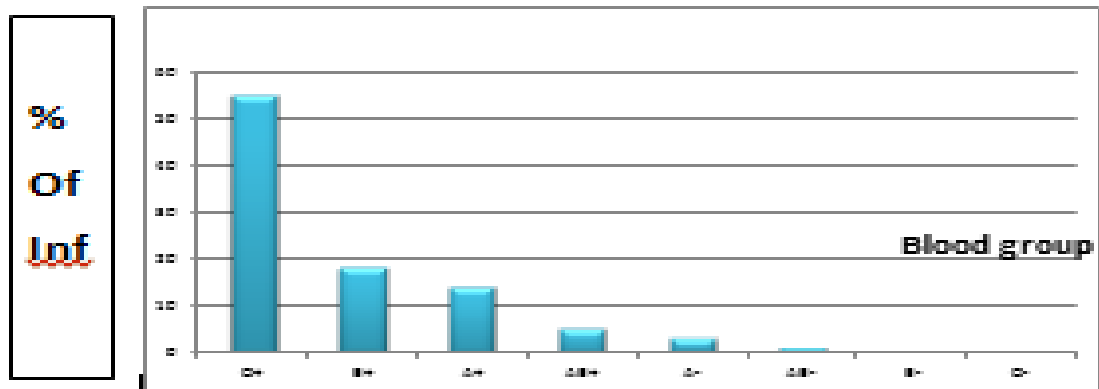
Job	%of infertility
housewife	78
student	4
worker	18



city	%of infertility
<u>baquba</u>	51
<u>khalis</u>	18
<u>mukdadiya</u>	11
<u>khan baniy saad</u>	6
<u>mandili</u>	3
<u>baladrooz</u>	11

**Note: inf. = infertility**

Fig (3)

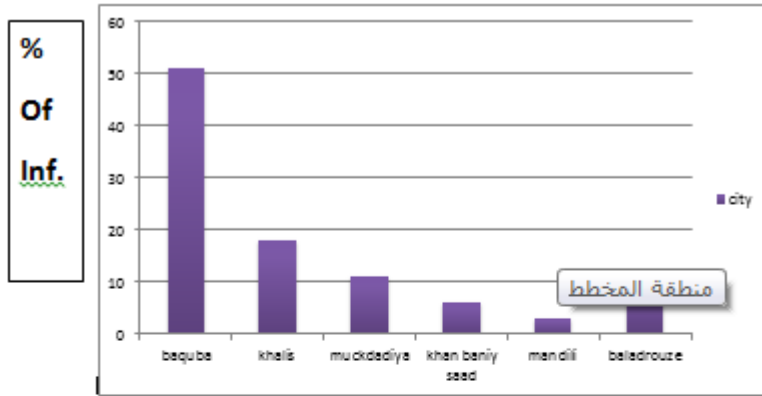


Blood group	% of infertility
O+	55
B+	18
A+	14
AB+	5
A-	3
AB-	1
B-	0

Note: inf. = infertility

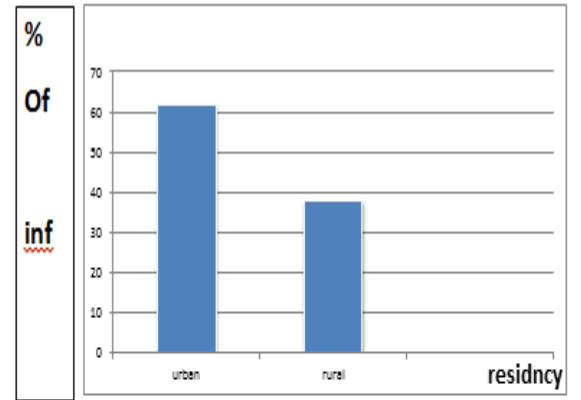


**Fig (4)**



city	%of infertility
<u>baquba</u>	<b>51</b>
<u>khalis</u>	<b>18</b>
<u>mukdadiya</u>	<b>11</b>
<u>khan baniy saad</u>	<b>6</b>
<u>mandili</u>	<b>3</b>
<u>baladrooz</u>	<b>11</b>

**Fig (5)**



<u>%of inf</u>	<u>residncy</u>
urban	62
rural	38

**Note: inf. = infertility**

## **Discussion:**

**Regarding relation of infertility and age ,our study differ from another research in Hungary, a study by the Központi Statisztikai Hivatal (Central Statistics Office) estimated that 7%–12% of Hungarian women younger than 30 were infertile; 13%–22% of women age 35 were infertile; and 24%–46% of women age 40 were infertile.[10]**

**Nearly this study is near to other European study According to a study done on a sample of 782 healthy European couples ages 19–39, fertility starts declining after age 27 and drops at a somewhat greater rate after age 35. The women were divided into four age groups: 19–26, 27–29, 30–34 and 35–39. Statistical analysis showed that the women in the 27–29 age group had significantly less chance on average of becoming pregnant than did the 19- to 26-year-olds. Pregnancy rates did not change notably between the 27–29 age group and the 30–34 age group, but dropped significantly for the 35-39 age group.[11]**

**Regarding comparison between infertility in rural area versus urban areas ,our study go with another study done on a total of 450 subjects comprised the sample. Of these, 65.6% were classified as urban and 34.4% were classified as rural based on the definitions used for this study. This composition is somewhat comparable to the approximate 75% urban and 25% rural distribution of the general population of the United States as noted by Bushy (2000).[12]**

**Results of this study concluded that infertility was more with blood group O ,which is concomitant with another study done on those with blood type O may struggle to conceive due to a lower egg count and poorer egg quality, while those with blood group A seem to be more fertile.**

**According to our study a great majority of infertile ladies enrolled were housewives (78%) ,this is not concomitant with A study done by Shieder et al on a patients admitted due to female infertility tended to have lower listlessness scores as compared with patients admitted due to their partner's infertility problem. No significant association was found between other burnout, job strain and job satisfaction scores and women's fertility status. This might explained by the fact that most of Iraqi females are housewives ,with a very low percentage of working females;(18%) & student females;(4%).[13]**

## References:

1. Mascarenhas, M.N., Flaxman, S.R., Boerma, T., Vanderpoel, S., Stevens, G.A. (2012). "National, Regional, and Global Trends in Infertility Prevalence Since 1990: A Systematic Analysis of 277 Health Surveys" *PLOS Med* (9;12) e1001356. doi:10.1371/journal.pmed.1001356
2. Fertility: assessment and treatment for people with fertility problems. NICE clinical guideline CG156 - Issued: February 2013
3. World Health Organization 2013. "Health Topics: Infertility". Available <http://www.who.int/topics/infertility/en/>. Retrieved November 5, 2013.
4. *Zegers-Hochschild F., Adamson G.D., de Mouzon J., Ishihara O., Mansour R., Nygren K., Sullivan E., van der Poel S. (2009). "The International Committee for Monitoring Assisted Reproductive Technology (ICMART) and the World Health Organization (WHO) Revised Glossary on ART Terminology, 2009". *Human Reproduction* 24 (11): 2683–2687. doi:10.1093/humrep/dep343.*
5. World Health Organization 2013. "Sexual and reproductive health: Infertility definitions and terminology". Available <http://www.who.int/reproductivehealth/topics/infertility/definitions/en/>. Retrieved November 5, 2013.
6. Rutstein, Shea O., and Iqbal H. Shah. "Infecundity, Infertility, and Childlessness in Developing Countries." *DHS Comparative Reports* No. 9 (2004): 1-57.
7. National, regional, and global trends in infertility: a systematic analysis of 277 health surveys
8. Schwartz D *Population*. 1981; 36(2):237-250.
9. <http://www.mayoclinic.org/diseases-conditions/female-infertility/basics/treatment/con-20033618>
10. Balázs, Kapitány (February 2010). "A kései gyermekvállalás kockázatai" (PDF). *KorFa on-line*. Archived from the original (PDF) on 2012-03-13. Retrieved 2012-08-26.
11. Hall, Carl T. (2002-04-30). "Study speeds up biological clocks / Fertility rates dip after women hit 27". *The San Francisco Chronicle*. Retrieved 2007-11-21.

12. National Rural Health Association. (1999, May). Access to health care for the uninsured in rural and frontier America. Retrieved May 17, 2002, from <http://www.nrharural.org/dc/issue.papers/ipaper15>

13. [http://www.ncbi.nlm.nih.gov/pubmed/?term=Sheiner%20E%5BAuthor%5D&cauthor=true&cauthor\\_uid=12815124](http://www.ncbi.nlm.nih.gov/pubmed/?term=Sheiner%20E%5BAuthor%5D&cauthor=true&cauthor_uid=12815124)